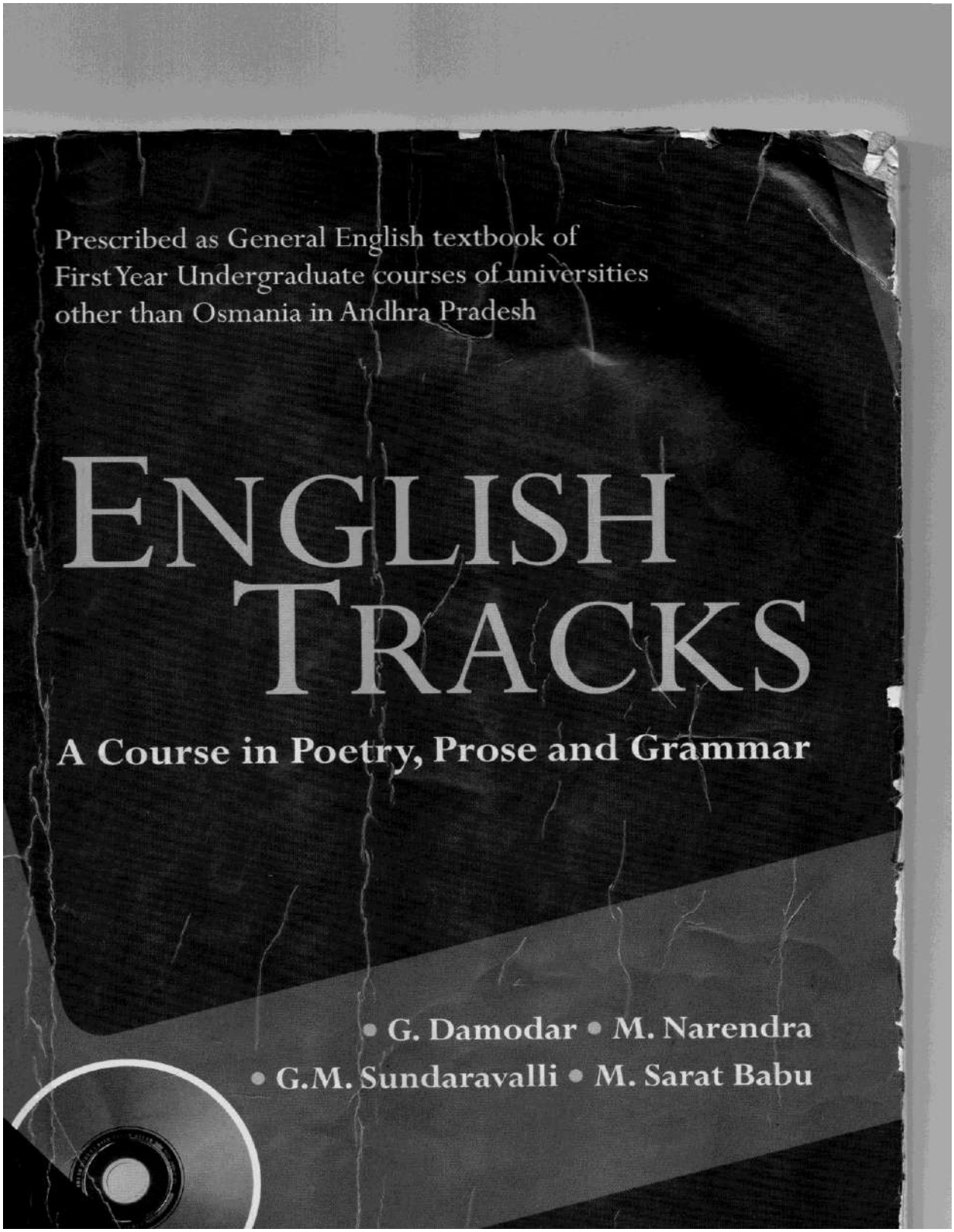
English


Prescribed as General English textbook of
First Year Undergraduate courses of universities
other than Osmania in Andhra Pradesh
ENGLISH TRACKS
A Course in Poetry, Prose and Grammar
• G. Damodar • M. Narendra
• G.M. Sundaravalli • M. Sarat Babu

CONTENTS

1) Tenses
2) Correction of Sentences (Common Errors)
3) Articles
4) Prepositions.
5) Homophones & Homonyms
6) One-word substitutions
7) Matching - (Antonyms).

Non-Detailed Texts

How far is Envelope - Ruskin Bond

1. ~~Two~~ Little girls are wiser than Men - Leo Tolstoy
2. The Merchant of Venice - Shakespeare
3. Saerifice - Rabindranath Tagore
4. ~~Julius Caesar~~ ~~(The Merchant of Venice)~~

20 Marks - Record.

A Course in Listening and Speaking I

A Textbook for I Year Undergraduate (Non-professional)
General English Course

V.SASIKUMAR
P. KIRANMAI DUTT
GEETHA RAJEEVAN

• Approved by the A.P. State Council of Higher Education •
vide Letter No.
APSCHE/Secy.UG
Eng.Curri. Yr 1,Yr 2.
print order 2006-01.

Published in Collaboration with
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Part II Communication Skills

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ENGLISH FOR EMPOWERMENT

Prescribed as General English textbook in the Common Core syllabus of second year undergraduate courses of all universities in Andhra Pradesh

Orient BlackSwan

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N.D1. Gajar Halwa.1
2. My Brother, My Brother
3. Never-Never Nest-
4. Julius Caesar Murdered

A Course in Listening and Speaking II

A Textbook for II Year Undergraduate (Non-professional) General English Course

General Editor: G. RAJAGOPAL

G. DAMODAR
D. PREMA KUMARI
K. RATNA SHIELA MANI
B. SAI LAKSHMI

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Part IV Telephone Skills

Telugu

RAYALASEEMA UNIVERSITY KURNOOL
Syllabus for [B.A /B.COM/B.SC] U.G.2013-2014
Second Language-telugu
Under common core scheme in telugu
First year degree course second language

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1. గంగా శంతనుకథ–నన్నయభట్టు
2. మూషికమార్జాల వృత్తాంతం –తిక్కన
3. హంసీచక్రవాక సంవాదం–అల్లసాని పెద్దన
4. ఎరుకత -తరిగొండ వెంగమాంబ

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2. మహాప్రస్థానం –శ్రీ శ్రీ
3. ముసాఫరులముష్టిం జాషువా
4. మే ఘదూతముపుట్టపర్తి నారాయణాచార్యులు

కథానికలు

1.గాలివాన –పాలగుమ్మి పద్మరాజు

2. ఆకలి– కొలకలూరి ఇనాక్

3.నమ్ముకున్న నేల –కేతు విశ్వనాథ రెడ్డి

4. జైలు –పొట్లపల్లి రామారావు

నవలప్రజల మనిషి– వట్టికోట ఆళ్వారు స్వామి

వ్యాకరణం

1.సంధులు

సవర్ణ , గుణ యణాదేశ , వృద్ధి , గసడదవదేశఅత్వ ,రుగాగమ, టుగాగమ, ఆమ్‌రేడిత ,త్రిక

2.సమాసములు

తత్పురుష, కర్మధారయ , ద్వంద్వ , ద్విగు , బహువ్రీహి

3. దోషసవరణ

రాయలసీమ సీమ విశ్వవిద్యాలయం ,కర్నూలు

సిలబస్ బిఎ ,బి.కాం ,బియస్సి డిగ్రీ రెండవ సంవత్సరం -2013-14

ద్వితీయ భాష - జనరల్ తెలుగు పేపర్ 2

ప్రాచీన కవిత్వం

1.పోతన –వామనావతారం- ఆంధ్ర మహాభాగవతం – ఎనిమిదవ స్కంధం

[కులమును రాజ్యము నుండి రవి బింబంబపమింప వరకు]

2.కొరవి గోపరాజు – శాలివాహన విజయం

సింహాసన ద్వాత్రింశిక- ఒకటవ ఆశ్వాసం

[సజ్జన దానధర్మ నుండి ఇట్లు విక్రమార్కు డిల్లిన వరకు]

3. రఘు నాథ నాయకుడు – గ్రీస్మ ఋతువు- బోయపల్లి

వాల్మీకి చరిత్రము – రెండవ ఆశ్వాసము

[కాకోల కంట నుండి అనిన నమోను వరకు]

ఆధునిక కవిత్వం

4. కుసుమ ధర్మన్న – హరిజన శతకం-

[శ్రీ హరినుత నీదు నుండి నీ కులంబు చారు వరకు]

5. పింగళి,కాటూరి – సవిందరనందము నుండి ధర్మ సంవాదం

[అల్లన నిల్చి నుండి అసదృశమ్ముగు వరకు]

6. కాళోజీ నారాయణరావు – బతుకమ్మా :బ్రతుకు [నా గొడవలోంచి]

[గుమ్మడి పూలు నుండి అమ్మను మరువని వరకు]

7. డా,అంది శ్రీ – మనిషి

8.చిత్తూరి శ్రీనివాసమూర్తి – రాయలసీమ – గంజికేంద్రము

[తపోవనము లోంచి ఏ తపస్వి నుంచి కనులే కానగ రాని వరకు]

9. విమల- వంటిల్లు

[ఎంత అద్భుతమైంది నుండి ఒంటరి వంట గదులు వరకు]

వ్యాకరణం

1 . చంధస్సు ఉత్పలమాల , చంపకమాల , శార్దూలం , మత్తేభము, కందము, తేటగీతి, ఆటవెలది, సీసము

2 . అలంకారాలు

శబ్దాలంకారాలు మొత్తం

అర్థాలంకారాలు ; ఉపమ , రూపక , ఉత్ప్రేక్ష , స్వభావోక్తి, అతిశయోక్తి .

అర్థాంతరన్యాసము, దృష్టాంతము .

3 . సామాన్య వ్యాసాలు ; సమకాలీన, సాంస్కృతిక, వైజ్ఞానిక , సామాజికాంశాల-గురించి.

సాలోచన వ్యాస సంపుటి

1 .తెలుగు భాష – ఆచార్య గుజ్జర్లమూడి కృపాచారి

2.వ్యక్తిత్వ వికాసం- ఆచార్య రాచపాలెం చంద్రశేఖర్ రెడ్డి

3.మాధ్యమాలకు రాయడం – ఆచార్య ఎస్.జి.డి.చంద్రశేఖర్

4.అభివ్యక్తి నైపుణ్యాలు – పి.వి .సుబ్బారావు

నాటకం

పాలేరు – డా.బోయి భీమన్న [నాటకం పూర్తిగా]

Hindi

RAYALASEEMA UNIVERSITY

Hindi Syllabus [CBCS] w.e.f 2012-13

Common Core Syllabus

Second Language Hindi

B.A.,B.Sc.,B.Com – First Year (Second Language Hindi)

A. Gadya
B. Short Stories
C. Grammar
D. Letter Writing

B.A.,B.Sc.,B.Com – Second Year (Second Language Hindi)

A. Poetry
B. History of Hindi Literature
C. General Essay
D. Letter Writing
E. Functional Hindi

B.A.,B.Sc.,B.Com – First Year (Second Language Hindi)

1. Prose – Gadya Sandesh, 1 to 6 lessons
Editor: Dr.V.L.Narsimham Shiva Koti
Lorven Publications, Hyderabad.

2. Non-Detailed – Katha Lok 1-6 lessons
Editor : Dr.Ghanshyam
Sudha Publications, Hyderabad.

B.A.,B.Sc.,B.Com – Second Year (Second Language Hindi)

3. Prose – Kavya Deep,
Editor:Sri.B.Radha Krishna Murthy
Maruthi Publications, Guntur.

4.History of Hindi Literature
Editor : Dr. Rama Chandra Sukla,
Nagarni Publications, New Delhi.

Urdu

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for (B.A / B.Com / B.Sc.,) U.G. 2012 – 2013

Second Language – Urdu

Under common core Scheme in Urdu

First Year degree course Second Language

No change in the Syllabus and the Model Question Paper the Syllabus is as follows:

TEXT PRESCRIBED :

INTEQAB – E – ADAB : PART – I

POETRY :

1. Ghazals of the following poets:
   Wali, Meer, Ghalib, Jigar, Faiz.

2. Nazms of the following poets :
   Nazeer, Akbar Elahabadi, Hali, Iqbal, Josh.

3. **Prose** :
   a) One short story by Premchand :
   b) *Essays of the following writers*
   c) Sir Syed Ahmed Khan
   d) Khaja Hassan Nizami.

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

First Year Optional Urdu Paper – I – Action and Drama

I. **Drama :**
   Books :- i) Azmaish by Prof. Mujeeb
   ii) Darwaza Kholdo, by Krishan Chandar.

II **Novel :-**
   Books :- i) Nirmala by Premchand.

III **Short Story :-**
   Books :- i) Urdu Afsana by Razia Saijad Zaheer.

Note :- The First TEN Short Stories Only.

RAYALASEEMA UNIVERSITY KURNOOL :
Syllabus for (B.A / B.Com / B.Sc.,) U.G. 2012 – 2013
Second Language – Urdu
Under common core Scheme in Urdu
Second Year degree course Second Language

No change in the Syllabus and the Model Question Paper the Syllabus is as follows:

TEXT PRESCRIBED :

INTEQAB – E – ADAB : PART – II

POETRY :

1. Mashanvi Saheb – Bayan Meer Hassan (a Portion)
2. Marsiya – Meer Anee's
   Marsivà Shahadath Hazrat Ali Akbar (a Portion)
3. Rubaiyath of Meer Anees, Akbar Elahabadi and Amjad Hyderabad.

PROSE :

1. Khatoot – e – Ghalid (three letters)
2. Essays : Essays of the following essayists.
   a) Hali b) Dr. Abid Hussain c) *Yousuf Nazim*
3. **Dastan :**
   Bagh – e – Bahar – Meer Amman (a portion)
4. **Translation :**
   From English to Urdu

RAYALASEEMA UNIVERSITY KURNOOL
Syllabus for B.A Part – II - Urdu
First Year Optional Urdu Paper – II – Poetry

Gowhar – e – Adab : A book prescribed by the common core Syllabus Committee. Published by the Urdu Academy Andhra Pradesh Hyderabad.

* * * * *

I. **Ghazals :** First two Ghazals of the following Poet
Wali, Meer, Ghalib, Jigar, Majrooh

II. **Masnavi :** Masnavi – Gulzar – e – *Naseem (a portion)*
II. **Marsiva :** Marsiya Meer Anees.
V. **Nazms :** First two Nazms of the following Poets.
Iqbal, Josh, Falz, Maqdoom and Wajd.
7. Biography of the following Poets
Wali, Meer, Chalib, Jigar, Majrooh, Iqbal, Josh and Faiz

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – III – History of Urdu Literature

No Change in the Syllabus and the Model Question Paper – I

Book Prescribed

Mukhtasar Tarzekh – e – Adab – e – Urdu – by Ejaz Hussain.

Books Recommended :

1. Urdu Shairi Ka Tahzeebi Pasmanzar – by Dr. Mohammad Hussain.
2. Urdu Nasar Ke Asaleeb – by Ammerullah Shaheen.

Saleem
040 64633777

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – IV Criticism

* * * * *

No Changes in the Syllabus and the Model Question Paper

* * * * *

Criticism :

i) Muquadam – e – Sher – o – Shairi – by Hali.
ii) Urdu Ki Tanqeedi Tareekh – by Ehtesham Hussain.

I. **Balaghat :**

i) Balaghat by Kaleemullah Hussain.

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for (B.A / B.Com / B.Sc.,) U.G. 2013 – 2014

Second Language – Urdu

Under common core Scheme in Urdu

First Year degree course Second Language

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RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

First Year Optional Urdu Paper – I – Fiction and Drama

Drama :

Books :- i) Azmaish by Prof. Mujeeb
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Novel :-

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Short Story :-

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RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – III – History of Urdu Literature

No Change in the Syllabus and the Model Question Paper – I

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Mukhtasar Tarzekh – e – Adab – e – Urdu – by Ejaz Hussain.

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Urdu Shairi Ka Tahzeebi Pasmanzar – by Dr. Mohammad Hussain.
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RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – IV Criticism

* * * * *

No Changes in the Syllabus and the Model Question Paper

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Second Language – Urdu

Under common core Scheme in Urdu

First Year degree course Second Language

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Syllabus for B.A Part – II - Urdu
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Gowhar – e – Adab : A book prescribed by the common core Syllabus Committee. Published by the Urdu Academy Andhra Pradesh Hyderabad.

* * * * *

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RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – III – History of Urdu Literature

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2. Urdu Nasar Ke Asaleeb – by Ammerullah Shaheen.

Saleem
040 64633777

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

Third Year Optional Urdu Paper – IV Criticism

* * * * *

No Changes in the Syllabus and the Model Question Paper

* * * * *

Criticism :

I. i) Muquadam – e – Sher – o – Shairi – by Hali.
   ii) Urdu Ki Tanqeedi Tareekh – by Ehtesham Hussain.

II. **Balaghat :**
   i) Balaghat by Kaleemullah Hussain.

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for (B.A / B.Com / B.Sc.,) U.G. 2014 – 2015

Second Language – Urdu

Under common core Scheme in Urdu

First Year degree course Second Language

No change in the Syllabus and the Model Question Paper the Syllabus is as follows:

TEXT PRESCRIBED :

INTEQAB – E – ADAB : PART – II

POETRY :

1. Ghazals of the following poets:
   Wali, Meer, Ghalib, Jigar, Faiz.

2. Nazms of the following poets :
   Nazeer, Akbar Elahabadi, Hali, Iqbal, Josh.

3. **Prose** :
   - **a)** One short story by Premchand :
   - **b)** Essays of the following writers
   - **c)** Sir Syed Ahmed Khan
   - **d)** Khaja Hassan Nizami.

RAYALASEEMA UNIVERSITY KURNOOL

Syllabus for B.A Part – II - Urdu

First Year Optional Urdu Paper – I – Action and Drama

I. Drama :

Books :-
- i) Azmaish by Prof. Mujeeb
- ii) Darwaza Kholdo, by Krishan Chandar.

II Novel :-

Books :-
- i) Nirmala by Premchand.

III Short Story :-

Books :-
- i) Urdu Afsana by Razia Saijad Zaheer.

Note :- The First TEN Short Stories Only.

History

I YEAR B.A. HISTORY .

w.e.f. 2012-2013

Paper – I

History and culture of Indian up to AD 1526 Paper

Unit I: Influence of Geography on History-Survey of Sources-pre-historic period - Paleolithic, Mesolithic and Neolithic cultures - Role of Technology. Indus Valley Civilization – Its characteristic features – Vedic culture-Early and later Vedic-periods-Post-Vedic period-Emergence of Varna and Caste system-Rise of new Religious Movements-Jainism and Buddhism in 6th Century B.C. Impact on Society and Culture.

Unit II: A brief Survey of Political conditions in ancient India – Magadha-, Alexander's Invasion and Mauryas-Ashoka's Dharma, its nature and propagation-Mauryan Administration-Economy-Art and Architecture.

Unit III: Post-Mauryan period -Kushanas- Guptas - Polity and Administration, Social conditions – Art, Architecture-Education, Literature, Philosophy, Science and Technology.

Unit IV: Post Gupta period – Pushyobutis and Rajputs – Transition in Society – Position of women – Indian Feudalism.

Unit V: South India – Sangam Age – Satavahanas – Polity and Administration – Society Economy – Art and Architecture.

Unit VI: Pallavas – Cholas – Chalukyas – Rashtrakutas – Polity and Administration – Society – Economy – Art and Architecture.

Unit VII: Kakatiya and Vijayanagara – Kingdoms – Polity and Administration – Society, Economy and Art and Architecture.

Unit VIII: Invasions of Arabs, Ghaznavids and Ghoris and Delhi Sultanate – Society , Composition of rural society. Nobility – Status of Women, Economic and Technical developments – Agriculture – Industry – Trade and Commerce - Urbanization, Art and Architecture – Fine Arts – Education and Literature.

Unit IX: Impact of Islam on Indian Society and Culture – Bhakti and Sufi Movements Emergence of Composite culture.

RAYALASEEMA UNIVERSITY -2013-2014
B.A. HISTORY NEW CURRICULAM
PAPER-II
HISTORY AND CULTURE OF INDIA (1526-1950)

1. Sources of Moghul History Original growth of Moghul Empire . Suronterregnum . Moghals 1556-1707 . Polity and Administration ,Society . Social Composition . Ulema . Nobility-Peasantry . artisans . Slaves . Status of Women.

Economy: Agriculture. Industries . Trade and Commerce . Economic and Technological Development.

Religion: Hindu- Muslim relations . Emergence of Indo-Islamic Composite culture.

Education, Literature, Arts, Architect and Fine Arts.
Decline and Disintegration of Mughal Empire . Rise of Regional Powers-Marathas . Sikhs.

2. Advent of European power . Portuguese . Dutch-English and French.
2. East India company rule (1740-1857) Expansion and consolidation of British Empire-Wars-Diplomacy-Policies pursued . Subsidiary Alliance-Doctrine of Laps.
3. Economics Policies and changes . Mercantilism Fire . trade policies Land Revenue settlements . Permanent . Ryotwari . Mahalwari Systems . Irrigation . Commeralization of Agriculture . Condition of peasants-Faminers-Decline of Cottage industries.
4. Anti-Colonial Upsurge-Peasant and Tribal Revolts-1857 - Revolt . Causes- Results and Nature.
5. Crown rule (1858-1947): Viceroyathies of Rippon and Curzon . Constitutional; Developments . Acts of 1909,1919,1935.
6. Factors for Social change . Christion Missionaries . Western Education . Emergence of New Middle class . Growth of press . Socio . Religions reforms movements . Braluno Samaj Arya Samaj-Theosophical Society . Ramakrishna mission . Aligarh Moments . Self respect movements . Jyothiba phule . Narayana guru . periyar and Dr. B.R. Ambedkar.
7. Indian National Movement- Factors for the growth of Nationalism-Indian National Congress-Freedom Struggle-Moderate-Extremist-Gandhi Movements-Left wing . Movement-Peasant and workers movements.
8. Emergence of Communal trends-partition of India-Integration of princely states in to Indian Union.

B.A. HISTORY

PAPER II

HISTORY AND CULTURE OF INDIA (1526-1050)

1. Sources of Moghul History – Origin and growth of Moghul Empire – Suronterregnum – Moghals 15.6-1707 – Polity and Administration – Society – Social Composition – Ulema – Nobility-Peasantry – Artisans – Slaves – Status of Women.

Economy: Agriculture – Industries – Trade and Commerce – Economic and Technological Developments.

Religion: Hindu- Muslim relations – Emergence of Indo-Islamic Composite culture.

Education, Literature, Arts, Architecture and Fine Arts.

Decline and Disintegration of Mughal Empire – Rise of Marathas -Sikhs.

2. Advent of European power – Portuguese – Dutch-English and French.

2. East India company – rule (1740-1857) Expansion and consolidation of British Empire-Wars-Diplomacy-Policies pursued – Subsidiary Alliance-Doctrine of Lapse.
3. Economies Policies and changes – Mercantilism and Free – trade policies – Land Revenue settlements – Permanent – Ryotwari – Mahalwari Systems – Irrigation – Commeralization of Agriculture – Condition of peasants-Famines-Decline of Cottage industries.
4. Anti-Colonial Upsurge-Peasant and Tribal Revolts-1857 - Revolt -Causes-Results and Nature.
5. Crown rule (1858-1947): Viceroyalties of Rippon and Curzon – Constitutional Developments – Acts of 1909,1919,1935.
6. Factors for Social change – Christian Missionaries – Western Education – Emergence of New Middle class – Growth of press – Socio – Religious reforms movements – Brahma Samaj, Arya Samaj-Theosophical Society – Ramakrishna mission – Aligarh Movement – Self respect movement – Jyothiba phule – Narayana guru – Periyar and Dr. B.R. Ambedkar.
7. Indian National Movement- Factors for the growth of Nationalism-Indian National – Congress-Freedom – Struggle-Moderate-Extremist-Gandhi Movements-Left wing – Movement-Peasant and workers movements.
8. Emergence of Communal trends-partition of India-Integration of princely states in to Indian Union.

B.A. History

Paper – III

History of Modern World (1453 – 1945 A.D)

Unit – I : Characteristics features of Renaissance – Significance of Reformation and Counter Reformation movements in Europe – Geographical Discoveries and Rise of Colonialism, Mercantilism and Commercial Revolution – Emergence of Modern World Economy.

Unit – II: Emergence of Nation States in Europe – Nature of Feudalism in Europe and Asia.

Unit – III: Age of Revolutions – Glorious Revolution (1688) – American Revolution (1776) – French Revolution (1789)

Unit – IV: Industrial Revolution and Rise of Capitalism – Impact on Asia and Africa – Meizi Restoration and Modernization of Japan – Unification Movements in Germany and Italy.

Unit – V: World between 1914 – 1945 Rivalry among colonial powers Imperialist Hegemony – Causes and consequences of First world War – World between the Wars – League of Nation, Fascism in Italy, Nazism in Germany, Militarism in Japan – Communist Movements in Russia and China.

Unit – VI: Causes and consequences of Second World War – UNO

B.A. History New Curriculum

Paper – IV (a)

History and Culture of Andhra Pradesh
(From Satavahanas to 1956 A.D)

Unit – I: Influence of Geographical features on History : Sources – A Brief Survey of political history from Satavahanas to Vijayanagara period – Socio-economic – Cultural conditions under Satavahana, Kakatiya and Vijayanagara rulers – growth and Spread of Jainism and Buddhism and their contribution to Art and Architecture.

Unit – II: The Qutb Sahis – a Brief Survey of Political History – Society, Economy and Culture. The Asaf Jahis – A Brief survey of their political history – Society, Economic and Culture – Salarjung's reforms.

Unit – III: Andhra Under Colonial Rule: Coming of European Merchant Companies – Conquest of Andhra by the British – Early Uprisings – Administration – Land Revenue Settlements – Agrarian Conditions – Famines – Impact of Industrial Revolution on Andhra Economy – Sir Thomas Munroe – Impact of 1857 Revolt in Andhra.

Unit – IV: Social Reform and Literary Movements. Veeresalingam, Raghupathi Venkataratnam Naidu, Gurajada Appa Rao, Komarraju Venkatalakshmana Rao, Non-Brahmin, Adi Andhra, Dalit, Self-Respect Movements – New Literary Movements – Gurram Jashua, Boyi Bhimanna, Viswanatha Satyanarayana, Rayaprolu Subba Rao, Sri Sri.

Unit – V: Freedom Movement in Andhra : Vandemataram, Home Rule, Non-Cooperation, Alluri Sitarama Raju – Rampa Rebellion 1922-24 – Civil Disobedience and Quit India Movements.
Political consequences in Telangana: Nizam Andhra Maha Sabha, Hyderabad State Congress, Razakars, Police Action and Accession of Telangana into Indian Union.

Unit – VI: Leftist Movements in Andhra and Telangana : Peasant armed Struggle – Tribal Uprisings – Komaram Bhimu – Bhoodan Movement.
Movement for Separate Andhra State: Andhra Mahila Sabha – Sree Bagh Pact – Martyrdom of Potti Sreeramulu – Formation of Andhra State, 1953 – Vishalandhra Movement – State's Re-organization Commission – Gentlemen's Agreement – Formation of Andhra Pradesh in 1956.

Economics

RAYALA SEEMAUNIVERSITY KURNOOL

ACADEMIC YEAR 2013-14FRIST YEAR B.A PAPER-1

MODULE-1

Nature and scope of economics- Definition of Economics – wealth Definition of Adam smith Welfare Definition of Marshall – Scarcity Definition of Lionel Robbins – Development Definition of paul Samuelson Methodology in Economics – micro Economics and Macro Economics – Static and Dynamic – Norma tive and positive – Inductive and Deductive Analysis – partial and General Equilibrium.

MODULE-ii

Utility – Cardinal and Ordinal approaches –Law of Diminishing Marginal Utility – Statement of the Law, Illustration, assumptions, Exceptions, Exceptions and importance – Law of Equi – Marginal Utility, Illustration, assumptions, exceptions and importance.Indifference curves – properties of Indifference Curves – Consumers equilibrium – Income Effect – price Effect – Substitution Effect.

MODULE-iii

Demand - Demand Function – Determinates of Demand – law of Demand - Exceptions of the Law of Demand – Explanation of the downwards slopping Demand Curve – Elasticity of Demand - price, Income, Crosss Elasticties- Demand forecasting- Consumers surplus =- Engel Curve.

MODULE-iv

Production decisions – production function – Cobs - Dougals production functions – Iso – quant – Factors substitution, law of variable proportion, returns to scale, economics of scale – Different concept of and their Interrelations Equilinbrium of the frim – Expansion path – Bbreak Even Analysis.

MODULE-v

Meaning of Market – classification market from – perfect competition – Meaning – Features – prices determination – Time Element in price determination – Equilibrium of firm and Industry in short run and long run. Definition of Monopoly – price discrimination. Imperfect competition – Monopolistic features- equilibrium of firm- equilibrium of product variation- selling costs. Oligopoly –Meaning – Classification of Oligopoly- kinked demand Curve.

MODULE-vi

Marginal productivity theory of distribuction –Concepts of rent – Ricardian theory of rent – modern theory of rent – Theory of rent – Theories of wages- wege fund theory – Modren theory of wages – theory of Interest – Liquidity preference theory of interest –Loan able funds theory of interest- Keynesians theory - Theories of profit- Dynamic theory of profit – Risk bearing theory – Uncertainty bearing theory.

References:

1. A. Koutsyoiannis : Modern Microeconomics
2. Stoneit, A.W. and DC. Hague : A text book of Economic theory
3. H.l. Ahuja : Advanced theory
4. P.N. Chopra : Micro Economics
5. H.S Agarwal : principles of Economics
6. Telugu Acadamy publication :

RAYALA SEEMAUNIVERSITY KURNOOL

ACADEMIC YEAR 2013-14

SECOND YEAR B.A PAPER-ii

MODULE- i

Meaning – Definition - Importance – And Limitations of Macro Economics – concepts of National income – Measurement of National Income – Calculation of National Income Difficulties – Importance of National Income – National Income as an Indicator of Economic Welfare – Social Accounting; Say law of market – and classical theory of Employment – Keynes objection to classical theory – Aggregate Demand and Aggregate supply function – the principle of Effective Demand.

MODULE- ii

Consumption function – its importance – Factors that determine – Average and marginal propensity to consume- Factors influencing consumer spending marginal efficiency of Capital – Factors that of Investment – autonomous and Induced investment

MODULE- iii

Investment Multiplier – Importance in Economic Analysis – static and Dynamic Multiplier – its effects in less developed countries – principle of Acceleration – its limitations – TRADE Cycle – characteristics – Different phases – measures to control trade Cycle.

MODULE- iv

Money – Meaning – Function – Classification of Money Gresham Law – Role of Money in Capitalist, Socialist and mixed Economies supply of money – factory determine – control of money supply – budgets and money

MODULE- v

Fisher Quantity theory of money – transactions and cash balance approach – Keynesian theory of money. Inflation – Definitions – types cause and effect of Inflation – demand pull and cost Inflation – Measures to control Inflation.

MODULE-vi

Banking – meaning and types of commercial Banks – Function of commercial Banks – The process Credit creation and Limitations- liabilities and assets of commercial banks functions of Reserve bank of India – Quantitative and Qualitative Methods of Credit Contro

REFERENCE

1. Dillard.., D — the Economics of John maynard, Keynes.
2. M.C. vaish — Macro Economic Theory
3. S.B Gupta — Monetary Economics
4. D.m. mithani — Macro Economic analysis and policy.
5. Edward Shapiro — Macro Economics Analysis

RAYALA SEEMAUNIVERSITY KURNOOL

ACADEMIC YEAR 2013-14

THIRD YEAR B.A PAPER-III Indian Economy

MODULE- I CONCEPTS OF DEVELOPMENT

Meaning of Economic growth and development – Measures of Economic Development – GNP, PCI, PQLI, and HDI , Factors influencing Economic Development – Sustainable development – Balanced and unbalanced growth – Choice of techniques – Labour intensive and Capital intensive method .

MODULE- ii : STRUCTURE OF THE INDIAN ECONOMY

Basic feature – Nature Resources – Land water and Forest resources basic demography feature- Size and growth of the population – age and sex composition – Rural and urban population - occupational distribution – population policy – National Income in India – trends and composition – poverty inequalities and unemployment Causes and consequences - Current five year plan – Objective mobilization and allocation of resources – New economic reforms- GIlobalization in india – Inclustive Growth.

MODULE- iii : INDIAN AGRCULTURE

Nature and Importance Trends in agricultural production and factory determining productivity. Rual Credit _ Micro Finanace and Self help groups Agricultural price policy – Crop Insurance _ Agricultural and food security

MODULE- iv Structure and growth of Indian Industrial policies of 1956 and 1991- Growth and problems of small Scale industry – Foreign Exchange Management Act- Disinvestment policy – Foreign Direct Investment Growth Importance of service in India – Banking Insurance Information Techology Education and Health

MODULE- v : ANDHRA PRADESH STATE ECONOMY

GSDP – Sectorai Contribuction and Trends Human Resources population Treands Regional Differentals Demographic dividend Agricultural Sctor Land use and cropping pattern – Industrial sector SEZ Services sectors Growth of Income and employment

REFERENCES:

Dhingra I.C	: Indian Economy
Ruddar Dutt and K.P sundaram	: Indian Economy
Higgins B.	: Economy Development
Meier G.M	: Leading issues in economy
Todrao. B	: Economic development
Misra S.K & puri V.K	: Economic development and planning
Charles p. Kindle Berger	: Economic Development
Kuznets Simon	: The Economics Growth

Telugu academy publication

R.S. Rao. V. Hanumanthu Rao and N. venugopal – fifty of Andhra Pradesh

Reserve bank of India : Handbook of statistics on Indian Economy.

RAYALA SEEMAUNIVERSITY KURNOOL

ACADEMIC YEAR 2013-14

THIRD YEAR B.A PAPER-IV Quantitative Techniques

MODULE- I : DEFFITION OF STATISTICS AND COLLECTION OF DATA

Definition and Role of Statistics in the measurement of Economic activity – Sources of data primary method collection of data Basic concept of sampling sampling sampling Methods of Merits and Demetries of sampling Matrices additions, subtraction, multiplication and equality of matrices — Inverse of a matrix

MODULE- ii : DIAGRAMMATIC REPRESNTATION

Bar diagram – pie diagram – Histogram – Frequency polygon curve and Ogive Curve Arithmetic Mean median Mode Geometric Mean harmonic Mean – Weighted

MODULE- iii : MEASURES OF CENTRAL TENDENCY

Arithmetic Mean and Weighted Geometric Mean – Metric Demerits. Range- Quartile Deviation – mean Deviation and Standard Deviation – Merits and Demerits – Co- efficient variation – Skewness.

MODULE-I v : CORRELATION AND REGRESSION

Simple correlation – pearson Co- efficient of Correlation – Spearman rank Corrrelation – Regre ssion – Analysis – Least Squares Method – Interpretation Regression co- efficients

MODULE- v : TIME SERLES ANALYSIS

Constructions of index number – lays payers paasche and fisher ideal index number Cost of living index numbers.

References :

1. Allen, R.G.D : Mathematical Analysis for Economists
2. Croxton, F.E.., D.J. Cowden and S.Klein : Applied General Statics
3. Gupta S.C and V.K kapoor : Fundamentals of Applied statistics
4. Blank, J. and J.F . Bradley : Essential Mathematics for Economists..

Political Science

Rayalaseema University, Kurnool
I YEAR B.A. POLITICAL SCIENCE (w.e.f. 2012-2013)

Sub: . POLITICAL SCIENCE
PAPER I

POLITICAL SCIENCE CONCEPTS, THEROIES AND INSTITUTIONS

1. Introduction: Definition, Scope and Importance of Political Science.

2. Approaches to the Study of Political Science: Liberal and Marxist

3. State – Nation and Civil Society

4. Sovereignty: Monism and Pluralism

5. Theories of Origin of the State : Social Contract and Evolutionary (Historical)

6. Concepts:
    a) Law: Sources of Law and Concepts of Rule of Law
    b) Liberty and Equality - Their Relationship
    c) Theories and kinds of Rights
    d) Power and Authority.

7. Ideologies: Individualism, Anarchism, Fascism and Socialism
8. Forms of Government:
    a) Democracy: Direct and Indirect
    b) Unitary and Federal
    c) Parliamentary and Presidential
9. Theory of Separation of Powers

10. Organs of Government
    a) Legislature: i) Unicameral and Bio-cameral
        ii) Power and Functions

    b) Executive : i) Power and Functions

    c) Judiciary : i) Power of Functions
        ii) Independence of Judiciary and Judicial Review.

Books Recommended :

1. *Principles of Political Science : Prof. A.C. Kapoor*
2. *Grammar of Politics: Laski H.J.*
3. *Substance of Politics: A. Appadorai*
4. *Political Theory: Ashirvadam*
5. *Political Theory: O.P. Gauba*
6. *Political Ideologies: Their origins and Impact, baradat, Prentice Hall of India.*

II YEAR B.A. POLITICAL SCIENCE (w.e.f. 2009-2010)

PAPER II: INDIAN GOVERNMENT AND POLITICS

1. Salient Features of Indian Constitution a Comparative Perspective with the Constitutions of UK, USA and Switzerland
2. Evolution of Indian Constitution - Nationalist Movement and Philosophical Foundations
3. Indian Federation - Centre - State Relations - Recent Trends
4. Fundamental Rights and Duties, Constitutional Remedies with special reference to Writs - Directive Principles of State Pol icy
5. President - Election, Powers and Functions - Prime Minister and Council of Ministers
6. Parliament - Composition, Powers and Functions
7. Judiciary - Supreme Court, Composition, Powers, Functions and Judicial Review - Judicial Activism
8. Party System: National and Regional Parties; Coalitional Politics
9. Election Commission - Electoral Reforms and Voting Behaviour
10. State Government - Governor, Chief Minister and Council of Ministers Powers and Functions
11. Social and Economic Factors - Language, Religion, Caste and Regional Identities
12. Social Movements: Agrarian, Working Class, Women, Tribal, Dalit and Environmental
13. Challenges to National Integration ~ Communalism and Terrorism
14. Local Government Institutions - 73rd & 74lh Constitutional Amendments

Books Recommended:

1. Politics in India: Rajni Kothari
2. Indian Constitution: M.V. Pylee
3. Indian Government and Politics: S. S. Awasti
4. Introductionfor Constitution of India: D.O. Basu
5. Indian Government and Politics: K.R. Acharya
6. Indian Politics: Contemporary Issues and Concerns, Singh & Saxena
7. Tntroduction to the Constitution of India. 5th ed., Sharma

Rayalaseema University, Kurnool
III YEAR B.A. POLITICAL SCIENCE (w.e.f. 2012-2013)

B.A. POLITICAL SCIENCE
PAPER III: POLITICAL THOUGHT

Unit-1Ancient Indian Political Thought

1. Unit-1 Sources and features of Ancient Indian Political Thought
2. Manu: Social Laws
3. Kautilya:Theory of the State

Unit-2. Modern Indian Political Thought

1. Gandhi-Swaraj and Satyagraha
2. Jawaharlal Nehru- Democratic Socialism
3. Dr.Ambedkar B R – Annihilation of Caste System

: Unit-3 Classical Western Political Thought

1. Plato: Theory of Forms, Critique of Democracy, Justice
2. Aristotle: Citizenship, State, Justice, Virtue
1. St. Tomas
2. Machiavelli, Statecraft, Virtue, Fortuna

Unit-4 Modren Western Political Thought

1. Thomas Hobbes: Human nature, Social Contract, liberty and State
2. John Locke: Natural Rights, Consent, Social Contract and State
3. Rousseau: Social institutions and Moral Man, Equality, liberty and General Will
4. Jeremy Bentham: Utilitarianism
5. John Stuart Mill: Individual liberty, Representative Government
6. Hegel: Individual Freedom, Civil Society, State
7. Karl Marx: Alienation, Surplus Value,Materialist Conception of History, State

Reference books:

1. Pantham Thomas and Kenneth Deutsch(Ed)(1986)
   Political thought in modern India, Sage, New Delhi
2. BidyutChakrabarthy and Rajendra Kumar Pandey (2009) modern Indian political thought, Sage, New Delhi
3. Gurpreet Mahajan (2013), India : Political ideas and making of a democratic discourse, zed book, London
4. Partha Chatterjee (1986) nationalist thought and the colonial world: A derivative disclosure, zed books, London
5. Bhikhu Parekh (1999) colonialism, tradition and reform,Sage,New Delhi
6. Bhikhu Parekh(1989) Gandhi's political philosophy ,Macmillan, London
7. ShefaliJha (2010) Western Political Thought from Plato to Karl Marx, Pearson, NewDelhi
8. Christianity, Blackwell publishers, oxford
9. 4. Macpherson C B (1962) The Political Theory of Possessiveness Individualism,

10. Oxford University press, oxford
11. 5. Hampsher-monk I (2001) A History of Modern Political Thought: Major Political Thinkers
12. fromHobbers to Marx,Blackwell publishers, oxford

Rayalaseema University, Kurnool

III YEAR B.A. POLITICAL SCIENCE (w.e.f. 2012-2013)

B.A. POLITICAL SCIENCE

PAPER IV: Principles of Public Administration

UNIT I: Introduction

1. Meaning, Nature, Scope and importance of Public Administration
2. State and Evolution of Public Administration

UNIT - II

3. Relationships with other Social Sciences: With special reference to Political Science, Economics, Sociology, Psychology

4. Politics & Administration Dichotomy – Woodrow Wilson and F.J. Good know

UNIT- III: Theories and Approaches

5. Classical Approach : Henry Fayol, Gulick and Urwick
6. Scientific Management Approach: Taylor

UNIT- IV

7. Bureaucratic Approach: Max Weber and Karl Marx
8. Human Relations Approach – Elton Mayo
9. Behavioural Approach: Herbert Simon

UNIT – V

10. Socio – Psychological Approach: Hierarchy of Needs : Abraham Maslow; Theory X and Theory Y : Douglas Mc Gregor

11. Ecological Approach: Riggs

Commerce

RAYALASEEMA UNIVERSITY

UG I Degree Commerce syllabus for the academic year 2012-13

B.COM. I YEAR

P 101 : FINANCIAL ACCOUNTING

P.P.W. – 6 HOURS **Max Marks =70+30**

Objectives:

1. To make the students acquire the conceptual knowledge of accounting
2. To equip the students with the knowledge of accounting process and preparation of final accounts
3. To develop the skills of recording financial transactions and preparation of reports using computers

UNIT1: Introduction to Accounting:
Need for Accounting – definition, features, objectives, functions, systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations-basic terminology used- – Accounting concepts and conventions.

Accounting Process-Accounting cycle-Accounting equation-classification of accounts-rules of double entry book keeping – identification of financial transactions- Journalizing –Posting to Ledgers, Balancing of Ledger Accounts — Computerized Accounting: Meaning and Features-Advantages and disadvantages of computerized Accounting Creating of an Organization - Grouping of accounts – Creation of Accounts – creation of inventory-creation of stock groups-,stock categories, units of measurement-stock items-entering of financial transactions-types of vouchers-voucher entry-editing and deleting of vouchers-voucher numbering-customization of vouchers

UNIT 2: Subsidiary Books and Bank Reconciliation Statement
Sub Division of Journal-Preparation of Subsidiary Books including different types of cashbooks- simple cashbook, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book. Preparation of sales register, purchase register, journal proper, debit note register, credit note register, and different cash books including interest and discount transactions using computers.

Bank Reconciliation Statement- Need - Reasons for difference between cash book and pass book balances - problems on favorable and over draft balances - Ascertainment of correct cash book balance. Preparation of bank reconciliation statement using computers

UNIT 3:Trial Balance, and Errors and Rectification
Trial Balance: meaning, objectives, methods of preparation Errors and their Rectification - Types of Errors - Rectification before and after preparations of final Accounts - Suspense Account- Effect of Errors on Profit. Rectification of errors using computers.

UNIT:4. Final Accounts;.
- Final Accounts: Meaning, features, uses and preparation of Manufacturing, Trading Account, Profit & Loss Account and Balance Sheet-Adjusting and Closing entries. Preparation of trial balance, trading, profit and loss account, processing of year ending and closing the books, adjusting and closing entries and balance sheet using computers

UNIT 5: Consignment
Consignment - Features, Terms used Pro-forma invoice - Account sale Delcredere commission -Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock - Normal and abnormal Loss - Invoice of goods at a price higher than the cost price.

UNIT 6: Depreciation - Provisions and Reserves:
Meaning of Depreciation - Causes- objects of providing for depreciation -Factors affecting depreciation - Accounting Treatment- Methods of providing depreciation - Straight line method - Diminishing Balance Method. ,
Provisions and Reserves - Reserve Fund – Different Types of Provisions and Reserves.

Suggested Readings:

1.Principles and Practice of Accounting R.L. Gupta & V.K. Gupta
Sulthan Chand &sons
2.Accountancy - IS.P. Jain & K.L Narang Kalyani Publishers
3. Accountancy – ITulasian Tata Mcgraw Hill Co
4.Financial Accounting – Dr.V.K.Goyal Excel Books
5. Introduction to Accountancy T.S.Grewal S.Chand and CO
6. Accountancy – I Haneef and Mukherjee tata Mcgraw Hill co
7. Advanced Accountancy - Arulanandam Himalaya publishers
8. Advanced Accountancy-I S.N.Maheshwari & V.L.Maheswari Vikash Publishing co.
9. Ashok Banarjee Financial Accounting Excel
10. Warren Financial Accounting Cengage

RAYALASEEMA UNIVERSITY

UG I Degree Commerce syllabus for the academic year 2012-13

BUSINESS ECONOMICS PAPER - 102

P.P.W. – 4 HOURS **Max Marks =70+30**

Objective: To facilitate the students to learn the concepts of economics and apply them in real life situations.

Unit I: Introduction

Economic and Non-Economic Activities—Business-Meaning—Economics-Definitions--micro and macro economics-method of economics-positive and normative—inductive and deductive approaches—reading of graphs-concept of slope—Utility-cardinal and ordinal utility-Law of diminishing marginal utility-Law of Equi-marginal Utility.

Unit II: Demand, Supply and Market Equilibrium

Demand-meaning-individual demand—law of demand-properties of demand curve-income effect and substitution effect-exceptions to the law of demand—individual demand and Market Demand—demand function—determinants of demand and market demand—shift of demand vs. movement along a demand curve—Elasticity of demand-price elasticity-meaning and measurement-price elasticity and total revenue of a firm-income elasticity-classification of goods based on income elasticity-cross elasticity-classification of goods into substitutes and complements—Supply-law of supply-determinants of supply—market equilibrium—concept of consumer surplus.

Unit III: Production and Costs

Production function—Distinction between short-run and long-run—Production with one variable input-relationship between total, marginal and average production functions-law of variable proportion—production with two variable inputs-isoquants -isocosts-techniques of maximization of output, minimization of cost and maximization of profit-scale of production-economies and diseconomies of scale—Cost of production-cost function—short-run total and average costs—long-run total and average cost.

Unit IV: National Income, Trade Cycles and

National Income—definition-meaurement—GDP-meaning—fiscal deficit—economic systems-socialism-mixed economy system-free market economies- Concepts of Economic Liberalistion, privatization, Globalisation—WTO—objectives—agreements—functions—Trade cycles-meaning-phases-consequences-remedies

Unit V: International Trade

International Trade-Balance of payments.

Suggested Books:

Aryasri and Murthy: Business Economics, Tata Mcgraw Hill
Deepashree: General Economics, Tata Mcgrawhill
HL Ahuja Business Economics, S.Chand

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KPM Sundaram: Micro Economics
Mankiw: Principles of Economics, Cengage
Mithani: Fundamentals of Business Economics, Himalaya

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Business Organization and Management Paper- 103

P.P.W. – HOURS (3+1=4) **Max Marks =70+30**

Objective: To facilitate the students to learn the concepts of business organization and management.

Unit :1 Fundamental Concepts:

Concepts of business, trade, industry and commerce- Business – features of business, Trade – Classification- Aids to Trade – Industry- Classification – Commerce- Relationship between trade, industry and commerce- Business Organization-Concept- – Functions of Business.

Entrepreneur – Meaning-Characteristics of Entrepreneurs – Types of Entrepreneurs – Functions of an entrepreneur - Steps to start Enterprise– Sources of finance –Long Term-Short Term

Lab Work: The students are expected to go through project reports.

Unit:2 Forms of Organization, Sole Proprietorship, Partnership and Joint Hindu Family:

Business Organization – Forms of Business Organization – Classification – Factors influencing the choice of suitable form of organization.

Sole Proprietorship -Meaning –Characteristics – Advantages and disadvantages – suitability.

Partnership – Meaning –Characteristics –Kinds of partners- Registration of partnership – Partnership deed – Rights and obligations of partners - Joint Hindu Family Business – Characteristics – Advantages and limitations.

Lab Work: The students are expected to go through partnership deed and prepare a simple partnership deed.

Unit 3: Joint Stock Company:

Joint Stock Company – Meaning – Characteristics –Advantages - Kinds of Companies – Difference between private and public companies –Promotion of A Company: Promotion –Stages-Promoters –Characteristics –Registration –Capital subscription – Commencement of Business – Preparation of Important documents – Memorandum of Association – Significance – Clauses – – Articles of Association – Contents — Prospectus – Contents – Statement in lieu of Prospectus.

Lab Work: The students are expected to go through a memorandum of association, articles of association and prospectus. As a group they are expected to prepare a model prospectus.

Unit: IV: Management, Planning and Decision Making

Management- Meaning – Significance- Management Vs Administration – Functions of management – Levels of Management – Skills of management –Leadership-Leader Vs Manager-Traits of successful Leaders- Scientific Management – features- Fayol's Principles of Management .

Planning – Meaning – Significance –Types of Plans – Decision making – Steps in Process Decision making process

Lab Work: The students are expected to prepare a small note of the skills of management required to manage the organization of their choice.

Unit 5: Organizing

Organizing – meaning - Organization – Features – the process of organization – principles of organization- Elements of organizations –organization chart

Delegation of authority – meaning - Elements – Principles – Types – Difficulties in delegation – Guidelines for making delegation effective

Centralization – Decentralization –Meaning – Differences between delegating and decentralization

Lab Work:

The students are expected to go through the organization structures of a few organizations and prepare an organization structure for a small unit.

The students are expected to prepare a small project report on how to start a small industry unit of their choice incorporating various aspects learned in this subject.

Suggested Books:

- Bhatia RC: Business Organization and Management, Ane Books
- Talloo : Business Organisation and Management. Tata
- RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
- CB Gupta : Industrial Organization and Management
- Aryasri and Murthy : Industrial Organization and Management, Tata
- Govindarajan and Natarajan : Principles of Management, Prentice Hall
- RK Sharma and Shashi K.Gupta: Industrial Organization and Management, Kalyani
- CB Gupta : Industrial Organization and Management, Sultan Chand
- Bhushan Y K: Business Organization and Management, Sultan Chand
- Surendar and Madhavi : Industrial Organization and Management, Himalaya
- Sherlekar: Business Organization and Management, Himalaya
- Robins S P: Management, PHI
- Rao VSP: Management, Excel
- Gupta CB: Entrepreneurship Development in India, Sultan Chand
- Prasad L M: Management, Sultan Chand
- Subba Rao P: Management and Organizational Behavior, Himalaya
- Dubrin: Essentials of Management, Cengage
- Satyaraju: Management, PHI
- Moshal : Organization and Management, Galgotia
- Kumkum Mukhrjee: Principles of Management, Tata
- Chandra Bose: Principles of Management, PHI
- James F. Stoneir: Management, PHI

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B.Com First Year

FUNDAMENTALS OF INFORMATION TECHONOLOGY

Paper 104 **Max Marks =70+30**

P.P.W. – 5 HOURS

Objective: To impart basic knowledge about computer with application of various packages.

Unit – I :

Introduction to computers: Definition, Characteristics and limitations of computers - Elements of Computers - Hardware - CPU - Primary and Secondary memory - Input and Output devices. IT enabled services - BPO, KPO, Call centers.

Modern communications: (Concepts only)- communications – FAX, Voice mail, and information services – E Mail – Creation of email id - group communication – Tele conferencing – Video conferencing – File exchange – Bandwidth – Modem – Network Topologies – Network types LAN, MAN, WAN and their architecture – Dial up access

Unit – II :

Operating System and Windows: Operating Systems: Meaning, Definition, Functions and Types of Operating Systems - Booting process – Disk Operating System: Internal and External Commands – Wild Card Characters – Computer Virus, Cryptology. Windows operating system - Desktop, Start menu, Control panel, Windows accessories .

Unit – III :

MS Office I : MS Word : Word Processing : Meaning and features of word processing – Advantages and applications of word processing - Parts of MS Word application window – Toolbars – Creating, Saving and closing a document – Opening and editing a document - Moving and copying text – Text and paragraph formatting, applying Bullets and Numbering – Find and Replace – Insertion of Objects, Date and Time, Headers, Footers and Page Breaks – Auto Correct – Spelling and Grammar checking – Graphics, Templates and wizards - Mail Merge : Meaning, purpose and advantages – creating merged letters, mailing labels, envelops and catalogs- Working with Tables – Format Painter.

MS EXCEL : Features of MS Excel – Spread sheet / worksheet, workbook, cell, cell pointer, cell address etc., - Parts of MS Excel window – Saving, Opening and Closing workbook – Insertion and deletion of worksheet – Entering and Editing data in worksheet – cell range – Formatting – Auto Fill –Formulas and its advantages – References : Relative, absolute and mixed – Functions: Meaning and Advantages of functions, different types of functions available in Excel – Templates –Charts – Graphs – Macros : Meaning and Advantages of macros, creation, editing and deletion of macros – Data Sorting, Filtering, validation, Consolidation, Grouping, Pivot Table and Pivot Chart Reports.

Unit – IV :

MS Office II : MS Access - Data, Information, Database, File, Record, Fields-

Features, advantages and limitations of MS Access – Application of MS Access – parts of MS Access window – Tables, Forms, Queries and Reports – Data validity checks – (Theory with simple problems)

MS PowerPoint: Features, advantages and application of Ms Power point – Parts of MS Power point window – Menus and Tool bars – Creating presentations through Auto content wizard, Templates and manually – slide show – saving, opening and closing a Presentation – Inserting, editing and deleting slides –Types of slides - Slide Views- Formatting –Insertion of Objects and Charts in slides- Custom Animation and Transition.

Multimedia : Meaning, purpose, Usage and application – Images, Graphics, sounds and music – Video presentation devices – Multimedia on web.

Unit- V :

Internet & E commerce

Services available on internet - WWW - ISP.

E commerce : Meaning ,advantages and limitations, applications of E commerce - trading stocks online, ordering products / journals / books etc., online, travel and tourism services, employment placement and job market, internet banking, auctions, online publishing, advertising-Online payment system..(including practicals)

Lab Work:

MS DOS
MS WINDOWS
MS WORD
MS EXCEL
MS ACCESS
MS POWERPOINT
INTERNET AND E COMMERCE PRACTICALS

References:

1. Information Technology : Dennis P. Curtin, McGraw Hill International
2. Fundamentals of Computers : P. Mohan, Himalaya Publishing House
3. Fundamentals of Computers : Atul Kahate, Tata McGraw Hill
4. Fundamentals of Computers : V. Srinivas, Kalyani Publications
5. MS Office : Sanjay Saxsena
6. MS Office : BPB Publications
7. E commerce : CSV Murthy,Himayalaya Publishing House
8.Raymond Green Law :Fundamentals of theInternet,Tata Mc Graw Hill
9.Efraim Turban :Electronic Commerce,Pearson Education
10. E-Commerce,E-Business :C.S.Rayudu ,Himalaya Publishing House
11. Fundamentals of Information Technolgy: Deepak Bharihanke, Excel
12. Understanding Computers: Morley, Cengage

B.COM. - II YEAR

ADVANCED ACCOUNTING

Paper: 201

P.P.W.: (5+1= 6 Hours) Max. Marks :70+30

Objectives:

1.To appraise the students about the application of accounting knowledge in special business activities.

2. To impart the skills of preparation of final accounts of non- trading concerns, partnership, organizations.

3.To develop the skills of recording of transactions relating to issue of shares and debentures, branches and departments manually and using computers.

UNIT – I: Accounts from Incomplete Records - Hire purchase and installment purchase system.

Single Entry: Features – books and accounts maintained- Recording of transactions -Ascertainment of Profit. –(Statement of Affairs method only).

Hire Purchase System - Features –- Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession - Installment Purchase System - Difference between Hire purchase and Installment purchase systems -Accounting Treatment in the books of Purchaser and Vendor

UNIT-II : Accounting of Non-Profit Organizations:

Non-Profit entities-Features of non-profit entities – Accounting process-Preparation of summaries -Receipts and Payments Account meaning and special features-Procedure for preparation-uses and limitations.

Income and Expenditure Account- features- procedure for preparation-preparation of Balance Sheet

UNIT - III : Partnership Accounts:

Legal provisions in the absence of Partnership Deed - Fixed and Fluctuating Capitals –Preparation of final accounts. – Accounting Treatment of Goodwill and Admission of a partner.

UNIT – IV : Accounting treatment of Retirement and Death of a Partner – Accounting treatment relating to Good will - ratio of gain – Settlement of amount due to the retiring Partner/ deceased partner (Excluding joint life policy). Dissolution of Firm (Excluding Sale to Firm, Company and Amalgamation) – Recording of partnership transaction and preparation of final accounts using computers. (24 hours)

UNIT-V : Company Accounts:

Issue of Shares at par, Premium and at Discount - Forfeiture and Reissue of Shares-Rights issue (Theory Only) - Recording of transactions relating to issue of shares using computers. Issue and Redemption of Debentures - Redemption out of profits –sinking fund method. Recording of transaction relating to issue and redemption of debentures using computers Underwriting of Issue of Shares(Simple Problems)

Suggested Readings:

1.Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons

2. Accountancy – I Mcgraw Hill Co	Tulasian	TaTA
3.Accountancy - I Publishers	S.P. Jain & K.L Narang	Kalyani
4.Financial Accounting – Books	Dr.V.K.Goyal	Excel
5.Introduction to Accountancy S.Chand and CO	T.S.Grewal	
6.Accountancy – I Mcgraw Hill co	Haneef and Mukherjee	tata
7.Advanced Accountancy - Himalaya publishers	Arulanandam	
8..Advanced Accountancy-I Publishing co.	S.N.Maheshwari & V.L.Maheswari	Vikash

BUSINESS STATISTICS

Paper 202
P.P.W: 4 (3+1) **Max.Marks:100(70+30)**

The objective of this paper is to impart knowledge on the application of statistical tools and techniques in business decision-making & use of MS-Excel in interpretation of statistical data.

UNIT 1: Introduction to Statistics:

Meaning, definition, importance and limitations of statistics. Collection of data-Primary and Secondary data – (Sampling- Random-Non Random-Census) - Schedule and questionnaire –Frequency distribution –Tabulation-Diagrammatic and graphic presentation of data using Computers (Excel)

UNIT 2: Measures of Central Tendency:

Defination Objectives and Characteristics of measures of Central Tendency-Types of Averages – Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Deciles, Percentiles, Properties of averages and their applications. Calculation of averages using computers.

UNIT 3: Measures of dispersion and Skewness:

Meaning, definitions, Properties of dispersion-Range-Quartile Deviation –Mean Deviation-Standard Deviation- Coefficient of Variation-Skewness definition-Karl Pearson's and Bowley's Measures of skewness-Normal Distribution Calculation of Dispersion and skewness using Computers.

UNIT 4: Measures of Relation:

Meaning, definition and use of correlation – Types of correlation-Karlpearson's correlation coefficient – Spearman's Rank correlation-probable error-Calcuation of Correlation by Using Computers.

UNIT 5: Analysis of Time Series & Index Numbers:

Meaning and utility of time series Analysis- Components of Time series-Measurement of trend and Seasonal Variations – Utility of Decomposition of Time Series-Decentralization of Data-Calculation of trend and seasonal variations using computers.

Meaning, Definition and Importance of Index Numbers-Methods of Construction of Index Numbers – Price Index Numbers – Quantity Index Numbers –Tests of Adequacy of Index Numbers – Deflating Index Numbers – Cost of Index Numbers-Limitation of Index Numbers. Calculation of index numbers using computers.

Suggested Readings:

1. Business Statistics — Reddy, C.R Deep Publications, New Delhi.
2. Statistics-Problems and Solutions — Kapoor V.K.
3. Fundamentals of Statistics — Elhance.D.N
4. Statistical Methods — Gupta S.P
5. Statistics — Gupta B.N.
6. Fundamentals of Statistics — Gupta S.C
7. Statistics-Teory,Methods and Applications. — Sancheti,D.C. &Kapoor V.K
8. Practical Business Statistics — Croxton & Crowdorv.
9. Statistics and their applications to Commerce — Borddigtion
10. Statistics Concepts & Applications — Nabendu Pal & Sahadeb Sarkar
11. Business Statistics, An Applied Orientation — P.K.Viswanathan
12. Business Statistics — J.K.Sharma
13. Business Statistics — Bharat Jhunjhunwala
14. Business Statistics — R.S.Bharadwaj

B.Com II Year
Paper:203
PPW:5 MaxMarks:70+30

Financial Services - Banking & Insurance

Objective: To impart knowledge on Banking and Insurance concepts and to Gain an insight on Financial Services

Unit I: Introduction to Financial Services

a. Meaning of Financial Services, Structure of Indian Financial System Importance of Financial system for the economic development.(Financial and Banking system charts)
b. Definition of Bank, Functions of Commercial Banks and Reserve Bank of India.(Forms of various accounts and deposits)
c. Definition/ Meaning of Insurance and reinsurance, Principles of Insurance, kinds of Insurance, advantages of insurance, globalization of insurance and insurance sector reforms in India.

Unit II : Banking Systems/ and III. its Regulation

a. Banking Systems – Branch banking, Unit Banking, Correspondent banking, Group banking, Deposit banking, Mixed banking and Investment banking. An overview of banking; Banking Sector Reforms with special reference to Prudential Norms: capital adequacy norms, income recognition norms, classification of assets and NPAs; Innovations in Banking-ATMs, E-Banking, Credit cards, Online & Offshore Banking, etc (working and operations)
Regional Rural banks, Cooperative banks, Micro Finance, Priority Sector Lending, Indigenous banking, Role of NABARD, Development Financial institutions – SFC,SIDBI.

Unit IV: Banker and customer, loans and advances:

a. Banker and customer definition and their relationship, types of customers and modes of operations, procedure and precaution for opening an account, pass book & its features, Rights, duties and obligations of the banker.(Application forms for opening accounts, Cheque Books, pass books, requisition slips for withdrawals and deposits, bank statements, etc)
b. Promissory Note and Bills of Exchange and Cheque, differences between them, types of crossing the cheque, payment of cheque and consequences of wrongful dishonor, collection of local and upcountry cheques, responsibilities and liabilities of collecting banker and statutory protection to the collecting banker.(Promissory notes, B/E, Crossed cheques-various modes)
c. Types of loans and advances, principles of sound lending policies, credit Appraisals of various forms of loans and advances- modes of creating charges-lien, pledge, mortgage and hypothecation (Documents required for sanction of loans and advances)

Unit V. Financial Markets & Services:

a Indian Money Market- Characteristics, Structure, composition (call and notice Money, market, treasury bills market, CDs, CPs, short term bill market, MMMFs and DFHI) problems and reforms in Indian money markets (CDs,CPs,Treasury Bills)

b. Indian capital market-composition and growth of primary and secondary markets, differences between primary and secondary markets, capital market reforms and NBFCs in capital markets; Stock Exchanges, NSE, OTCEI, Online Trading and role of SEBI.

c. Financial intermediaries and services : Merchant bankers, Mutual funds, Leasing companies, Venture Capital Funds, Forfaiting, Loan Syndication, Factoring, Custodial Services, Depository Services, and Depository Participants.(Documentation)

Books Recommended:

1 Maheshwari and Paul R.R… Banking theory law and practice
2.Sundaram and Varsheney… Banking theory law and practice
3. Tannans-- Banking law and practice in India
4. Aryasri.. Banking and Financial system
5. M.Y.Khan.. Indian Financial System
6. P.K.Gupta.. Insurance and risk management
7.Vijaya Raghavan Iyengar Introduction to Banking
8. Guruswamy: Banking Theory Law and Practice, Tata
9. Aryasri &Murty: Banking and Financial Systems, Tata
10.Guruswamy: Merchant Banking and Financial Services, Tata
11.Murthy and Venugpoal: Indian Financial System, IK International
12. Paul Suresh: Management of Banking and Financial Services, Pearson

B.Com (SECOND YEAR) : Gen & CA
PAPER : VIII. TAXATION

Paper : 204
Max Marks : 70+30 (Theory + Internal Assessment)

PPW : 4 Hrs.
Pass Marks : (24+11)

* Internal Assessment for 30 marks (10 Marks for record & 20 Marks for Assignment).

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

UNIT I :

Introduction : Indian Taxation system – Overview of Direct Taxes – Income Tax – Basic concepts : Income, Person, Assessee, Assessment year, Previous year, Income, Casual Income, PAN. Gross total income. Agricultural income and its assessment. Capital and Revenue. Residential status and incidence of tax of an individual (Including problems). Incomes exempt from tax, Tax evasion vs. Tax avoidance.

Wealth Tax : Concept – Previous year, Assessment year, Assesses, Valuation date, Taxable assets, Deemed assets, Exempted assets, Net wealth (theory only).

UNIT II :

Income from Salary : Salary, meaning, allowances, perquisites, profits in lieu of salary and their treatment, deductions from salary income, computation of salary income. Qualified savings and provident funds (including problems).

Income from House Property : Meaning, annual value, let-out house, self-occupied house, deemed to be let-out house, deductions from annual value, deemed ownership, co-ownership, unrealized rent, computation of income from house property (including problems).

UNIT III :

Income from business and profession : Chargeability, deduction expressly allowed and disallowed, General deductions, computation of profits and gains from business and profession (including problems).

UNIT IV :

Deductions from gross total income and Rebates : Clubbing and aggregation of income, Set off and carry forward of losses.

Computation of total income and tax liability of individual assesses (including problems). Assessment procedure – Filing of returns, Self-assessment, Regular assessment, Best judgement assessment, Income tax authorities (Theory only).

LAB WORK :

Filing Relevant Forms of Individual Assesses. Format and filing of Application for PAN. Form No. 12BA, Form 16, Challan No. STNS 280, ITR-1 and ITR-2.

UNIT V (Indirect Tax) : (Theory only)

Custom Duty : Chargeability, Important Terms and Definitions, Procedure for Imports, Procedure for Exports, Concepts of Warehousing and Baggage (Theory only)

Central Excise : Chargeability, Meaning of goods and excisable goods, Deemed manufacture, Manufacturer, Principles of Classification, Concepts of Specific duty, Advalorem duty, Maximum Retail Sale Price, CENVAT Credit (Theory only).

Value Added Tax (VAT) : Historical Background, Important terms and Definitions, Statement of Objects (Theory only)

Service Tax : Introduction, Classification, Chargeability, Taxable event, Tax payment, Registration (Theory Only)

LAB WORK :

Application form for TOT Registration, TOT Registration Certificate, Application Form for VAT Registration, VAT Registration Certificate, Application for Registration for Service Tax.

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II Year U.G. Degree syllabus from the academic year 2013-2014

Second Year B.A./B.Com./B.Sc. (Computer Applications)

Paper-IV : Programming in C and C++

Theory : 3 hrs/week (Max. Marks: 100) Practicals : 2 hrs/week (Max. Marks: 50)

Programming in C :

Unit – I

Overview of C – Constants, Variables, and Data Types – Managing Input and Output Operations – Operators and Expressions – Decision Making and Branching Statements – Decision Making and Looping Statements.

Unit – II

Arrays – Character Arrays and Strings – Functions: Built-in and user-defined Functions – Structures and Unions – Pointers – Pointer Arithmetic – Pointers to Arrays.

Unit – III

Pointers to Functions and Structures – Linked Lists – Files – Input/Output Operations on Files – Sequential and Random Access to Files – Command Line Arguments.

Programming in C++ :

Unit – IV

Principles of Object-Oriented Programming – Tokens, Expressions and Control Structures – Functions in C++ – Classes and Objects.

Unit – V

Constructors and Destructors – Operator Overloading and Type Conversions – Inheritance, Types of Inheritance – Extending Classes – Pointers, Virtual Functions and Polymorphism.

Reference books:

1. Computing Fundamentals and C Programming : E.Balagurusamy, TMH
2. Object-Oriented programming with C++, 4th Edition : E.Balagurusamy, TMH

Lab Work: (50 Marks)

C Programs	---	minimum 12 programs
C++ Programs	---	minimum 8 programs

QUESTION PAPER SETTING

PART–A : Eight Short Note Questions (5 from Units-I, II & III and 3 from Units-IV & V)
PART–B : Eight Long Questions (5 from Units-I, II & III and 3 from Units-IV & V)

RAYALASEEMA UNIVERSITY, KURNOOL

II Year U.G. Degree syllabus from the academic year 2013-2014

THREE YEAR B.A./B.Com./B.Sc. DEGREE EXAMINATIONS, MODEL PAPER

SECOND YEAR EXAMINATION

Part II – Computer Applications

Paper IV – Programming in C and C++

(English Medium)

Time : 3 Hours **Max. Marks : 100**

PART-A

Answer any **FIVE** questions (5 x 8 = 40 marks)

1. What is a data type? Explain the data types supported both in C and C++.
2. Explain how ' if-else ' is different from ' switch ' statement in C.
3. What is an Array? Discuss how to access the elements of an array in C.
4. What is recursion? Explain with an example in C.
5. Write about Command Line Arguments.
6. Differentiate between Procedure-oriented and Object-oriented programming.
7. Write short notes on public, private and protected access modes.
8. Differentiate between Constructors and Destructors.

PART-B

Answer any **FOUR** questions (4 x 15 = 60 marks)

9. Write about different looping control structures available in C.
10. Explain any four String functions available in C.
11. Distinguish between Structures and Unions in C.
12. Define Pointer. Write about Pointers to Functions with an example.
13. Write about I/O operations performed on files in C.
14. Discuss the advantages and disadvantages of using functions in C++.
15. Define inheritance. Explain multi-level, multiple and hybrid inheritance.
16. Explain Operator overloading with an example.

III YEAR

3201
B.COM (THIRD YEAR) GENERAL & CA
PAPER:IX. CORPORATE ACCOUNTING (EM&TM)

Paper:301
Max. Marks: (70+30*)(Theory +Internal assessment)
P.P.W=(4+1=5hrs)
Pass marks: (24+11)

* Internal Assessment for 30 marks (10 Marks for record and 20 for Assignment)

OBJECTIVES:

1. To provide the knowledge relating to the Accounting Standards.
2. To enable students to company final accounts using computers.
3. Enabling students to prepare financial statements of Insurance & Banking Cos.

UNIT –I: ACCOUNTING STANDARDS-VALUATION OF GOODWILL AND SHARES.

Accounting Standards – Need and importance –An overview of Indian Accounting Standards.
Valuation of Goodwill –Need and methods –Normal Profit Method ,Super Profits Method – Capitalization Method.
Valuation of shares – Need for Valuation –Methods of Valuation –Net assets method. Yield basis method, Fair value method.

UNIT—II : COMPANY FINAL ACCOUNTS—ISSUE OF BONUS SHARES AND PROFITS PRIOR TO INCORPORATION.

Preparation of final Accounts –Provisions relating to preparation of final accounts –
Profit and loss account and balance sheet –Preparation of final accounts using computers.
Issue of bonus shares – Provisions of company's Act and SEBI guide lines. Acquisition of business and profits prior to incorporation – Accounting treatment.

UNIT- III: AMALGAMATION AND INTERNAL RECONSTRUCTION

Amalgamation – In the nature of merger and purchase – Calculation of purchase consideration – Treatment in the books of transferor and transferee (as per Accounting Standard 14, excluding inter—company holdings) Recording of transactions relating to mergers using computers.
Internal Reconstruction – Accounting Treatment –Preparation of final statements after reconstruction. Recording of transactions relating to Internal Reconstruction using computers.

UNIT-IV: BANK ACCOUNTS.

Bank Accounts –Books and Registers to be maintained by banks –Slip system of posting- rebate on bills discounted –Schedule of advances –Non - performing assets –Legal provisions relating to Preparation of final accounts –Preparation of bank final Accounts using computers.

UNIT—V: ACCOUNTS OF INSURANCE COMPANIES.

Life Insurance Companies –Preparation of Revenue Account, Profit and loss account, Balance Sheet and Valuation Balance Sheet.

Suggested Readings:

1. Principles and Practice of Accounting R.L. Gupta & V.K. Gupta ---- Sulthan Chand & Sons
2. Accuntancy – III Tulasian ---- Tata Mcgraw Hill Co
   Accountancy-III ---- S.P. Jain & K.L. Narang Kalyani Pub.
3. Financial Accounting ---- Dr. V.K.Goyal Excel Books
4. Introduction to Accountancy ---- T.S.Grewal S.Chand and Co
5. Modern Accountancy Vol-II ---- Haneef and Mukherjee Tata Mcgraw Hill
6. Advanced Accountancy ---- Arulanandam Himalaya Pub.
7. Advanced Accountancy Vol-II ---- S.N.Maheshwari & V.L.Maheswari Vikash Pub.
8. Advanced Accountancy: ---- Shukal Greval S.Chand and Co.
9. Advanced Accountancy: ---- R.L.Gupta and Radhaswamy Sulthan Chand & Sons
10. Corporate Accounting ---- Goyal VK Excel
11. Corporate Accounting ---- Verma KK Excel
12. International Accounting ---- Soudagaram Cengage.

3202

B.COM (THIRD YEAR) GENERAL & CA.

PAPER:XI: COST AND MANAGEMENT ACCOUTING (EM & TM)

Paper : 302 Max. Marks 70+30 PPW: 5 Hrs

Objectives:

1. To impart conceptual knowledge of costing and management accounting
2. To train the students in finding the cost of products using different methods of costing
3. To equip basic skills of analysis of financial information to be useful to the Management.

Unit-I: Introduction:

Cost Accounting: Definitions, features, objectives, functions, scope, advantages and limitations. Management Accounting: Definitions, Features, objectives, functions, scope, advantages and limitations. Relationship between cost, management and financial accounting. Cost concepts-Cost classification-Preparation of cost sheet. Relationship of costing department with other departments.

Unit-II: Elements of Costs:

Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ,ABC analysis. Issue of materials to production-pricing methods-FIFO,LIFO with base stock, average methods.

Labor Cost: direct and indirect labor cost-methods of payment of wages including incentive plans-Halsey and Rowan plans, Tailors Piece Rate method.

Overheads: Features, classification, methods of allocation and apportionment of overheads.

Unit-III: Methods of Costing:

Single or Output Costing, job and contract costing: Features, process-computation of cost.

Process Costing: features, treatment of normal and abnormal losses, preparation of process cost accounts (excluding equivalent products and inter process profits)

Unit-IV: Financial statements:

Features, limitation, Need for, Meaning, objectives and process of financial statement analysis-Methods and techniques of analysis (comparative, common size, Trend Analysis)

Unit-V: Ratio analysis :

Calculation of liquidity, solvency, profitability and turnover ratios interpretation of ratios.

Suggested Readings:

1. Cost and Management Accounting	Jain and Narang	Kalyani Publishers
2. Cost and Management Accounting	M.N. Arora	Himalaya Publishing
3. Cost Accounting	Dutt	Pearson Education
4. Management Accounting	Sarma and Gupta	Kalyani Publishers
5. Management Accounting	S.P. Guptha	S.Chand Co.
6. Management Accounting	S.N. Maheswari	Sultan Chand and Sons
7. Cost Accounting	Jawaharlal	Tata Megrew Hills
8. Cost Accounting Theory & Practice	Banerjee	PHI
9. Management and Cost Accounting	Drury	Cengage

Computer Science & Applications

RAYALASEEMA UNIVERSITY, KURNOOL

First Year B.A. / B.Com. / B.Sc. (Computer Science)

Paper-I : PC SOFTWARE AND 'C' PROGRAMMING

120 hrs

4 hrs/ week

Unit – I: 24 hrs

Computer definition – Types of Computer – Logical Organization of a Digital Computer – Memory : Main Memory : RAM, ROM and Cache – Secondary Memory : Magnetic tape, Floppy disk, Hard disk, Compact disk – Input devices – Output devices – Operating system : Definition, functions of an operating system, Types of Operating systems : Brief details of batch processing, Multi Programming, multi tasking, time sharing, real time operating systems - Introduction to DOS, DOS internal commands, DOS External Commands – Introduction to Windows, Desktop, File, Folder, My Computer, My documents, Recycle bin, Internet Explorer, Windows Explorer – Types of Programming Languages.

Unit – II : 24 hrs

Word Basics : Starting word, Creating a new document, Opening preexisting document, The parts of a word window, Typing text, Selecting text, Deleting text, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut, Copy, Paste – Printing.

Formatting Your Text and Documents : Auto format, Line spacing, Margins, Borders and Shading.

Working with Headers and Footers: definition of headers and footers, creating basic headers and footers, creating different headers and footers for odd and even pages.

Tables : Creating a simple table, Creating a table using the table menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width .

Graphics : Importing graphics, Clipart, Insert picture, Clip Art Gallery, using word's drawing features, drawing objects, text in drawing.

Templates : Template types, using templates, exploring templates, modifying templates.

Macros : Macro, Recording macros, editing macros, running a macro.

Mail Merge : Mail Merge concept, Main document, data sources, merging data source and main document. Overview of word menu options word basic tool bar.

Power Point : Basics, Terminology, Getting started, Views

Creating Presentations : Using auto content wizard, Using blank presentation option, Using design template option, Adding slides, Deleting a slide, Importing Images from the outside world, Drawing in power point, Transition and build effects, Deleting a slide, Numbering a slide, Saving presentation, Closing presentation, Printing presentation elements.

Unit – III : 24 hrs

MS Access

Creating a Simple Database and Tables: Creating a contacts Databases with the wiz, The Access Table Wizard, Creating Database Tables without the wizard, Field Names, Data Types and Properties, Adding, deleting fields, renaming the fields in a table.

Forms: The Form Wizard, Saving Forms, Modifying Forms

Entering and Editing Data: Adding Records, Duplicating previous entries without Retyping, Undo, Correcting Entries, Global Replacements, Moving from Record to Record in a table.

Finding, Sorting and Displaying Data: Queries and Dynasets, Creating and using select queries, Returning to the Query Design, Multilevel Sorts, Finding incomplete matches, Showing All Records after a Query, Saving Queries, Crosstab Queries.

Printing Reports : Simple table, Form and Database printing, Defining advanced Reports, Manual Reporting, properties in Reports, Saving Reports.

Relational Databases: Flat Versus Relational, Types of Relationships, Viewing Relationships, Defining and Redefining Relationships, Creating and Deleting Relationships.

MS Excel

Excel Basics: Overview of Excel features, Getting started, Creating a new worksheet, Selecting cells, Entering and editing text, Entering and editing Numbers, entering and editing Formulas, Referencing cells, moving cells, copying cells, sorting cell data, inserting rows, inserting columns, Inserting cells, Deleting parts of a worksheet, clearing parts of a worksheet.

Formatting : Page setup, changing column widths and Row heights, auto format, changing font sizes and Attributes, centering text across columns, using border buttons and Commands, changing colors and shading, hiding rows and columns.

Introduction to functions: Parts of a function, Functions Requiring Add-ins, The Function Wizard. Examples functions by category: Date and time functions, Engineering functions, Math and Trig functions, Statistical functions, Text functions.

Excel Charts: Chart parts and terminology, Instant charts with the chard wizard, creation of different types of charts, printing charts, deleting charts – Linking in Excel – Excel Graphics Creating and placing graphic objects, Resizing Graphics, Drawing Lines and Shapes.

Unit – IV : 24 hrs

Introduction – Fundamentals : Programming – High Level Languages – compiling programs – Integrated Development Environments – Language Interpreters – Compiling your first program – Running your program – understanding your first program – comments – variables, Data types, and Arithmetic Expressions : working with variables – Understanding Data types and constants – working with Arithmetic Expressions – The Assignment operators – The printf function – The scanf function - Decision making : The if statement – the if else construct – Nested if statements – The else if construct – The switch statement – Boolean variables – The conditional operator – program looping : The for statement – Relational operators – Nested for loops – The while statement – The do statement – The break statement – The continue statement – working with Arrays :

Defining an array – Initializing Arrays – character Arrays – The const Qualifier – Multidimensional arrays- variable length Arrays.

Working with Functions : Defining a Function-Arguments and Local variables – Returning Function Results – Function calling – Declaring Return Types and Argument types – Top Down programming – Functions and Arrays – global variables – Automatic and static variables – Recursive Functions.

Unit – V : 24 hrs

Working with structures : Defining structure – Functions and structures – Initializing structures – Array of structures- structures containing structures – structures containing Arrays – Structure variants – Character strings : Array of characters – variable length character strings – Escape characters – character strings, structures and arrays - character operations.

Pointers : Defining a pointer variable – using pointers in Expressions – pointers and structures (Exclude Linked List) – Pointers and Functions – pointers and Arrays – operations on pointers – pointers and Memory address.

Operations on Bits : Bit operators – Bit fields

The preprocessor : The # define statement – The # # operator – The #include statement – conditional compilation.

More on Data Types : Enumerated Data Types – The typedef statement – Data Type conversions

Input and Output Operations in "C" : Character I/O – formatted I/O – Input and Output Operations with Files – Special functions for working with Files.

Miscellaneous and Advanced features: The Goto Statement, the null statement, working with unions- the comma operator-type qualifiers.

Prescribed Books :

1. Peter Norton, Introduction to Computers, Sixth edition, Tata McGraw Hill(2007).
2. Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill (2008) (Chapters : 4 to 9, 11, 12, 13, 14, 15, 17, 18, 19, 24, 25, 28, 30, 31, 33, 34, 35)
3. Stephen G. Kochan, Programming in C, Third Edition, Pearson Education (2007) (Chapters: 1 to 14, 16, 17)

Reference Books :

1. Michael Miller, Absolute Beginners Guide to Computer Basics, Fourth Edition, Pearson Education (2007).
2. Deborah Morley, Charles S.Parker, Under Standing Computers today and tomorrow, 11th Edition, Thomson (2007).
3. Ed Bott, Woody Leonhard, Using Microsoft Office 2007, Pearson Education (2007).
4. Beyron S Gottfried, Programming with C, Second Edition, Tata McGraw Hill (2007).
5. Ashok N. Kamthane, Programming with ANSI and Turbo C, Pearson Education (2008).

Lab Work: (50 marks)

MS WORD	---	minimum 3 programs
MS POWERPOINT	---	minimum 3 programs
MS EXCEL	---	minimum 3 programs
MS ACCESS	---	minimum 3 programs
C Language	---	minimum 18 programs

QUESTION PAPER SETTING

Three questions from each unit, i.e., totally Fifteen questions from all Five Units.

RAYALASEEMA UNIVERSITY, KURNOOL

THREE YEAR B.A. / B.Sc. / B.Com. DEGREE EXAMINATIONS, MODEL PAPER

FIRST YEAR EXAMINATION

Part II – Computer Science

Paper I – PC SOFTWARE AND 'C' PROGRAMMING

Time : 3 Hours **Max. Marks : 100**

Answer all Units, any **TWO** from each unit (10 x 10 = 100 marks)

UNIT - I

1. Write about the Logical organization of a Digital Computer with a neat block diagram and explain its units in detail.

2. Differentiate between Primary and Secondary memories in detail.

3. Write about the salient features of MS-Windows Operating System.

UNIT - II

4. Write about the Table menu in MS-Word in detail.

5. Explain about Mail merge concept with an example.

6. Describe the steps to create a presentation using auto content wizard.

UNIT - III

7. How to create a database and the steps involved in creating Reports in MS-Access with an example.

8. Explain about Engineering and Math functions in MS-Excel.

9. Explain about different types of Charts in MS-Excel.

UNIT - IV

10. Write about the various types of operators available in 'C' language.

11. Define Recursion and explain it with a suitable program.

12. Write about different loop control structures available in 'C' language.

UNIT - V

13. Differentiate between Structure and Union with examples.

14. Define Pointer and explain Pointers with Arrays concept.

15. Explain about file management in 'C' language in detail.

RAYALASEEMA UNIVERSITY, KURNOOL

II Year U.G. Degree syllabus from the academic year 2013-2014

Second Year B.A./B.Com./B.Sc. (Computer Applications)

Paper-IV : Programming in C and C++

Theory : 3 hrs/week (Max. Marks: 100) Practicals : 2 hrs/week (Max. Marks: 50)

Programming in C :

Unit – I

Overview of C – Constants, Variables, and Data Types – Managing Input and Output Operations – Operators and Expressions – Decision Making and Branching Statements – Decision Making and Looping Statements.

Unit – II

Arrays – Character Arrays and Strings – Functions: Built-in and user-defined Functions – Structures and Unions – Pointers – Pointer Arithmetic – Pointers to Arrays.

Unit – III

Pointers to Functions and Structures – Linked Lists – Files – Input/Output Operations on Files – Sequential and Random Access to Files – Command Line Arguments.

Programming in C++ :

Unit – IV

Principles of Object-Oriented Programming – Tokens, Expressions and Control Structures – Functions in C++ – Classes and Objects.

Unit – V

Constructors and Destructors – Operator Overloading and Type Conversions – Inheritance, Types of Inheritance – Extending Classes – Pointers, Virtual Functions and Polymorphism.

Reference books:

1. Computing Fundamentals and C Programming : E.Balagurusamy, TMH
2. Object-Oriented programming with C++, 4th Edition : E.Balagurusamy, TMH

Lab Work: (50 Marks)

C Programs	---	minimum 12 programs
C++ Programs	---	minimum 8 programs

QUESTION PAPER SETTING

PART–A : Eight Short Note Questions (5 from Units-I, II & III and 3 from Units-IV & V)

PART–B : Eight Long Questions (5 from Units-I, II & III and 3 from Units-IV & V)

RAYALASEEMA UNIVERSITY, KURNOOL

II Year U.G. Degree syllabus from the academic year 2013-2014

THREE YEAR B.A./B.Com./B.Sc. DEGREE EXAMINATIONS, MODEL PAPER

SECOND YEAR EXAMINATION

Part II – Computer Applications

Paper IV – Programming in C and C++

(English Medium)

Time : 3 Hours **Max. Marks : 100**

PART-A

Answer any **FIVE** questions (5 x 8 = 40 marks)

1. What is a data type? Explain the data types supported both in C and C++.
2. Explain how ‘ if-else ’ is different from ‘ switch ’ statement in C.
3. What is an Array? Discuss how to access the elements of an array in C.
4. What is recursion? Explain with an example in C.
5. Write about Command Line Arguments.
6. Differentiate between Procedure-oriented and Object-oriented programming.
7. Write short notes on public, private and protected access modes.
8. Differentiate between Constructors and Destructors.

PART-B

Answer any **FOUR** questions (4 x 15 = 60 marks)

9. Write about different looping control structures available in C.
10. Explain any four String functions available in C.
11. Distinguish between Structures and Unions in C.
12. Define Pointer. Write about Pointers to Functions with an example.
13. Write about I/O operations performed on files in C.
14. Discuss the advantages and disadvantages of using functions in C++.
15. Define inheritance. Explain multi-level, multiple and hybrid inheritance.
16. Explain Operator overloading with an example.

RAYALASEEMA UNIVERSITY, KURNOOL

Year U.G. Degree Syllabus from the Academic Year 2014-2015

Third Year B.A. / B.Com. / B.Sc. (Computer Applications) Paper-III :
Relational Database Management Systems

Unit -I :

Introduction : Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Relational Databases – Database Design – Object based and Semi structured Databases – Data Storage and Querying – Transaction Management – Data Mining and Analysis – Database Architecture – Database Users and Administrators – History of Database Systems

Relational Model : Structure of Relational Databases – Fundamental, Additional and Extended Relational Algebra Operations – Null values – Modification of the Database

Unit-II:

SQL : Background – Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null values – Nested Subqueries and Complex Queries – Views – Modification of the Database – Joined Relations

Advanced SQL : SQL Data Types and Schemas – Integrity Constraints – Authorization – Embedded and Dynamic SQL – Functions and Procedural Constructs – Recursive Queries – Advanced SQL Features

Other Relational Languages : The Tuple Relational Calculus – The Domain Relational Calculus – Query by Example – Datalog

Unit-III:

Database Design and the E-R Model : Overview of the Design Process – The E-R Model – Constraints – E-R Diagrams, Design Issues – Weak Entity Sets – Extended E-R Features – Database Design for Banking Enterprise – Reduction to Relational Schemas – Other Aspects of Database Design

Relational Database Design : Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition using Functional Dependencies – Functional Dependency Theory – Decomposition using Functional and Multi-valued Dependencies – More Normal Forms – Database Design Process – Modeling Temporal Data

Unit-IV :

Query Processing : Overview – Measures of Query Cost – Selection Operation – Sorting – Join Operation – Other Operations – Evaluation of Expressions

Query Optimization : Overview – Transformation of Relational Expressions – Estimating Statistics of Expression Results – Choice of Evaluation Plans – Materialized Views

Unit-V :

Transactions : Transaction Concept – Transaction State – Implementation of Atomicity and Durability – Concurrent Executions – Serializability – Recoverability

Concurrency Control : Lock-based Protocols – Timestamp-Based Protocols – Validation-Based Protocols – Multiple Granularity – Multiversion Schemes – Deadlock Handling – Insert and Delete Operations – Weak Levels of Consistency

Recovery System : Failure Classification – Storage Structure – Recovery and Atomicity – Log based Recovery – Recovery with Concurrent Transactions

(Scope and standard as in chapters 1 to 7, 13 to 17 in the prescribed book)

9. Year U.G. Degree Syllabus from the Academic Year 2014-2015

Prescribed Book :

Database Systems Concepts, 5th edition, Abraham Silberschatz, Henry F.Korth, and S.Sudershan, Mc Graw Hill Publishers

Reference Books :

17. Database Management Systems, 3rd edition, Raghu Ramakrishnan, Johannes Gehrke, Tata Mc Graw Hill Publishers

18. Introduction to Database Management Systems, ISRD Group, Ace series, Tata Mc Graw Hill Publishers

19. SQL, PL/SQL for Oracle 8 & 8i, P.S.Deshpande, Dreamtech Press, New Delhi

Lab Work : (50 marks) SQL * Plus Programs PL/SQL Programs

--- minimum 10 programs

--- minimum 05 programs

Note : Two Programs (one in SQL * Plus and one in PL/SQL) are asked in External practical examinations.

QUESTION PAPER SETTING

Part–A : Eight Short Note Questions (5 from Units-I, II & III and 3 from Units-IV & V)

Part–B : Eight Long Questions (5 from Units-I, II & III and 3 from Units-IV & V)

RAYALASEEMA UNIVERSITY, KURNOOL

III Year U.G. Degree Syllabus from the Academic Year 2014-2015

THREE YEAR B.A./B.Com./B.Sc. DEGREE EXAMINATIONS, MODEL PAPER-I

THIRD YEAR EXAMINATION

Part II – Computer Applications

Paper-III – Relational Database Management Systems

(English Medium)

Time : 3 Hours **Max Marks: 100**

PART-A

Answer any **FIVE** questions(5 x 8 = 40 marks)

1. Explain about the three levels of Data Abstraction.
2. Define with examples (a) Primary Key and (b) Foreign Key
3. Write about any five Aggregate functions of SQL with examples.
4. Write about Entity Sets, Relationship Sets and Attributes.
5. Discuss about Atomic Domains and First Normal Form.
6. Write in brief about Query Optimization.
7. Explain the importance of Transaction Management.
8. Discuss about Recovery with Concurrent Transactions.

PART-B

Answer any **FOUR** questions(4 x 15 = 60 marks)

9. Write about Database Users and the role of Database Administrator.
10. Define Integrity Constraints. Explain the types of Integrity Constraints.
11. Define E-R diagram. Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.
12. What is Normalization? Explain about 1NF, 2NF and 3NF with suitable examples.
13. Write about different Join operations while processing a Query.
14. Write in detail about optimizing Nested subqueries.
15. Discuss about Validation-Based Protocols under Concurrency control.
16. Explain about Recovery with Concurrent Transactions.

RAYALASEEMA UNIVERSITY, KURNOOL

Year U.G. Degree Syllabus from the Academic Year 2014-2015

Third Year B.A. / B.Com. / B.Sc. (Computer Applications) Paper-IV :
Internet Technologies and Cloud Computing

Unit -I :

Fundamentals of Electronic Mail : e-mail Advantages and Disadvantages, User-IDs, Passwords and e-mail Address, Message Components, Message Composition, Mailer Features, e-mail Inner Workings, e-mail Management – The Internet : Internet History, The Way the Internet Works, Internet Congestion, Internet Culture

Unit-II :

Searching the World Wide Web : Directories, Search Engines and Meta Search Engines

Basic HTML : Introduction – Formatting and Hyperlink creation – Semantic vs. Syntactic Tags – Headers and Footers – Lists – Tables

Web Graphics : Popular Image formats – GIF features – Image Tags – Image Maps – Scanners

Unit-III :

Advanced HTML : Frames – Forms – Form Input tags – Style Sheets – Introduction, Types of Style Sheets – Defining your own styles, Properties and values in styles, Style sheets : A worked example, Formatting blocks of information, Layers.

An introduction to Java Script : What is DHTML, Java Script – JavaScript : Features, Data Types, Variables, String manipulation, Operators, Arrays, Control Statements and Functions

Unit-IV :

Cloud Computing Basics : Overview – Cloud Components, Infrastructure, Services – Applications – Intranets and the Cloud – Components, Hypervisor Applications – First Movers in the Cloud – Amazon, Google, Microsoft

The Organization and Cloud Computing : Benefits – Limitations – Security concerns – Regulatory Issues

Cloud Computing Titans : Google, EMC, NetApp, Microsoft, Amazon, Salesforce.com, IBM **Unit-V :**

Cloud for Business Case : Cloud Computing Services – Applications and Benefits

Hardware and Infrastructure : Clients – Mobile, Thin and Thick – Security – Data Leakage, Forensics – Network – Basic Public Internet, Accelerated Internet, Cloud Providers and Consumers, Redundancy – Services – Identity, Integration, Mapping, Payments, Search Cloud Storage : Overview – Basics, Storage as a Service, Security, Reliability, Advantages, Cautions, Outages, Theft – Cloud Storage Providers

RAYALASEEMA UNIVERSITY, KURNOOL

Year U.G. Degree Syllabus from the Academic Year 2014-2015

Prescribed Books :

1. Fundamentals of Internet and World Wide Web, 2nd edition, Raymond Greenlaw and Ellen Hepp, Tata Mc Graw Hill Publishers (Chapter 1, 3, 5, 7, 8, 9)
2. Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP, 4th Edition, Ivan Bayross, BPB Publishers (Chapter 8)
3. Cloud Computing – A Practical Approach, Anthony T.Velte, Toby J.Velte and Robert Elsenpeter, Tata MGH Publishers (Chapter 1, 2, 3, 4, 5, 7)

Reference Books :

9. Thomas A.Powell, The Complete Reference HTML & XHTML, Fourth Edition, Tata McGraw Hill (2006).
10. Raj Kamal, Internet and Web Technologies, Tata McGraw Hill (2007).
11. Gopalan & Akilandeswari, Web Technology: A Developer's Perspective, PHI (2008).

Lab Work : (50 marks)

HTML Programs	---	minimum 08 programs
DHTML & CSS Programs	---	minimum 03 programs
Beginner Level JavaScript Programs	---	minimum 04 programs

QUESTION PAPER SETTING

Part–A : Eight Short Note Questions (5 from Units-I, II & III and 3 from Units-IV & V)

Part–B : Eight Long Questions (5 from Units-I, II & III and 3 from Units-IV & V)

RAYALASEEMA UNIVERSITY, KURNOOL

III Year U.G. Degree Syllabus from the Academic Year 2014-2015

THREE YEAR B.A./B.Com./B.Sc. DEGREE EXAMINATIONS, MODEL PAPER-I

THIRD YEAR EXAMINATION

Part II – Computer Applications

Paper-IV : Internet Technologies and Cloud Computing

(English Medium)

Time : 3 Hours **Max. Marks : 100**

PART-A

Answer any **FIVE** questions (5 x 8 = 40 marks)

1. Write about e-mail advantages and disadvantages.
2. Define Internet and Write about Internet congestion.
3. Write about Headers and Footers.
4. Write about different types of Scanners.
5. Discuss about the JavaScript data types.
6. Write in about Intranets and the Cloud.
7. Discuss about the First Movers in the Cloud Computing.
8. Write about how to maintain the infrastructure for the security issues arises in Cloud Computing.

PART-B

Answer any **FOUR** questions (4 x 15 = 60 marks)

9. Write about e-mail Advantages and Disadvantages in detail.
10. Write about Hyperlink creation and the role of Anchor tag with an example.
11. Discuss about Image Maps with an example.
12. Write about different types of Style Sheets with examples.
13. Explain different types of JavaScript Operators.
14. Explain in detail about the benefits to an organization with Cloud Computing.
15. Discuss about the following to maintain Cloud Computing
    a) Hardware b) Infrastructure
16. Write in detail about Cloud Computing Storage.

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Rural Development

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(III B.A. RURAL DEVELOPMENT) 2013 - 2014

PAPER III:- Rural development policies and programmes

UNIT I : Early experiments in rural development india sriniketshan rural reconrtion programme- sevagrame exprement- community development programme- panchayat raj system in Indian – 73 constitutional ameudment ACT – role of pan – chayat raj in rural development – right to intovmation aef.

UNIT - II : Area development programmes: commamd area development programme- desent development programme – integrated taibal development agency- tribal welfare development carporation – target group programmes – swaruueejayanti gram swarojgra yojana – micro financa and self help groups – women empowerment

UNIT III : rural health care services in rural –NPEGP- watershed development programme – community foret management programmee- green revolution – land reforums – dry land froming

UNIT- iv : national agraicultural crop insurance scheme khandi and village industries – poulitry and aquaculture.

BOOKS AND REFERNCES :

1. N.I.R.D. : facets of rural development in india
2. S.C. JAIN : rural development
3. K. Vsenkata reddy : rural development in india: poverty and development
4. Katar singh : rural development principales, plicies & management
5. G. sreedhar and D. rajasekhar : rural development in india : strategies and processes, concept publishing house, new delhi,2014
6. susan Johnson and Ben rogally : micro finance

Publication of A.P telugu academy

Joumals: kkurukshetra, yojana, jagruti, khadi gramodtog, jouranal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(II B.A. RURAL DEVELOPMENT) 2013 - 2014

PAPER II :- Rural, social structure and problems

UNIT – I : Type of villages in Indian – rural social institutions- family- marriage and religion – definition of caste- distinection between caste and class – caste system in A.P emerging trends

UNIT- II

Concept of social change – factors of social change- demographic technological – planning as a factor of social change –scoial regirtation as a factor of social change- process of social chande in india –westerdnization.

UNIT – III

Concept of poverty line – distinection between poverty measurement of poverty – indication rs of poverty - cause of poverty concept of unemploymeny – types of unemployment – causes of unemployment

UNIT – IV

Remedial measures- social logistation for women –schedated caste and tribes – back ward classes

BOOKS AND REFERNCES :

1. vasant desai : Rural development : issues & problems.

2. uhitabar : Rural sociology.

3. P.C. DEB : Rural sociology.

4. A.R. DESAI : Rural sociology.

5. katar singh : Rural development: principles, policies & management

6. k. venkata reddy : Rural development in india : poverty and development

Himalaya publishing house, Mumbai, 2012

7.G. sreedhra and D. rajesekhara : Rural development in india :strategies and processes, concept publishing house, new delhi, 2014,

Publication of A.p telugu Academy

Journals: kurukshetra, yojana, jagruti, khandi Gramodyog, Journal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(I B.A. RURAL DEVELOPMENT) 2013 - 2014

PAPER I:- ELEMENTS OF RURAL DEVELOPMENT

UNIT-I

Defination of rural area –cause of rural backwardness – scope of rural development in india – Gandhian ideologes for rural development – basic principles of rural development - nedd for conservation of resourese relevance of gandhian ideology

UNIT – II

Approaches to rural development in india – area development – target group development – integrated participatory – demographic structure of rural india

UNIT – III

Trends in population growth- composition of rural work force – over population – rural health - health care services in rural areas – maternal and child health – HIV/ AIDS – national health polices of indial.

UNIT - IV

Rural housing status problems – drinking water supply sources – rural sanitation – total problems and programmes - rural infrastructure – Rural emergency – role of information and communication technology

BOOKS AND REFERNCES :

1. N.I.R.D : Facets of rural development of india
2. S.C. Jain : Rural development
3. Misra & sarma : problems and prospects of Rural development in india.
4. K. venkata Redddy : Rural development in india: poverty and development, Himalaya publishing house, Mumbai, 2012
5. Rajasekhar D (ED) : Prof G parthasarathi writings on Indian Rural Economy in transition
6. Katar singh : Rural development :principles, policies & management
7. G. sreedhar and D. Rajasekhar : Rural development in india : strategies and processes, concept publishing house, New Delhi, 2014

Publications of A.P telugu academy

Journals: Kurukshetra, Yojana, Jagruti, Khadi Gramoyog, Journal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(III B.A. RURAL DEVELOPMENT) 2013 - 2014

PAPER iv :- Rual development planning and management

UNIT- I

Concept of development planning – Overview pf planning for Rural development in india – mult-Leval planning – district level planning- importance of micro planning

UNIT- ii

Definition and characteristics of project – types of project – Role of projects in Over all Development – Need for project Approach to Rural development – Concept of project Cycle – phases in participatory project Cycle – phases in participatory project Cycle management

UNIT- III

Rural development Administration in india – structure and function of Rural development Administration at the central, State and District Levels – Role of District Community Based Organizations.

UNIT- Iv

Role of NGO in Rural development – Role of pri in Rural development – Role of community Based Organizations. and Non-Government Organizations. Participatory Approaches for Rural development : Rapid Apprasal –participatory Rural Appraisal – Tools of PRA: Wealth Ranking - Timeline – transect - seasonality- social mapping – Resource mapping – vennn Diagram – focus Group Discussion.

BOOKS AND REFERNCES :

1. Robert Chambers : Rural development – putting the last frist
2. B.C chattopadhyay : Rural development planning in india.
3. S. Venugopal Reddy : Multi- level planning
4. R.C Arora : integrated Rural development
5. V.A pai panadikar : development Administration in inda.
6. Rajasekhar D : poverty alleviation strategies of NGOs Concept,2014.
7. Price Gittinger : Economic Analysis of Agricultural projects.
8. G. sreedhar and : Rural development in india : strategies and processes, Concept

D. Rajasekhar publishing house, New Delhi, 2014

Publications of A.P telugu academy

Journals: Kurukshetra, Yojana, Jagruti, Khadi Gramoyog, Journal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(III B.A. RURAL DEVELOPMENT) 2014 - 2015

PAPER III:- Rural development policies and programmes

UNIT I : Early experiments in rural development india sriniketshan rural reconrtion programme- sevagrame exprement- community development programme- panchayat raj system in Indian – 73 constitutional ameudment ACT – role of pan – chayat raj in rural development – right to intovmation aef.

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BOOKS AND REFERNCES :

6. N.I.R.D. : facets of rural development in india
7. S.C. JAIN : rural development
8. K. Vsenkata reddy : rural development in india: poverty and development
9. Katar singh : rural development principales, plicies & management
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SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(II B.A. RURAL DEVELOPMENT) 2014 - 2015

PAPER II :- Rural, social structure and problems

UNIT – I : Type of villages in Indian – rural social institutions- family- marriage and religion – definition of caste- distinection between caste and class – caste system in A.P emerging trends

UNIT- II

Concept of social change – factors of social change- demographic technological – planning as a factor of social change –scoial regirtation as a factor of social change- process of social chande in india –westerdnization.

UNIT – III

Concept of poverty line – distinection between poverty measurement of poverty – indication rs of poverty - cause of poverty concept of unemploymeny – types of unemployment – causes of unemployment

UNIT – IV

Remedial measures- social logistation for women –schedated caste and tribes – back ward classes

BOOKS AND REFERNCES :

1. vasant desai : Rural development : issues & problems.

2. uhitabar : Rural sociology.

3. P.C. DEB : Rural sociology.

4. A.R. DESAI : Rural sociology.

5. katar singh : Rural development: principles, policies & management

6. k. venkata reddy : Rural development in india : poverty and development
Himalaya publishing house, Mumbai, 2012

7.G. sreedhra and D. rajesekhara : Rural development in india :strategies and processes, concept publishing house, new delhi, 2014,

Publication of A.p telugu Academy

Journals: kurukshetra, yojana, jagruti, khandi Gramodyog, Journal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(I B.A. RURAL DEVELOPMENT) 2014 - 2015

PAPER I:- ELEMENTS OF RURAL DEVELOPMENT

UNIT-I

Defination of rural area –cause of rural backwardness – scope of rural development in india – Gandhian ideologes for rural development – basic principles of rural development - nedd for conservation of resourese relevance of gandhian ideology

UNIT – II

Approaches to rural development in india – area development – target group development – integrated participatory – demographic structure of rural india

UNIT – III

Trends in population growth- composition of rural work force – over population – rural health - health care services in rural areas – maternal and child health – HIV/ AIDS – national health polices of indial.

UNIT - IV

Rural housing status problems – drinking water supply sources – rural sanitation – total problems and programmes - rural infrastructure – Rural emergency – role of information and communication technology

BOOKS AND REFERNCES :

1. N.I.R.D : Facets of rural development of india
2. S.C. Jain : Rural development
3. Misra & sarma : problems and prospects of Rural development in india.
4. K. venkata Redddy : Rural development in india: poverty and development, Himalaya publishing house, Mumbai, 2012
5. Rajasekhar D (ED) : Prof G parthasarathi writings on Indian Rural Economy in transition
6. Katar singh : Rural development :principles, policies & management
7. G. sreedhar and D. Rajasekhar : Rural development in india : strategies and processes, concept publishing house, New Delhi, 2014

Publications of A.P telugu academy

Journals: Kurukshetra, Yojana, Jagruti, Khadi Gramoyog, Journal of R.D

SRI KRISHNADEVARAYA UNIVERSITY, ANANTHAPURAM

(III B.A. RURAL DEVELOPMENT) 2014 - 2015

PAPER iv :- Rual development planning and management

UNIT- I

Concept of development planning – Overview pf planning for Rural development in india – mult-Leval planning – district level planning- importance of micro planning

UNIT- ii

Definition and characteristics of project – types of project – Role of projects in Over all Development – Need for project Approach to Rural development – Concept of project Cycle – phases in participatory project Cycle – phases in participatory project Cycle management

UNIT- III

Rural development Administration in india – structure and function of Rural development Administration at the central, State and District Levels – Role of District Community Based Organizations.

UNIT- Iv

Role of NGO in Rural development – Role of pri in Rural development – Role of community Based Organizations. and Non-Government Organizations. Participatory Approaches for Rural development : Rapid Apprasal –participatory Rural Appraisal – Tools of PRA: Wealth Ranking - Timeline – transect - seasonality- social mapping – Resource mapping – vennn Diagram – focus Group Discussion.

BOOKS AND REFERNCES :

9. Robert Chambers : Rural development – putting the last frist
10. B.C chattopadhyay : Rural development planning in india.
11. S. Venugopal Reddy : Multi- level planning
12. R.C Arora : integrated Rural development
13. V.A pai panadikar : development Administration in inda.
14. Rajasekhar D : poverty alleviation strategies of NGOs Concept,2014.
15. Price Gittinger : Economic Analysis of Agricultural projects.
16. G. sreedhar and : Rural development in india : strategies and processes, Concept

D. Rajasekhar publishing house, New Delhi, 2014

Publications of A.P telugu academy

Journals: Kurukshetra, Yojana, Jagruti, Khadi Gramoyog, Journal of R.D

Advance Telugu

RAYALASEEMA UNIVERSITY KURNOOL

1123

Syllabus for [B.A /B.COM/B.SC] U.G.2013-2014
Under common core scheme in Advance telugu
First year degree course
మొదటి పేపర్-modern language [తెలుగు]

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1.శ్రీనాథుడు –కిరతర్జునీయము-హరవిలాసం –సప్తమాశ్వాసం [68 -91]

[గాండీవ ప్రముక్త .....దొడగె జంద్రార్ధమౌళి]

2. పింగళి సూరన - నారదగానమస్తార్యం

కళాపూర్ణోదయం –రెండవ ఆశ్వాసం [68-101]

[''వైకుంతంబున'' నుండి అనియంతర్ధనము వరకు]

3. వేమన,-వేమన పారిస్ ప్రతి నుండి 25 పద్యాలు ఎంపికచేసినవి.

ఏనుగు లక్ష్మణకవి- [అను] నీతి శతకం [భర్తుహరి అనువాదం]25 పద్యాలు ఎంపికచేసినవి].

4.గడియారం వెంకటశేషశాస్త్రి –శివాజీపట్టాభిషేకం

[శివభారతము ఎంపికచేసిన భాగం]

5.రాయప్రోలు –కోయిల

6.సి.నారాయణరెడ్డి –తెలుగు గజళ్ళు ఎంపికచేసినవి.

7. పోట్లు రి నారాయణదాస్ –స్వప్నవాస దత్త [భాసకృతికి ఆంధ్రీకరణ]

రాయలసీమ సీమ విశ్వవిద్యాలయం ,కర్నూలు

బి.ఏ. రెండవ సంవత్సరం ,పాఠ్య ప్రణాళిక 2013 -14

రెండవ పేపర్ –ప్రత్యేక తెలుగు - తెలుగు సాహిత్య చరిత్ర

1. ప్రాఙ్నన్నయ యుగం - సాహిత్య వికాసం - నన్నయ, తిక్కన ,ఎఱ్ఱన .

2.శివకవి యుగం –నన్నెచోడుడు, పండితారాధ్యుడు, పాల్కురికి సోమన

ద్విపద కావ్య సంప్రదాయం

3. శ్రీనాథకవియుగం – పోతన

4. పదసాహిత్యం –అన్నమయ్య, క్షేత్రయ, త్యాగయ్య , కంచర్ల గోపన్న

5.ప్రబంధయుగం – ప్రబంధలక్షణాలు. పెద్దన, తిమ్మన్న, శ్రీకృష్ణ దేవరాయలు , ధూర్జటి ,

రామరాజభూషణుడు, సూరన మొల్ల ,

6 . నాయకరాజుల పాలనలో సాహిత్యం –యక్షగానాలు , వచన కావ్యాలు కతకాలు [సుమతి,వేమన]

విజయ విలాసము.

7 . ఆధునిక కవిత్వం – గురజాడ, కృష్ణ శాస్త్రి, జాషువా, శ్రీ శ్రీ, దాశరథి

8 . నవల – కందుకూరి,ఉన్నవ ,విశ్వనాథ , కొడవటిగంటి కుటుంబరావు

9 .నాటకం – ధర్మవరం రామకృష్ణమాచార్యులు, వేదం వెంకటరాయ శాస్త్రి, తిరుపతి వేంకటకవులు

10. కథానిక – శ్రీ పాద సుబ్రహ్మణ్య శాస్త్రి ,చలం ,పొట్లపల్లి రామారావు , కనుపర్తి వరలక్ష్మమ్మ,

మధురాంతకం రాజారాం

రాయసీమ యూనివర్సిటీ ;కర్నూల్

ఆంధ్ర భాషా చరిత్ర

భాషా శాస్త్రం-పేపర్- ౩

మొదటి భాగం

Unit 1- ఆంధ్రము-తెనుగు తెలుగు శబ్ద ల వ్యుత్పతి –వ్యాప్తి.

Unit 2- ద్రావిడ భాషలు –ద్రావిడ భాషలలో తెలుగు స్తానం.

Unit 3- తెలుగులో మాండలిక విజ్ఞానం –మాండలిక భేదాలు –పరిచయం

Unit 4- ధ్వని పరిణామం –వర్ణ సమీకరణం,వర్ణ విభేదం,వర్ణ వ్యత్యయం,వర్ణ Unit 5-అర్థపరిణామం – అర్థసంకోచం,అర్థవ్యాకోచం,సభ్యోక్తి,మ్రుదూక్తి, అర్థగ్రామ్యత, లక్ష్యార్థాలు.సామ్యం,తాలవ్యకరణ,శ్వాసత,నాదత,

Unit 6 – అన్యదేశ్యాలు

Unit 7 – అధాన ప్రధానాలు

రెండవ భాగం

Unit 1- చినయ్య సూరి బాలవ్యాకరణం

1. సజ్ఞా పరిచ్ఛేదము
2. సంధి పరిచ్ఛేదము
3. సమాస పరిచ్ఛేదము

మూడవ భాగం

Unit 1- చంధస్సు

1. దశవిదయతులు-స్వర –వర్గ –అఖండ –ప్రాధి –భిందు –ప్లుత –సంయుక్త క్షర ,ఎకటి –పోలిక – సరసయతులు
2. షడ్విద ప్రాసలు – సుకర, దుష్కర,ద్వి ,త్రీ,అను,అంత్య ప్రాసలు [కవిజనా శ్రయం మల్లియరేచన]

Unit 2- అలంకారాలు [చంద్రాలోకం నుండి]

1.ఉపమ-ఉత్ప్రేక్ష –రూపకం –అర్థాంతరన్యాస-స్వభావోక్తి –అతిశయోక్తి –దృష్టాంతం –ఉల్లేకా

RAYALASEEMA UNIVERSITY KURNOOL
Syllabus for [B.A /B.COM/B.SC] U.G.2013-2014
Under common core scheme in Advance telugu
Final year degree course
IV Paper –Advance Telugu

1.విమర్శ నిర్వచనం –స్వరూప స్వభావాలు,ఉత్తమ విమర్శకుని లక్షణ,విమర్శ ప్రయోజనాలు

2.విమర్శ భేదాలు

3. కళలు,లలిత కళలు,కవిత్వ స్థానము

4.కావ్య నిర్వచనాలు,ప్రాశ్చ ప్రాచ్యత్య దృక్పథాలు

5.దృశ్య కావ్య భేదాలు,దశవిధ రూపాలు

6కావ్య హేతువులు,ప్రతిభ వ్యుత్పత్తి,అభ్యాసాల వివరణ

7 కావ్య ప్రయోజనాలు

8. రస స్వరూపం

9. రసనిష్ట

10. ఆధునిక సాహిత్య ప్రక్రియలు

a. నవల
b.కథానిక
c. ఏకాంకిక
d.వ్యాసము
e.జీవిత చరిత్ర
f.స్వీయ చరిత్ర

Psychology

I Year, B.A Psychology

PAPER – I: GENERAL PSYCHOLOGY

Marks 75

Chapter – I: Introduction

A] Historical Foundations of Psychology – Definition and Scope of Psychology, Fields of Psychology, Schools of Psychology, Psychological conceptions of man

B] Methods of Psychology – Introspection, Observation, Case Study, Interview, Survey and Experimental method

Chapter – II: Biological Basis of Behaviour

A] Nervous system and its organization – The structure of neuron, Central Nervous System – Brain and Spinal cord, localization of brain functions, Autonomic Nervous System

B] Hormonal basis of behavior - the major endocrine glands and their functions

C] Mechanisms of heredity – Chromosomes and genes. Influence of heredity and environment on behavior

Chapter-III: Attention

A] Definition, Different aspects of attention – span, division, distraction and fluctuation, Voluntary and Involuntary attention. Determinants of attention – internal and external factors

Chapter – IV: Sensation and Perception

Difference between sensation and perception. Sensory Thresholds. Principles of Perceptual organization. Perceptual Constancy, Depth Perception, Movement Perception. Internal and External factors influencing Perceptual Experience. Illusions. Extrasensory Perception (ESP).

Chapter – V: Motivation and Emotion

Definition and functions of Motives. Types of Motives – Physiological and Psycho-Social motives. Unconscious motivation. Maslow's theory of Motivation.
Emotion – Definition and nature of emotions. Theories of emotion – James-Lange, Cannon-Bard and Schachter-Singer

Chapter – VI: Learning

A] Definition – Maturation and Learning. Classical and Instrumental Conditioning. Learning by Insight and Observation, Latent learning

B] Role of Motivation. Reward and Punishment in Learning, Learning curves, Efficient methods of learning, Transfer of Learning

Chapter – VII: Memory and Forgetting

Meaning of memory, Types of memory, Methods of measuring memory, Information Processing model of memory, curve of forgetting and causes of forgetting, Methods of Improving Memory

Chapter - VIII: Thinking

Thinking – Mental images, Concepts, Reasoning – Deductive and Inductive reasoning, Problem Solving – Impediments to problem solving – Creative thinking stages– characteristics of Creative people.

Chapter - IX: States of Consciousness

Sleep and Dreams, Hypnosis, Meditation, Drug-induced states of consciousness

Chapter - X: Intelligence

A] Definition – Theories of Intelligence – Spearman Two factor theory, Thurstone Multifactor Theory, Sternberg's Triarchic Theory of Intelligence

B] Measurement of Intelligence – Concept of IQ, Types of Intelligence tests, Variations in Intellectual ability – Intellectually gifted and retarded, Factors influencing individual differences in intelligence – Heredity and Environment

Reference Books:

1) Atkinson & Haggard (2003). Introduction to Psychology — Thomson Wardsworth 14th Edition.

2) BARON, R.A, Psychology (2001) (5th Edition) Pearson Education Inc., New Delhi

3) BARON, R.A Bynne, D. & Kantowitz, B.H.(1980). Understanding Behavior (2nd Edition). Holt Rinehart and Winston, New York.

4) Benjamin, L.T; Hopkins.J & Nation J.R. (1990). Psychology (2nd Edition) Macmillan Publishing Company. New York.

5) Feldman, R.S. (1997). Essentials of Understanding Psychology (3rd Edition) McGraw-Hill Companies. Inc. New York

6) Parameswaran, E.G. and Beena, C. Invitation to Psychology. Hyderabad: Neelkamal Publications.

II Year B.A

PAPER – II: SOCIAL PSYCHOLOGY

Marks 75

Chapter – I: Nature and scope of Social Psychology

Definition, Nature and Scope. Methods of Social Psychology – Observation method, Survey method, Correlational method, Field study and Experimental method

Chapter – II: Social Perception – Understanding Others

Attribution – Theories of Attribution – . Theory of Correspondent Influence, Errors in Attribution – Fundamental Attribution Error, Actor – Observer effect, Self Serving Bias

Impression formation and Impression Management - Techniques of Impression Management

Chapter – III: Communication

Definition, nature and types of communication. Barriers to effective communication. Rumors and propaganda.

Chapter – IV: Attitudes

Definition - Distinctive features of Attitudes, Formation of Attitudes, Measurement of Attitudes - Likert method of Summated ratings, Bogardus method of Social Distance, Thurstone's Equal appearing intervals method. Cognitive Dissonance, Reducing Dissonance

Chapter – V: Prejudice

Prejudice and Discrimination – Nature and Origin of Prejudice, Techniques of reducing Prejudice

Chapter – VI: Aggression

Definition, Determinants of Human Aggression – Social, Personal, and Situational factors – Theoretical Perspectives on Aggression – Biological Perspective – Drive Theories, General Affective Aggression model, Prevention and Control of Aggression.

Chapter – VII: Groups and Individuals

Definition and Types of Groups, Group functions – Roles, Status, Norms, Cohesiveness and Conformity. Groups and Individual performance,- Social facilitation, Social loafing. Decision making by Groups – P-189

Chapter – VIII: Leadership

Definition – Traits of a Leader, Types of Leaders – Autocratic, Democratic and Charismatic Leaders. Classic studies on leadership, leader behavior – initiating structure and consideration.

Reference Books:

1) Baron, R.A & Byrne, D. (2006) Social Psychology (10th Edition) Pearson Education Inc., New Delhi.

2) R.A.Lippa. (1990) Social Psychology –Wardsworth Publishers – California.

3) B.H.Raven & J.Z.Rubin. (1983) Social Psychology – John Wiley & Sons. New York.

PSYCHOLOGY PRACTICAL

(EXAMINATION AT THE END OF SECOND YEAR)

Marks 50

Learning

1. Insight learning (Step Maze)
2. Trial and Error learning (Finger or Slot Maze)
3. Associative learning (Letter-Digit substitution Test)
4. Bilateral transfer of training (Mirror Drawing/Cup and Ball)
5. Massed versus Spaced Learning
6. Part versus Whole Learning Method
7. Serial Learning – Position Effect
8. Habit Interference Test

Attention

9. Span of Attention for Visual Stimuli (Tachistoscope)
10. Effect of Auditory and Visual distraction on Attention
11. Division of attention with similar and dissimilar tasks

Memory

12. Measuring Retention using recognition method
13. Measuring Retention using Recall method
14. Short term memory for digits
15. Effect of Meaning on Retention
16. Accuracy of testimony.

Thinking

17. Problem Solving (Pyramid Puzzle)
18. Mental Set (Luchin Jar problems)

Intelligence

19. Measuring intelligence using Non-Verbal Intelligence test (Raven's Standard Progressive Matrices)
20. Measuring Verbal Intelligence (Cattell's intelligence test)
21. Measuring Intelligence using a performance test (Alexander Pass along test / Koh's Block Design test)
22. Measurement of Intelligence using Seguin Form Board.

Perception

23. Measuring Illusion using Muller – Lyer Illusion Figure
24. Determination of Two- Point Threshold

Social Psychology

25. Sociometry
26. Measuring styles of leadership behaviour
27. Attitude measurement
28. Serial Reproduction of an event
29. Level of aspiration
30. Suggestion (Progressive weights)

Note: At least 16 Experiments out of 30 Experiments are to be completed. Out of 16 Experiments 8 Experiments are to be completed in 1st year and another 8 Experiments are to be completed in 2nd year

Reference:

Munn .N.L. A Laboratory Manual in General Experimental Psychology. -Houghton Mifflin Company. New York.

P.Nataraj(1970). A manual of laboratory experiments in psychology. Mysore printing and Publishing House. Mysore.

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III. B.A U.G SYLLABUS

Paper – III: Child and Adolescent Psychology

Marks 75

Chapter - I: Meaning, Nature and importance of Developmental psychology

A. Concept of growth and development – Principles of development.
Stages of human life span. Methods of studying human development. Importance of developmental Psychology.

B. Factors influencing growth and development: Heredity and environment.

Chapter - II: Early Stages of development

A. Prenatal Period: Characteristics. importance of conception. prenatal stages, factors influencing prenatal development – Hazards.

B. Infancy: Characteristics - adjustments in infancy – conditions influencing postnatal life (Pre maturity, multiple births, post maturity) – physical development- activities – sensitivities- and capacity for learning - emotions of the infants – Hazards.

C. Babyhood: Characteristics – developmental tasks – physical development – physiological functioning- muscle control – speech development – emotional behavior – social responses – play interests – development of understanding and morality – sex role typing and family relations - personality development- Hazards.

Chapter - III: Early childhood

General characteristics – developmental tasks- physical development – skills of early childhood- speech development – emotional patterns – patterns of early socialization and sex-role typing – play interests – development of understanding and morality – family relationships- personality development.- Hazards.

Chapter - IV: Late childhood

General characteristics– developmental tasks- skills of late childhood- speech development – emotional expression – social behavior and sex role typing in late childhood - play interests – development of understanding and moral attitudes- family relationships – personality changes- Hazards

Chapter - V: Puberty

General characteristics– developmental tasks- criteria causes and age of puberty- puberty growth spurt - body changes in puberty – effects of pubertal changes – common concerns during puberty – Hazards.

Chapter - VI: Adolescence

General characteristics – developmental tasks- physical changes – emotionality during adolescence – social changes- interests in adolescence – changes in morality – sex interest and sex behavior during adolescence –family relationships – personality development - Hazards.

Chapter - VII: Introduction to Theories of Development

Gesell's Developmental theory, Freud's Psychosexual stages, Erikson's psychosocial stages of development, Piaget's Cognitive development, Kohlberg's theory of moral development and Bronfenbrenner's Ecological theory.

Reference Books:

1. Hurlock , E.B. 1980. Developmental psychology – a life span approach . M. C .Graw Hill , Inc,.

2. Olds , S.W & Papalia , D.E 1986. Human Development. Mc Graw Hill,

Paper III

Practicum for Child and Adolescent Psychology

1. Raven's Coloured Progressive Matrices
2. Pre adolescent Activity Scale by Udai Pareek, T.V. Rao & B.R. Sharma
3. Moral Judgment Test by D. Sinha and Meera Verma 6-11 yrs (NPC, Agra)
4. Bem Sex Role Inventory
5. Baron's Emotional Intelligence Scale for Youth
6. Children's Self concept scale by Ahluwalia (NPC, Agra)
7. Emotional Stability test for children by Sen Gupta and A.K. Singh 6th – 8th Std. Children (NPC Agra)
8. Aggression Questionnaire by G.C Pati (RPC Varanasi)
9. Approval Motivation Scale by Tripathi & Tripathi (NPC Agra)
10. Achenbach's Scale for Emotional and Behavioural Adjustment (YSR)

ABNORMAL PSYCHOLOGY
(PRACTICAL)

The student is required to do 5 practical exercises on himself / herself from the list given below and interpret them..

1. Stressful life –events scale
2. Anxiety
3. Self-esteem
4. Extraversion and neuroticism personality assessment.
5. Word-association technique
6. Adjustment questionnaire
7. Depression questionnaire
8. Problem checklist.
9. Well-being scale.
10. Visit an Old Age Home/ Mental Hospital / School for Special Children and submit a report.

III B.A U.G. MODEL SYLLABUS

OPTIONAL PAPER

Paper IV (A) - ABNORMAL PSYCHOLOGY
(Theory)

Marks: 75

Chapter I: Introduction to Abnormal Psychology
Defining abnormality.
Abnormal psychology – past and present – views and treatments.
Approaches to psychopathology – psychodynamic, behavioural, cognitive-behavioural, existential and biological.

Chapter II: Classification and Causes of Abnormality
Classification of disorders
Etiological factors in abnormality
Stress, coping and the ego-defense mechanisms.

Chapter III: Anxiety Disorder – Nature and Symptoms
Generalized anxiety disorder
Phobias
Panic and panic disorders
Obsessive-compulsive disorder
Post-traumatic stress disorder.

Chapter IV: Somatoform Disorders – Nature and Symptoms
Conversion disorders- with motor/sensory symptoms or deficits, with seizures.
Pain disorders – headache, migraine, low back pain, etc. Acute versus chronic pain, cognitive perception of pain, individual differences in reaction to pain.
Hypochondriasis.

Chapter V: Dissociative Disorders – Nature and Symptoms
Amnesia and fugue
Dissociative identity disorder.

Chapter VI: Psychotic Disorders: Nature and Symptoms
Schizophrenia and its subtypes – paranoid type, catatonic type, hebephrenic type
Mood disorders – unipolar and bipolar disorders

Chapter VII: Developmental Disorders: Nature and Symptoms.
Disruptive behaviour – Attention-deficit hyperactivity disorder, Conduct disorder.
Habit disorders – Eating disorders

Emotional disorders - anxiety disorder (separation anxiety, avoidant disorder, and overanxious disorder). Childhood depression.
Specific developmental disorder – learning disabilities.
Pervasive developmental disorder – autism.
Mental Retardation.

Chapter VIII: Personality Disorders – Nature and Symptoms

Antisocial personality disorder.
Paranoid personality disorder.
Dependent personality disorder.
Histrionic personality disorder.
Obsessive-compulsive personality disorder.

Chapter IX: Addictive Disorders -Nature and Symptoms

Alcoholism
Nicotine dependence
Psychoactive drugs

Chapter X: Treatment of Disorders

Psychodynamic approach
Behavioural approach
Humanistic-existential approach
Cognitive approach

References:
Lamm, A. (1997). Introduction to psychopathology, N.Y.: Sage
Buss, A.H. (1999). Psychopathology. N.Y. John Wiley
Irvin G. Sarason, Barbara R. Sarason (2006). Abnormal Psychology 11th edition. Prentice Hall India.
Carson. Abnormal Psychology 13th edition. Pearson education India.

ABNORMAL PSYCHOLOGY (PRACTICAL)

The student is required to do 5 practical exercises on himself / herself from the list given below and interpret them..

1. Stressful life –events scale
2. Anxiety
3. Self-esteem
4. Extraversion and neuroticism personality assessment.
5. Word-association technique
6. Adjustment questionnaire
7. Depression questionnaire

Botany

Chemistry

B.Sc. Chemistry
Model Curriculum

Sc. 1st Year Paper I — **120 hrs (4 h / w)**

IIT – I (Inorganic Chemistry – I) — **30 hrs (1h / w)**

s-block elements: General characteristics of groups I & II elements, diagonal relationship between Li & Mg, Be & Al. — **3 h**

p-block elements: — **20 h**

neral characteristics of elements of groups 13, 14, 15, 16 and 17

roup – 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9), boron-nitrogen compounds ($B_3N_3H_6$ and BN)
roup – 14: Preparation and applications of silanes and silicones.
roup – 15: Preparation and reactions of hydrazine, hydroxylamine
roup – 16: Classifications of oxides based on (i) Chemical behaviour and (ii) Oxygen Content.
roup – 17: Inter halogen compounds and pseudo halogens

Organometallic Chemistry — **7 h**

efinition and classification of organometallic compounds, nomenclature, preparation, roperties and applications of alkyls of Li and Mg elements.

INIT-II (Organic Chemistry-I) — **30hrs (1h /w)**

. Structural theory in Organic Chemistry — **10 h**

Types of bond fission and organic reagents (Electrophilic, Nucleophilic, and free radical reagents ncluding neutral molecules like H_2O, NH_3 & $AlCl_3$))
Bond polarization : Factors influencing the polarization of covalent bonds, electro negativity – nductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acides (c) Stability of carbonium ions, Resonance or Mesomeric effect, application to (a) acidity of phenol, and (b) acidity of carboxylic acids. Hyper conjugation and its application to stability of carbonium ions, Free radicals and alkenes, carbanions, carbenes.)

Types of Organic reactions : Addition – electrophilic, nucleophilic and free radical, Substitution – electrophilic, nucleophilic and free radical, Elimination- Examples (mechanism not required).

8 h

Alkenes – Preparation of alkenes (a) by dehydration of alcohols (b) by dehydrohalogenation of alkyl halides (c) by dehalogenation of 1,2 dihalides (brief mechanism), Saytzev's rule. Properties: Addition of hydrogen – heat of hydrogenation and stability of alkenes. Addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti – Markonikov's addition). Oxidation – hydroxylation by $KMnO_4$, Dienes – Types of dienes, reactions of conjugated dines – 1,2 and 1,4 addition of HBr to 1,3 – butadiene and Diel's – Alder reaction.

Alkynes – Preparation by dehydrohalogenation of dihalides, dehalogenation of tetrahalides, Properties; Acidity of acetylenic hydrogen (formation of Metal acedtylides). Preperation of higher acetylenes, Physical properties. Chemical reactivity – electrophilic addition of X_2, HX, H_2O (Tautomerism), Oxidation with $KMnO_4$, OsO_4, reduction and Polymerisation reaction of acetylene.

3. Alicyclic hydrocarbons (Cycloalkanes) **4 h**

Nomenclature, Preparation by Freunds methods, heating dicarboxylic metal salts. Properties – reactivity of cyclopropane and cyclobutane by comparing with alkanes. Stability of cycloalkanes – Baeyer's strain theory, Sachse and Mohr predictions and Pitzer's strain theory. Conformational structures of cyclohexane

4. Benzene and its reactivity **7 h**

Concept of resonance, resonance energy. Heat of hydrogenation, heat of combustion of Benezene, mention of C-C bond lengths and orbital picture of Benzene.

Concept of aromaticity – aromaticity (definition), Huckel's rule – application to Benzenoid (Benzene, Napthalene) and Non – Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation).

Reactions – General mechanism of electrophilic substitution, mechanism of nitration. Friedel Craft's alkylation and acylation. Orientation of aromatic substitution – Definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples. Electronic interpretation of various groups like NO_2 and Phenolic. Orientation of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and Sulfonic acid groups. (iii). Halogens (Explanation by taking minimum of one example from each type).

Unit-III – (Physical Chemistry – I) **30h (1h/w)**

I Gaseous state **6 h**

Compression factors, deviation of real gases from ideal behavior. Van der Waal's equation of state. P-V Isotherms of real gases, Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. The van der Waal's equation and the critical state. Relationship between critical constants and van der Waal's constants. Joule Thomson effect. Liquefaction of gases: i) Linde's method and ii) Claude's method.

II Solid state **10 h**

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-stoichiometric defects. Band theory of semoconductors. Extrinsic and intrinsic semiconductors. n- and p-type semiconductors and their applications in photo electrochemical cells.

III Solutions **6 h**

Liquid-liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non-ideal solutions. Vapour pressure – composition and vapour pressure-temperature curves. Azeotropes-HCl-H_2O, ethanol-water systems and fractional distillation. Partially miscible liquids-phenol-water, trimethylamine-water, nicotine-water systems. Effect of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law.

IV Colloids and surface chemistry **6 h**

Definition of colloids. Solids in liquids(sols), preparation, purification, properties - kinetic, optical, electrical. Stability of colloids, Hardy-Schulze law, protective colloid.

Liquids in liquids (emulsions) preparation, properties, uses. Liquids in solids (gels) preparation, uses.

Adsorption: Physical adsoption, chemisorption. Freundlich, Langmuir adsorption isotherms. Applications of adsorption.

UNIT – IV (General Chemistry-I) **30 h (1h / w)**

1. Atomic Structure and elementary quantum mechanics **8 h**

Blackbody radiation, Planck's radiation law, photoelectric effect, Compton effect, de Broglie's hypothesis, Heisenberg's uncertainty principle. Postulates of quantum mechanics. Schrodinger wave equation and a particle in a box, energy levels, wave functions and probability densities. Schrodinger wave equation for H-atom. Separation of variables, Radial and angular functions, hydrogen like wave functions, quantum numbers and their importance.

2. Chemical Bonding **8 h**

Valence bond theory, hybridization, VB theory as applied to ClF_3, BrF_5, $Ni(CO)_4$, XeF_2

LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules (N_2, O_2, HCl, CO and NO).

3. Stereochemistry of carbon compounds **10 h**

Stereoisomerism, Stereoisomers: enantiomers, diastereomers- definition and examples. Conformational and configurational isomerism- definition. Conformational isomerism of ethane and n-butane.

Enantiomers: Optical activity- wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules- definition and criteria- absence of plane, center, and Sn axis of symmetry- asymmetric and disymmetric molecules. Examples of asymmetric molecules (Glyceraldehyde, Lactic acid, Alanine) and disymmetric molecules (trans -1,2-dichloro cyclopropane).

Chiral centers: definition- molecules with similar chiral carbon (Tartaric acid), definition of mesomers- molecules with dissimilar chiral carbons (2,3-dibromopentane). Number of enantiomers and mesomers- calculation.

D,L and R,S configuration for asymmetric and disymmetric molecules. Cahn-Ingold-Prelog rules. Racemic mixture- racemisation and resolution techniques.

Diastereomers: definition- geometrical isomerism with reference to alkenes- cis, trans and E,Z- configuration.

4. General Principles of Inorganic qualitative analysis **4 h**

Solubility product, common ion effect, separation of cations into groups, group reagents.

LABORATORY COURSE- I **90 hrs (3 h / w)**

Practical Paper – I (Inorganic Chemistry)

Qualitative Analysis and Inorganic preparations:

Analysis of mixtures containing two anions and two cations (of different groups) from the following:

Anions: Carbonate, sulphate, chloride, bromide, acetate, nitrate, borate,
Cations: Lead, copper, bismuth, cadmium, iron, aluminum, zinc, manganese, nickel, calcium, barium, and ammonium.

*not to be given for examination.

Preparations: Any three of the following inorganic preparations:

1) Ferrous ammonium sulphate
2) Tetrammine copper (II) sulphate
3) Potash alum $KAl(SO_4)_2 . 12H_2O$

B.Sc. II Year, Paper –II **120 hrs (4 h / w)**

UNIT – I (Inorganic Chemistry – II) **30 h (1h/w)**

I. **Chemistry of d-block elements:** Characteristics of d-block elements with speci reference to electronic configuration, variable valence, magnetic properties, catalyt properties and ability to form complexes. Stability of various oxidation states a e.m.f. Comparative treatment of second and third transition series with their analogues. **9 h**

II. **Chemistry of f-lock elements:** Chemistry of lanthanides – electronic structu oxidation states, lanthanide contraction, consequences of lanthanide contractio magnetic properties, and separation of lanthanides by ion exchange and solve extraction methods. Chemistry of actinides – electronic configuration, oxidati states, actinide contraction, position of actinides in the periodic table, compariso with lanthanides in terms of magnetic properties. **8 h**

III. **Theories of bonding in metals:** Valence bond theory, Explanation of metall properties and its limitations, Free electron theory, thermal and electrical conductivi of metals, limitations, Band theory, formation of bands, explanation of conductor semiconductors and insulators. **6 h**

IV. **Metal carbonyls and related compounds** – EAN rule, classification of me carbonyls, structures and shapes of metal carbonyls of Fe, Co and Ni. **7 h**

UNIT-II (Organic Chemistry – II) **30hrs (1 h / w)**

1. Halogen compounds **4 h**

(1) Nomenclature and classification of alkyl (into primary, secondary, tertiary), aryl, aralky allyl, vinyl, benzyl halides.

(2) Chemical Reactivity, formation of RMgX
Nucleophilic aliphatic substitution reaction- classification into S_N1 and S_N2.

(3) Energy profile diagram of S_N1, and S_N2 reactions. Stereochemistry of S_N2 (Walde Inversion) S_N1 (Racemisation) Explanation of both by taking the example of optical active alkyl halide – 2bromobutane. Ease of hydrolysis – comparision of alkyl, benzy allyl, vinyl and aryl halides (4)

2. Hydroxy compounds **6 h**

Physical properties- Hydrogen bonding (intermolecular and intramolecular). Effect of hydrogen bonding on boiling point and solubility in water.
Chemical properties:

a. acidic nature of phenols.
b. formation of alkoxides/phenoxides and their reaction with RX.
c. replacement of OH by X using PCl_5, PCl_3, PBr_3, $SOCl_2$ and with $HX/ZnCl_2$.
d. esterification by acids (mechanism).
e. dehydration of alcohols.
f. oxidation of alcohols by CrO_3, $KMnO_4$.
g. special reaction of phenols: Bromination, Kolb-Schmidt reaction, Riemer-Tiemann reaction, Fries rearrangement, azocoupling.

Identification of alcohols by oxidation with $KMnO_4$, ceric ammonium nitrate, lucas reagent and phenols by reaction with $FeCl_3$.
Polyhydroxy compounds: Pinacol-Pinacolone rearrangement.

3. Carbonyl compounds **10 h**

Nomenclature of aliphatic and aromatic carbonyl compounds, structure of the carbonyl group.
Synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids.
Physical properties: absence of hydrogen bonding, keto-enol tautomerism, reactivity of carbonyl group in aldehydes and ketones.
Nucleophilic addition reaction with a) $NaHSO_3$, b) HCN, c) RMgX, d) NH_2OH, e)$PhNHNH_2$, f) 2,4 DNPH, g) Alcohols-formation of hemiacetal and acetal.
Halogenation using PCl_5 with mechanism.
Base catalysed reactions: a) Aldol, b) Cannizzaro reaction, c) Perkin reaction, d) Benzoin condensation, e) Haloform reaction, f) Knoevenagel reaction.
Oxidation of aldehydes- Baeyer-Villiger oxidation of ketones.
Reduction: Clemmensen reduction, Wolf-Kishner reduction, MPV reduction, reduction with $LiAlH_4$ and $NaBH_4$.
Analysis of aldehydes and ketones with a) 2,4-DNT test, b) Tollen's test, c) Fehling text, d) Schiff test, e) Haloform test (with equation).

4. Carboxylic acids and derivatives **6 h.**

Nomenclature, classification and structure of carboxylic acids.
Methods of preparation by a) hydrolysis of nitriles, amides and esters.
b) carbonation of Grignard reagents.
Special methods of preparation of aromatic acids by a) oxidation of side chain.
b) hydrolysis by benzotrichlorides.
c) Kolbe reaction.
Physical properties: Hydrogen bonding, dimeric association, acidity- strength of acids with examples of trimethyl acetic acid and trichloroacetic acid. Relative differences in the acidities of aromatic and aliphatic acids.
Chemical properties: Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation

by Schimdt reaction, Arndt-Eistert synthesis, halogenation by Hell-Volhard- Zelinsky reaction.

Derivatives of carboxylic acids: Reaction of acid chlorides, acid anhydrides, acid amides, esters (mechanism of the hydrolysis of esters by acids and bases).

5. Active methylene compounds **4 h**

Acetoacetic esters: preparation by Claisen condensation, keto-enol tautomerism. Acid hydrolysis and ketonic hydrolysis.

Preparation of a) monocarboxylic acids.

b) dicarboxylic acids.

Reaction with urea.

Malonic ester: preparation from acetic acid.

Synthetic applications: Preparation of

a) monocarboxylic acids (propionic acid and n-butyric acid).

b) dicarboxylic acids (succinic acid and adipic acid).

c) α,ß-unsaturated carboxylic acids (crotonic acid).

Reaction with urea.

Unit - III (Physical chemistry – II) **30hrs (1h / w)**

1. Phase rule **5 h**

Concept of phase, components, degree of freedom. Derivation of Gibbs phase rule. Phase equilibrium of one component – water system. Phase equilibrium of two-component system, solid-liquid equilibrium. Simple eutectic diagram of Pb-Ag system, desilverisation of lead. NaCl- water system. Freezing mixtures.

2. Dilute solutions **8 h**

Colligative properties. Raoult's law, relative lowering of vapour pressure, its relation to molecular weight of non-volatile solute. Elevation of boiling point and depression of freezing point. Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods of determination. Osmosis, osmotic pressure, experimental determination. Theory of dilute solutions. Determination of molecular weight of non-volatile solute from osmotic pressure. Abnormal Colligative properties.

3. Electrochemistry **17 h**

Specific conductance, equivalent conductance, measurement of equivalent conductance. Variation of equivalent conductance with dilution. Migration of ions, Kohlrausch's law. Arrhenius theory of electrolyte dissociation and its limitations. Ostwald's dilution law. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only). Definition of transport number, determination by Hittorf's method. Application of conductivity measurements-determination of dissociation constant (K_a) of an acid, determination of solubility product of sparingly soluble salt, conductometric titrations.

convention, electrochemical series and its significance. Reversible and irreversible cells, conventional representation of electrochemical cells. EMF of a cell and its measurements. Computation of cell EMF. Applications of EMF measurements, Determination of pH using quinhydrone electrode, Solubility product of AgCl. Potentiometric titrations.

Unit IV (General chemistry-II) **30 hrs (1h/w)**

1. Molecular symmetry **5h**

Concept of symmetry in chemistry-symmetry operations, symmetry elements. Rotational axis of symmetry and types of rotational axes. Planes of symmetry and types of planes. Improper rotational axis of symmetry. Inversion centre. Identity element. point group.

2. Theory of quantitative analysis **8 hrs**

a) Principles of volumetric analysis. Theories of acid-base, redox, complexometric, iodometric and precipitation titrations, choice of indicators for these titrations.

b) Principles of gravimetric analysis: precipitation, coagulation, peptization, coprecipitation, post precipitation, digestion, filtration and washing of precipitate, drying and ignition, precipitation from homogenous solutions, requirements of gravimetric analysis.

3. Evaluation of analytical data. **4 h**

Theory of errors, idea of significant figures and its importance, accuracy – methods of expressing accuracy, error analysis and minimization of errors, precision – methods of expressing precision, standard deviation and confidence limit.

4. Introductory treatment to:

a) Pericyclic Reactions **5 h**

Concerted reactions, Molecular orbitals, Symmetry properties HOMO, LUMO, Thermal and photochemical pericyclic reactions. Types of pericyclic reactions – electrocyclic, cycloaddition and sigmatropic reactions – one example each.

b) Asymmetric (Chiral) synthesis **4 h**

Definitions-Asymmetric synthesis, enantiomeric excess, diastereomeric excess. stereospecific reaction, definition, example, dehalogenation of 1,2-dibromides by I. stereoselective reaction, definition, example, acid catalysed dehydration of 1-phenylproponol

LABORATORY COURSE – II

90 hrs (3 h / w)

Practical Paper – II (Inorganic Chemistry)

I. Titrimetric analysis:

1) Determination of Fe(II) using $K_2Cr_2O_7$
2) Determination of Fe(II) using $KMnO_4$ with oxalic acid as primary standard.
3) Determination of Cu(II) using $Na_2S_2O_3$ with $K_2Cr_2O_7$ as primary standard
4) Determination of Zinc using EDTA
5) Determination of hardness of water
6) Determination of Mg using to EDTA

II. Gravimetric analysis (any three of the following)

1) Determination of barium as barium sulphate
2) Determination of sulphate as barium sulphate
3) Determination of lead as lead chromate
4) Determination of nickel as Ni-DMG complex
5) Determination of magnesium as magnesium pyrophosphate.

B.Sc. III Year **90 hrs (3h / w)**

Paper – III **30 hrs (1 h/w)**

Unit – I (Inorganic Chemistry-III)

1. **Coordination Chemistry:** IUPAC nomenclature, bonding theories – review of Werner's theory and Sidgwick's concept of coordination, Valence bond theory, geometries of coordination numbers 4-tetrahedral and square planar and 6-octahedral and its limitations, crystal filed theory, splitting of d-orbitals in octahedral, tetrahedral and square-planar complexes – low spin and high spin complexes – factors affecting crystal-field splitting energy, merits and demerits of crystal-field theory. Isomerism in coordination compounds – structural isomerism and stereo isomerism, stereochemistry of complexes with 4 and 6 coordination numbers. **10 h**

2. **Spectral and magnetic properties of metal complexes:** Types of magnetic behavior, spin-only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility – Gouy method. **4 h**

3. **Reactivity of metal complexes:** Labile and inert complexes, ligand substitution reactions – S_N1 and S_N2, substitution reactions of square planar complexes, Trans effect and applications of trans effect. **4 h**

4. **Stability of metal complexes:** Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method. **4 h**

5. **Hard and soft acids bases (HSAB):** Classification, Pearson's concept of hardness and softness, application of HSAB principles – Stability of compounds / complexes, predicting the feasibility of a reaction **4 h**

6. **Bioinorganic chemistry:** Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and chloride (Cl^-), Metalloporphyrins -- hemoglobin, and function, Chlorophyll, and role in photosynthesis. **4 h**

UNIT – II (Organic Chemistry – III) **30 hrs (1h/w)**

1. Nitrogen compounds **9 h**

Nitro hydrocarbons: Nomenclature and classification – nitro hydrocarbons – structure. Tautomerism of nitroalkanes leading to aci and keto form. Preparation of Nitroalkanes. Reactivity – halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Michael addition and reduction.

Amines (Aliphatic and Aromatic): Nomenclature, Classification into 1^0, 2^0, 3^0 Amines and Quarternary ammonium compounds. Preparative methods -1. Ammonolysis of alkyl halides 2. Gabriel synthesis 3. Hoffman's bromamide reaction (mechanism).

4. Reduction of Amides and Schmidt reaction. Physical properties and basic character – Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline – comparative basic strength of aniline, N-methylaniline and N,N-dimethyl aniline (in aqueous and non-aqueous medium), steric effects and substituent effects. Use of amine salts as phase transfer catalysts. Chemical properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1^0, 2^0, 3^0 (Aliphatic and aromatic amines). Electrophilic substitutions of Aromatic amines – Bromination and Nitration. oxidation of aryl and 3^0 Amines. Diazotization

2. Heterocyclic Compounds **5 h**

Introduction and definition: Simple 5 membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole. Importance of ring system – presence in important natural products like hemoglobin and chlorophyll. Numbering the ring systems as per Greek letter and Numbers. Aromatic character – 6- electron system (four-electrons from two double bonds and a pair of non-bonded electrons from the hetero atom). Tendency to undergo substitution reactions.

Resonance structures: Indicating electron surplus carbons and electron deficient hetero atom. Explanation of feebly acidic character of pyrrole, electrophillic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions. Reactivity of furan as 1,3-diene, Diels Alder reactions (one example). Sulphonation of thiophene purification of Benzene obtained from coal tar). Preparation of furan, Pyrrole and thiophene from 1,4,- dicarbonyl compounds only, Paul-Knorr synthesis, structure of pyridine, Basicity – Aromaticity – Comparison with pyrrole – one method of preparation and properties – Reactivity towards Nucleophilic substitution reaction

3. Carbohydrates **6 h**

Monosaccharides: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structureal elucidation: Evidences for straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n-hexane, cyanohydrin formation, reduction of Tollen's and Fehling's reagents and oxidation to gluconic and saccharic acid). Number of optically active isomers possible for the structure, configuration of glucose based on D-glyceraldehyde as primary standard (no proof for configuration is required). Evidence for cyclic structure of

Proof for the ring size (methylation, hydrolys s and oxidation reactions). Different ways of writing pyranose structure (Haworth formula and chair conformationa formula). Structure of fructose) Evidence of 2 – ketohexose structure (formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2-Carboxy-n-hexane). Same osazone formation from glucose and fructose, cyclic structure for fructose (Furanose structure and Haworth formula).)

Interconversion of Monosaccharides: Aldopentose to aldo hexose – eg: Arabinose to D-Glucose, D-Mannose (Kiliani - Fischer method). Epimers, Epimerisation – Lobry de bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose eg: D-glucose to D-arabinose by Ruff'f degradation. Aldohexose (+) (glucose) to ketohexose (-) (Fructose) and Ketohexose (fructose) to aldohexose (Glucose))

4. Amino acids and proteins **5 h**

Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gama amino acids. Natural and essential amino acids – definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples – Glycine, Alanine, valine and leucene) by following methods: a) from halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis.

Physical properties: Zwitterion structure – salt like character - solubility, melting points, amphoteric character , definition of isoelectric point.

Chemical properties: General reactions due to amino and carboxyl groups – lactams from gamma and delta amino acids by heating peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

Unit-III (physical chemistry-III) **30hrs (1 h / w)**

1. Chemical kinetics **9 h**

Rate of reaction, factors influencing the rate of a reaction-concentration, temperature, pressure, solvent, light, catalyst, Definition of order and molecularity, Derivation of rate constants for first, second, third and zero order reactions and examples, Derivation for time half change, Methods to determine the order of reactions, Kinetics of complex reactions (first order only): opposing reactions, parallel reactions, consecutive reactions and chain reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

2. Photochemistry **5 h**

Difference between thermal and photochemical processes. Laws of photochemistry-Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield. Photochemical hydrogen- chlorine, hydrogen-bromine reaction, qualitative description of fluorescence, phosphorescence, Photosensitized reactions- energy transfer processes (simple example)

3. Thermodynamics **16 h**

The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule's law-Joule-Thomson coefficient, Calculation of w, q, dU and dH for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function.
Temperature dependence of enthalpy of formation-Kirchoff's equation.
Second law of thermodynamics, Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in cyclic, reversible, and irreversible processes, Entropy changes in spontaneous and equilibrium processes.

Paper-IV Chemistry and Industry **90 hrs (3 h / w)**

Unit – I (Physico Chemical methods of analysis) **30 hrs (1 h / w)**

1. Separation techniques **12 h**

1. Chromatography: Classification of chromatography methods, principles of differential migration adsorption phenomenon, Nature of adsorbents, solvent systems, Rf values, factors effecting Rf values.
   a. Paper Chromatography: Principles, Rf values, experimental procedures choice of paper and solvent systems, developments of chromatogram - ascending, descending and radial. Two dimensional chromatography applications.
   b. Thin layer Chromatography (TLC): Advantages. Principles, factors effecting Rf values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.
   c. Column Chromatography: Principles, experimental procedures, Stationary and mobile Phases, Separation technique. Applications

2. Spectrophotometry **4 h**

General features of absorption – spectroscopy, Beer-Lambert's law and its limitations, transmittance, Absorbance, and molar absorptivity. Single and double beam spectrophotometers. Application of Beer-Lambert law for quantitative analysis of

1. Chromium in $K_2Cr_2O_7$
2. Manganese in manganous sulphate
3. Iron (III) with thiocyanate

3. Molecular sectorscopy **14 h**

1. **Electronic spectroscopy:**

Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbitals. Energy levels of molecules (σ,π, n) . Selection rules for electronic spectra. Types of electronic transitions in molecules effect of conjugation. Concept of chromophore.

(ii) Infra red spectroscopy

Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. Anharmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum.

(iii) Proton magnetic resonance spectroscopy (^{1}H-NMR)

Principles of nuclear magnetic resonance

coupling constants. Applications of NMR with suitable examples – ethyl bromic ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

Unit – II (Drugs, formulations, pesticides and green chemistry) **30 hrs (1 h / w)**

1. Drugs **17 h**

1. Introduction: Drug, disease (definition), Historical evolution, Sources – Plant, Animal synthetic, Biotechnology and human gene therapy
2. Terminology: Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptors – brief teartment) Metabolites and Anti metabolites.
3. Nomenclature: Chemical name, Generic name and trade names with examples
4. Classification: Classification based on structures and therapeutic activity with one example each.
5. Synthesis: Synthesis and therapeutic activity of the following drugs., Chloroquin, Omeprazole,
6. Drug Development: Pencillin, Separation and isolation, structures of different pencillins

2. Formulations **3 h**

1. Need of conversion of drugs into medicine. Additives and their role (brief account only)
2. Different types of formulations

3. Pesticides **5 h**

1. Introduction to pesticides – types – Insecticides, Fungicides, Herbicides, Weedicides, Rodenticides plant growth regulators, Pheremones and Hormones. Brief discussion with examples.
2. Synthesis and presnt status of the following.
   DDT, BHC, Malathion, Endrin, Baygon.

4. Green Chemistry **5h**

Introduction: Definition of green Chemistry, need of green chemistry, basic principles of green chemistry

Green synthesis: Evalution of the type of the reaction i) Rearrangements (100% atom economic), ii) Addition reaction (100% atom economic), Pericyclic reactions (no by-product).
Selection of solvent:

i) Aqueous phase reactions ii) Reactions in ionic liquids iii) Solid supported synthesis iv) Solvent free reactions (solid phase reactions)

ii) Green catalysts: i) Phase transfer catalysts (PTC) ii) Biocatalysts

Microwave and Ultrasound assisted green synthesis:

1. Aldol condensation
2. Cannizzaro reaction
3. Diels-Alder reactions

1. **Macromolecules** **10h**

Classification of polymers, chemistry of polymerization, chain polymerization, step polymerization, coordination polymerization – tacticity. Molecular weight of polymers- number average and weight average molecular weight, degree of polymerization, determination of molecular weight of polymers by viscometry, Osmometry methods. Preparation and industrial application of polyethylene, PVC, Teflon, polyacrylonitrile, terelene and Nylon66.

2. **Materials science** **8h**

Superconductivity, characteristics of superconductors, Meissner effect, types of superconductors and applications.

Nanomaterials- Properties and applications of nano-materials. Composites-definition, general characteristics, particle reinforce and fiber reinforce composites and their applications.

3. **Catalysis** **12h**

Homogeneous and heterogeneous catalysis, comparision with examples. Kinetics of specific acid catalyzed reactions, inversion of cane sugar. Kinetics of specific base catalyzed reactions, base catalyzed conversion of acetone to diacetone alcohol. Acid and base catalyzed reactions- hydrolysis of esters.Enzyme catalysis: Classification, characteristics of enzyme catalysis. Kinetics of enzyme catalyzed reactions. Factors affecting enzyme catalysis- effect of temperature, pH, concentration and inhibitor.

LABORATORY COURSE – III

Practical Paper – III (Organic Chemistry) **90 hrs (3 h / w)**

1. **Synthesis of Organic Compounds (Any Four of the following preparations)**

i. Aromatic electrophilic substitution Nitration: Preparation of nitro benzene and p-nitro acetanilide, Halogenation: Preparation of p-bromo acetanilide – preparation of 2,4,6-tribromo phenol.

ii. Diazotization and coupling: Preparation of pheyl azo β-napthol

iii. Oxidation: Preparation of benzoic acid from benzoyl chloride

iv. Reduction: Preparation of m-nitro aniline from m-dinitro benzene

v. Esterfication: Preparation of methyl p-nitro benzoate from p-nitro benzoic acid.

vi. Methylation: Preparation of β-napthyl methyl ether

Condensation: Preparation of benzilidine aniline and Benzoyl aniline.

2. **Thin layer Chromatography & Column Chromatography (Demonstration only)**

i. Preparation of the TLC plates. Checking the purity of the compounds by TLC: Acetylation of salicyclic acid, aniline, Benzoylation of Aniline and Phenol
Determination of Rf values and identification of organic compounds by TLC: preparation and separation of 2,4-dinitrophenyl hydrazones of acetione and 2-butanone using toluene and light petroleum(40:60)

ii. Separation of ortho & para nitro aniline mixture by column chromatography

3. Organic Qualitative Analysis:

i. Identification of an organic compound through the functional group analysis, determination of melting point and preparation of suitable derivatives.

ii. Separation of two component mixtures

1) Aniline + Naphthalene 2) Benzoic acid + Benzophenone 3) p-Cresol + Chlorobenzene.

4. Demonstration experiments:

1. Steam distillation experiment: separation of ortho and para nitro phenols 2) Microwave assisted Green synthesis, two examples: 1. Hydrolysis of Benzamide 2. Oxidation of Toluene

LABORATORY COURSE - IV

Practical Paper IV (Physical Chemistry) **90hrs (3 h / w)**

1. Chemical kinetics (Any one)

i. Determination of specific reaction rate of the hydrolysis of methyl acetate catalyzed by hydrogen ion at room temperature.

ii. Determination of rate of decomposition of hydrogen peroxide.

iii. Determination of overall order of saponification of ethyl acetate

2. Distribution law (Any one)

i. Determination of distribution coefficient of iodine between water and carbon Tetrachloride.

ii. Determination of partition coefficient of benzoic acid between Benzene and water.

3. Electrochemistry (Any Two)

i. Determination of concentration of HCl conductometrically using standard NaOH solution.

ii. Determination of concentration of acetic acid conductometrically using standard NaOH solution.

iii. Determination of dissociation constant (K_a) of acetic acid by conductivity measurements.

iv. Determination of solubility and solubility product of $BaSO_4$.

4. Determination of Surface tension of Liquids.

5. Determination of Viscosity of Liquids.

6. Adsorption

i. Adsorption of acetic acid on animal charcoal, verification of Freundlich isotherm.

7 Project Work:

Collection of spectral data of a minimum of six compounds belonging to different functional groups (other than those included in the syllabus) and submission of the report.

NOTE: Apart from the experiments (1 to 6) the project work (7) shall also be include[illegible] University Examination.

Recommended Text Books and Reference Books

Inorganic Chemistry

1. Concise Inorganic Chemistry by J.D.Lee
2. Basic Inorganic Chemistry by Cotton and Wilkinson
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
4. Inorganic Chemistry by R R Heslop and P.L. Robinson
5. Modern Inorganic Chemistry by C F Bell and K A K Lott
6. University Chemistry by Bruce Mahan
7. Qualitative Inorganic analysis by A.I.Vogel
8. A textbook of qualitative inorganic analysis by A.I. Vogel
9. Inorganic Chemistry by J.E.Huheey
10. Inorganic Chemistry by Chopra and Kapoor
11. Coordination Chemistry by Basalo and Johnson
12. Organometallic Chemistry – An introduction by R.C.Mehrotra and A.Singh
13. Inorganic Chemistry by D.F.Shriver, P.W.Atkins and C.H.Langford
14. Inorganic Chemistry by Philips and Williams, Lab Manuals
15. Introduction to inorganic reactions mechanisms by A.C.Lockhart
16. Theoretical inorganic chemistry by McDay and J.Selbin
17. Chemical bonding and molecular geometry by R.J.Gillepsy and P.L.Popelier
18. Advanced Inorganic Chemistry By Gurudeep Raj
19. Analytical chemistry by Gary D Christian, Wiley India
20. Analytical Chemistry by G.L.David Krupadanam, et al, Univ. Press
21. Selected topics in inorganic chemistry by W.D.Malik, G..D.Tuli, R.D.Madan
22. Concepts and models of Inorganic Chemistry by Bodie Douglas, D.McDaniel and J.Alexander
23. Modern Inorganic Chemistry by William L. Jolly
24. Concise coordination chemistry by Gopalan and Ramalingam
25. Satyaprakash's modern inorganic chemistry by R.D.Madan.

Recommended Text Books and Reference Books

Organic Chemistry

1. Organic Chemistry By R T Morrison and R.N.Boyd
2. Organic Chemistry by T.J.Solomons
3. Organic Chemistry by L.G.Wade Sr
4. Organic Chemistry by D.Cram, G.S.Hammond and Herdricks
5. Modern Organic Chemistry by J.D.Roberts and M.C.Caserio
6. Text book of Organic Chemistry by Ferguson
7. Problems and their solutions in organic Chemistry by I.L.Finar
8. Reaction mechanisms in Organic Chemistry by S.M.Mukherji and S.P.Singh
9. A guide book to mechanisms in Organic Chemistry by Peter Sykes
10. Organic spectroscopy by J.R.Dyer
11. Organic Spectroscopy by William Kemp
12. Fundamentals of organic synthesis amd retrosynthetic analysis by Ratna Kumar Kar
13. Comprehensive practical organic qualitative analysis by V.K.Ahluwalia & Sumta Dhingra
14. Comprehensive practical organic chemistry: Preparation and quantitative analysis by V.K.Ahluwalia and Reena Agarwal
15. Organic Chemistry by Janice Gorzynski
16. Organic Chemistry by Stanley H Pine
17. Fundamentals of Organic Chemistry by John Mc Murray, Eric Simanek
18. Organic Chemistry by Francis A Carey
19. Text book of Organic Chemistry by K.S.Mukherjee
20. Organic Chemistry by Bhupinder Mehta & Manju Mehta
21. Organic Chemistry by L.G.Wade Jr, Maya Shankar Singh
22. Elementary organic spectroscopy by Y.R. Sharma
23. Chemistry & Industry by Gurdeep R. Chatwal
24. Applied Chemistry by Jayashree Ghosh
25. Drugs by David Krupadanam
26. Pharmacodynamics by R.C.Srivastava, Subit Ghosh
27. Analytical Chemistry by David Krupadanam
28. Green Chemistry – V.K.Ahluwalia
29. Organic Synthesis by V.K.Ahluwalia and R.Agarwal
30. New trends in Green Chemistry –by V.K.Ahluwalia & M.Kidwai
31. Industrial Chemistry by B.K.Sharma
32. Industrial Chemistry by Banerji
33. Industrial Chemistry byM.G.Arora
34. Industrial Chemistry by O.P.Veramani & A.K.Narula
35. Synthetic Drugs by O.D.Tyagi & M.Yadav
36. Medicinal Chemistry by Ashutoshkar
37. Medicinal Chemistry by P.Parimoo
38. Pharmacology & Pharmacotherapeutics by R.S Satoshkar & S.D.Bhandenkar
39. Medicinal Chemistry by Kadametal P-I & P-II

Home Science

Paper I. PSYCHOLOGY&PERSONALITY DEVELOPMENT

Theory - 4 lec / week	Theory- 100 marks
Practical – 3 hrs/week	Practical-50 marks

Objectives:

1. To develop an understanding of human behavior and personality.
2. To create an awareness in the students of the various psychological process underlying human behavior.
3. To stimulate the student to think, introspect and work on to develop their Personality

Theory

Unit 1Psychology -Introduction, Nature & scope and branches of Human Psychology

- Methods in human psychology- Experimental, Clinical and Survey methods

Unit 2Behavior-Individual differences – Heredity and Environment

- Motivation- definition, classification and importance
- Temperaments and Emotions – definition, types and importance

Unit 3Cognition and its processes- meaning, importance and factorsaffecting

- Attention and Perception
- Thinking-Creative thinking
- Reasoning&Problem solving

Unit 4 Learning & Memory- Nature & Importance,

- Principles and Methods of learning - Theories of learning in brief-classical and operant conditioning, trial and error, acquisition of skills,
- Memory & its importance in learning andtypes of memory, nature of forgetting and methods to improve memory

Unit 5 Intelligence – Definition and classificationand factors affecting intelligence.

- Types of tests to determine intelligence
- Attitude, Aptitude and Interests –Definition, importance and types
- Creativity and its test
- Emotional Intelligence-Concept, Definitions, Domains and Significance of emotional intelligence

Unit 6 Personality- Definition, Dimensions

- Brief overview of different perspectives of personality theories- psycho dynamic-Psycho- sexual stages, Type and Traits- Carl Jung, Sheldon,Alport, Eysenck, Self-theories- self concepts, self-esteem.Social learning theory-Bandura-Observational learning – process

Unit 7 Personality Structure - Ego states– definition and importance

- The child, adult and Parent ego state

Unit 8 Factors influencing personality- Heredity, Family factors, Parenting styles, Life experiences,

Intelligence, Health & Physical status, Neighborhood and Culture

- **Measurement of Personality- Personality test –**Personality inventories- MAP, 16 PF, Projective tests-Rorschach Ink Blot test, Thematic Apperception Test, Self-rating scales

PRACTICALS

Unit 1.Test of -

1. Aptitude and Interests
2. Perception
3. Motivation
4. Self-concept and self esteem
5. Intelligence
6. Temperamental profile
7. Adjustment Inventory
8. Personality

References:

1. Anastasi, A. (1988). Psychological testing (6th edition).New York: Macmillan
2. Bloom,B.S., Madaus,G.J.Hastings,J.T.(1981). Evaluation to improve learning. New York: Mc Graw Hill.
3. Cronbach,L.J.(1990). Essentials of Psychological Testing(5th edition).New York:
4. Introduction to Psychology – Morgan C. T., King R. A.

Paper II. HEALTH, PHYSIOLOGY & MICROBIOLOGY

Theory - 4lec/ week Theory-100 marks

Practical -3hrs/week Practical-50 marks

Objectives:

1. To understand the concept of good health and means to achieve it.
2. To know therole of microbes and importance of hygiene and sanitation
3. To introduce structure and function various system of the body

Unit No. 1 Health– Definition of health and wellbeing, meaning

- Dimension – social, mental, spiritual, emotional, vocational
- Determinants – Heredity, environments, Life style,Socio- economic condition
- Indicators - concept of Mortality, Morbidity

Unit No. 2 Introduction and general characteristics of Microbes and disease causing agents

- Bacteria and Viruses
- Yeasts and Fungus / Mould
- Study of Parasites – Entamoeba, Hookworm, Tapeworm and threadworm

Unit No. 3Infection, Prevention & Control

- Mode of infection- Air & Waterborne Diseases
- Diseases transmitted by Mosquitoes, Housefly,and control methods.
- Immunization and Vaccination

Unit No. 4 Hygiene - Definition, meaning

- Importance of personal Hygiene in life.
- Control of Micro-organisms – Sanitation, Sterilization &Disinfection- Physical and chemical method.

Unit No.5 Introduction to various systems of the body

- Animal Cell: structure, functions of each component(organelle) of the cell.
- Tissues: Functions of varioustypesof tissues.
- Bones and Joints-functions

Unit No. 6 Digestive System-

- Structure and functions of salivary glands, stomach, small intestine, pancreas, and liver.

Unit No. 7Cardiovascular system

- Heart – Structure and functions of Human heart, Cardiac cycle.
- Blood Pressure – Systolic and diastolic Blood pressures

Unit No. 8 Female Reproductive System

- Structure and functions of Ovaries, fallopian tubes and uterus.
- Menstrual cycle, ovulation and menopause.

PRACTICALS

1. The use and care of Microscope
2. Visit to Kurnool Medical College
3. Visit to Water treatment plant/Milk factories to assess sanitation
4. Hanging drop preparation to observe true motility of bacteria
5. Learning to read blood pressure and pulse rate and learn to use clinical thermometer
6. First aid during cut, fractures, burns, accidents, shocks, unconscious, convulsions, Poisoning, foreign bodies in the eyes
7. The Microscopic observation of different Microorganism

References:

1.Peleczar, J.M. Chan, E.C.S. and Kreig, N. R. (1993) Microbiology, Ed. 5th Tata MacGraw Hill.
2. Stanier R. Y., Adelberg, E.A. and Ingraham, J.L. (1989) General Microbiology. MacMillan, London.
3. Atlas R. M. (1988) Microbiology, fundamentals and application. MacMillan N. Y.
4. Guyton A.C., Hall, A. J. – Text Book of Medical Physiology.
5. K. Sembulingam – Essentials of Medical Physiology.
6. Chaterjee C. C. Human Physiology.

Paper III.FOOD SCIENCE & NUTRITIONAL BIOCHEMISTRY

Theory - 4 lec / week	Theory- 100 marks
Practical - 3hrs/week	Practical-100 marks

Objectives:-

1. To study various food groups with respect to composition, nutritive value.
2. To learn about food deterioration and preservation and processing of food.
3. To obtain an insight into chemistry of major nutrients and their metabolism.

Theory

Unit- 1. Introduction,definition and concepts offood, nutrition and nutrients.

- Functions of food- physiological, psychological and social.
- Factors affecting food intake.
- Food groups and concept of balanced diet - Importance of basic food groups in the diet

Unit -2Functional food group classification- Energy giving foods, Body building foods and Protective foods, Classification of foods based on Nutrient content

- Macro nutrient content – Carbohydrates, Lipids and Protein – Classification, composition, function, dietary sources and daily recommended allowances.
- Micro Nutrient content – Vitamins and Minerals- functions, sources, requirement and deficiency.
- Role water and roughage in diet

Unit-3. Composition and Nutritional contribution of various foods like-Cereals and millets, Pulses, Fruits, Vegetables, Milk, Eggs, Fish and other flesh foods, Nuts & oil seeds, Sugar andJaggery, Spices and condiments.

- Beverages -Role of beverages and appetizers in diet
- Convenience foods

Unit- 4Food Preparation, Processing and Preservation

- Importance and objectives of food preparation and preservation
- Methods of cooking and their effect on nutritional values and digestibility- dry heat, moist heat, combination methods, Pressure cooking, solar cooking and microwave cooking.
- Food spoilage – causes and prevention, methods of food preservation
- Effect of sprouting, fermentation, germination, parboiling on foods
- Food processing -Definition, importance, effect of processing on nutritive value of foods. Supplementation, substitution, fortificationand enrichment.

Unit- 6.Introduction tobasic concepts of Biochemistry- Definitions, scope and relevance of biochemistry to nutrition and health.

- Water, pH, Buffer, Oxidation and Reduction reactions.
- Physical and chemical properties of macronutrients

Unit- 7. Metabolisms of Macronutrients

- Carbohydrates – Glycolysis, gluconeogenesis, TCA cycle
- Proteins – urea cycle, biological value of proteins
- Lipids- ß-Oxidation and biosynthesis of fatty acids, Ketone bodies

UNIT- 8. Vitamins and minerals and their biochemical role in metabolism

- Role of enzyme and hormones in maintaining good health

PRACTICALS

UNIT. I

1. Identification of different foods
2. Weights and measure
3. Food preparation and understanding the Cooking Procedure for different types of food- Cereals, Pulses, Milk, Egg,Fish and Meat, andVegetable cookery
4. Food Preservation
5. Preparation of resource files

UNIT. II

1. Qualitative analysis of carbohydrates
2. Qualitative test of amino acids and proteins
3. Tests of Lipids- solubility, emulsification, Iodine test for unsaturated fatty acid

References

1. B. Srilakshmi, Food Science, New age International (P) Limited,New Delhi.
2. Dr.M.Swminathan Hand Book of Food and Nutrition the Bangalore printing and publishing Co.Ltd.
3.VijayaKhader, Text Book on Food storage and Preservation.
4.Rama Rao AVSS (2009): Textbook of Biochemistry.

Paper **IV. HUMAN DEVELOPMENT**

Theory - 4 lec / week Theory- 100 marks
Practical -3 hrs/week Practical-50 marks

Objectives

1. To introduce the concepts, importance and scope of the study of human development.
2. Tostudy various areas of Human development from conception till adolescence
3. To learn about various factors affecting human development

Theory

Unit No.1 Introduction – Need, Importance and Scope of Human development

- Concepts in Human Development
- Relationship of human development with other disciplines
- Areas of human development
- Methods of child Study

Unit No.2 Growth and Development- Principles and Factors

- Role of Heredity and Environment on Growth and Development
- Developmental Tasks andStages-Meaning, importance
- Prenatal period, Infancy period, Toddlerhood, Early childhood, Middle childhood, Adolescence and Adulthood

Unit No.3Pregnancy, Delivery and Birth Process

- Conception and Fertilization -Signs and symptoms of pregnancy
- Minor and Major discomforts during pregnancy , Danger signals in pregnancy and Common physical hazards during prenatal period
- Effects of unfavorable Prenatal Conditions and Care during pregnancy
- Stages of prenatal period - Period of ovum, Period of embryo, and Period of fetus
- Delivery and complications during birth

Unit No.4 Characteristics and Care of New Born Baby

- Characteristics of new born, Physiological changes and adjustments in post natal life
- Reflexes in new born and care of the new born
- Care of Premature babies
- Postnatal care of nursing mother

Unit No.5 Development during Infancy /Babyhood- Developmental milestones

- Physical and Motor development
- Emergence of emotions during infancy and its development in later stages
- Social development during infancy
- Language Acquisition during infancy
- Cognitive process and Cognitive Development-Factors
- Significance of early stimulation- objectives, Areas of early stimulation and activities

Unit No.6 Early Childhood Period – Importance & Characteristics

- Physical and Motor Development
- Cognitive skills in early childhood
- Language Development
- Emotional Development - Characteristics of children's emotions
- Socialization Process -Agent of Socialization
- Moral Development

Unit No.7 Late Childhood – Meaning, Importance, Characteristics and Developmental tasks

- Physical and Motor
- Changes in Cognitive Abilities
- Social and Emotional Development
- Moral Development during school age
- Role of Family, School and Peer on overall development of school Age Children
- Puberty-Meaning, Changes-Physical, Physiological and Psychological
- Early and late maturation –effects on adolescent personality

Unit No.8Adolescence -Meaning, Importance, Characteristics, Developmental tasks,

- Cognitive Development
- Emotional Development- Heightened emotionality , Emotional catharsis
- Social Attitudes and Behaviour during Adolescence- Influences of Peer group
- Morality During Adolescence
- Personality Development-Identity development and identity problems- delinquency, drug abuse, tobacco and smoking, alcohol and drinking, suicidal tendency, runaways- Factors and Preventive Strategies
- Problems During Adolescence- self, home and community related

PRACTICALS

Module1.

1. Study of Cultural practices with regard to Pregnancy and Child birth
2. Assessment of growth and development by using anthropometry – infant, toddler,
3. Preparation of resource files on care during prenatal period and early childhood
4. Case study of children of different age group

Module2.

1. Preparation of daily profile of a school going child/adolescent.
2. Case study report of a school going child/ adolescent.
3. Preparation of Stimulation material
4. Study of adolescent problems
5. Measuring self-concept/ self-esteem of an adolescent
6. Visit to vocational guidance and counseling center.
7. Development of resource files on various aspects of human development.

References

1. Grace.J.Craig, 1976, Human Development, Prentice Hall INC, New Jersy, p-p 1-3.
2. Papalia D.E and Old S.W. 1978, Human Development, McGrawHillInc, London p-p 3-5.
3. Kaluger, George and Kaluger, Merriam Fair (1979). "Human Development: The span of life" ,C.V Mosby Company, New York.
4. R.P. Devadas&N.Jaya, 1984, "A text book on Child Development", Macmillan India Ltd, Madras

Model paper

K.V.R. Govt. Degree College for Women, Kurnool

B.Sc.(Three Year) Pre Final Examination

Second Year Examination, Academic Year 2015-16,

Part II- HOME SCIENCE

Paper IV– Human Development

Time: 3 Hours Max Marks: 100

Answer any FIVE questions. (5 x 8 = 40 marks)

1. Techniques of Child study
2. Care during Pregnancy
3. Stages of prenatal period
4. Characteristics of the new born
5. Physical and motor development during Infancy
6. Socialization
7. Moral Development during Adolescence
8. Developmental task during life span

PART B

Answer any FOUR questions (4 x 15 = 60marks)

9. Explain the Principles and Factors affecting Growth and Development
10. Explain the role of Heredity and Environment on Growth & Development.
11. Write the postnatal care of the mother and new born baby.
12. Write about development of Language during infancy and early childhood Period.
13. Describe the stages of Delivery and types of birth
14. Explain the Skill development for school age children
15. Write the Piaget theory of Cognitive Development.
16. Describe the effect of unfavorable prenatal conditions.

Paper V-**FOUNDATION OF FABRIC AND APPAREL CONSTRUCTION**

Theory - 4 lec / week Theory- 100 marks
Practical - 3 hrs/week Practical-50 marks

Objectives

1. To familiarize the students with terminology related to textiles and apparel.
2. To know Production, Properties, Use and Care of the different fabric
3. To introduce the basic methods of Apparel construction

THEORY

UNIT-1 Introduction to Textiles fiber: Importance of study of textiles to the consumer

- Fibers – definition
- Polymerization
- Primary Properties of fiber
- Secondary Properties
- Classification of Textile fibers

UNIT-2.A brief study of Classification, Production, Properties, Use and Care of the following fibers:

a) Natural cellulosic vegetable fibers – cotton, linen
b) Natural protein animal fibers-wool, silk
c) Man made fibers – Rayon and acetate
d) Synthetic fibers-Nylon, Polyester
e) Mineral fibers- glass, asbestos and metallic fibers
f) Mixtures and blends

UNIT-3 Yarn construction

- Types of Yarn - spun/filamentous, Mono/ multi, single/ply/ cord
- Yarn twist – types
- Yarn numbering system
- Yarn Manufacturing -Spinning- Mechanical and Chemical spinning
- Classification of yarn, their properties and uses
  1) simple, 2) novelty 3) bulk and textured yarn

UNIT-4 Fabric Constructions

- Weaving – Definitions, Terms, Basic weaving operation
- Types of weave- Basic and Decorative, Dobby and Jacquard attachment
- Knitting-Types of knit stiches
- Non -Woven - Felting, Bonded, Braiding and Nett

UNIT -5. Fundamentals of fabric Construction

- Sewing Machine description, use, care and repairs
- Sewing equipment and Accessories -French curve, Hip curve, L- square, Pattern making paper etc.
- Introduction to different fabric term- Muslin, Grain, Selvage, Bowing and Skewing,Dart, dart legs, dart intake, trueing and blending, plumb line, vertical lines, horizontal lines, perpendicular lines, symmetric and asymmetric lines, style number, pattern size.

UNIT-6.Pattern Making- Concepts and Terms –Notch, Bust point, Dart, Dart intake, Trueing, Blending, Pin marking, Tape marking

- Methods of pattern making -Flat pattern, Drafting, Draping and Grading
- Pivotal point & style reading
- Fitting- principles of good fit, various fitting problems and its remedies.

UNIT 7.Preparation of Fabric for Garment Construction

- Fabric preparation- Straightening, Shrinking, Pressing
- Taking body measurement

Unit 8.Stiches- Basic and Decorative Stitches

- Seam Finishes -Types of seam andsuitability for different fabrics,
- Fullness -Reasons for introducing fullness s
- Types of fullness- darts, pleats, tucks, flares, gusset, gathers and shirrs, frills and ruffles
- Neckline finishes – Types of collars
- Plackets, Pockets, Sleeves

PRACTICALS

UNIT 1. Textile chemistry

1. Fiber identification- Physical, microscopic, burning and chemical test.
2. Weave identification
3. Fabric identification

UNIT 2.Clothing construction

1. Sewing Machine description, use, care and repairs
2. Sewing equipment and Accessories
3. Simple Construction Techniques
    - Basic, Decorative and Embroidery Stitches
    - Seam and seam finishes
    - Neck line finishes
    - Plackets, Pockets and Sleeves
    - Fullness- Disposal of fullness- Dart, Gathers, Pleats, Tucks and Flare
    - Fasteners: Hook and eye, press button, velcro, button.

UNIT- 3. Fabric Construction

1. Preparation of Fabric for Garment Construction
2. Construction of Sari Petticoat,House coat and Frock
3. Market survey to see the availability of different yarns and fabrics of different weaves.

References:

1. Introductory Textile Science, M L Joseph
2. Textile fabrics and their selection, Isabel B Wingate and June F Mohler
3. Textiles by Hollen Saddler- Macmillian publishing company, New York
4. Understanding Textiles by P S Tortora-Prentice Hall Inc., New Jersey
5. Fiber to fabric by Corbman.
6. Text Book of clothing Textiles and Laundry, Sushma Gupta, NeeruGarg, RenuSaini

Model question Paper

K.V.R. Govt. Degree College for Women, Kurnool

B.Sc.(Three Year) Pre Final Examination

Third Year Examination, Academic Year 2015-16,

Part II- HOME SCIENCE

Paper V– Foundation of Fabric and Apparel Construction

Time: 3 Hours Max Marks: 100

Answer any FIVE questions. (5 x 8 = 40 marks)

1. Spinning Process
2. Classification of Textile fibers
3. Types of Knitting
4. Polymerization
5. Mixtures and blends
6. Properties of Rayon
7. Principle of good fit
8. Production of silk

PART B

Answer any FOUR questions (4 x 15 = 60marks)

1. Define fiber? Write the Primary and Secondary Properties fibers
2. Describe the Production and Properties of Cotton
3. Write about Sewing Machine its use and care
4. What is Pattern making? Write various methods pattern making
5. Define Weaving? Write about Types of weave
6. Describe the Preparation of Fabric for Garment Construction
7. Write the manufacturing and properties of Wool
8. Explain the need and importance of Fullness and different ways of introducing fullness

Paper VI: HOUSING AND INTERIOR DECORATION

Theory - 4 lec / week	Theory- 100 marks
Practical -3 hrs/week	Practical-50 marks

Learning Objectives

1. To learn aboutvarious aspects of Housing and Interior Decoration
2. To learn application of Ergonomic principle in planning family life space
3. To know about care and maintenance of house

THEORY

Unit-1 Introduction to Housing

- Importance of Housingand types of houses
- Functions of a house – Its influence on health and family living.
- Housing needs in different stages of family lifecycle and economic levels.
- Housing choice - Ownership Versus Renting-Advantages and Disadvantages
- Selection of site- Importance,Factors influencing the selection of Site

Unit-2Building Plan for Family Living

- Principles of Planning and importance of planning space
- Orientation – importance, definitions –Aspect, Prospect,Privacy, Grouping, Roominess, Flexibility, Circulation, Sanitation, Light, Ventilation, Stuffiness, Cleanliness
- Factors to be considered while planning different rooms and ways to attain Good Orientation in Residential Building
- Designing Circulation Spaces -Staircase,Elevator / Lift,Hallways / Corridors,Driveways and Walkways
- Practical considerations of Water supply, Electricity, Plumbing, and drainage facilities.

Unit-3 Ergonomics in Planning for family life space

- Ergonomics - Meaning and Significance, aspects of ergonomics
- Application of ergonomic principles in planning life space-Factors and practical consideration
- Designing Service Space – Kitchen, Planning for efficient Kitchen, Kitchen layout
- Planning for efficient work centers and storage areas in the kitchen, bathroom, laundry and other areas of the house.

Unit-4Interior Decoration- Meaning and importance and development of good taste

- Element of design- Line, form, colour, texture and lighting.
- Types of design.
- Art principles –Harmony, Balance, Rhythm, Emphasis and proportions – Application of art principles and elements of design in improving the appearance of home.
- Principle for table setting

Unit-5Furnishing and Accessories -Types and functions.

- Factors to be considered for selection and arrangement of furniture
- Interior and exterior fitting and fixture- type and importance

Unit-6 Flower arrangement – Shapes, Styles, techniques- Ikebana, Dry material, Bonsai,

- Points to be considered while selecting flowers and aids (containers, Holders, Mesh, Scissors, tape etc.,) for arranging flowers

- Dry flower arrangement-preserving flowers (both fresh and dry) by differentmethod.

Unit-7 Household Equipment's

- Brief Study of Equipment in Indian House- Important electrical and non-electrical energy saving appliances- Refrigerator, Vaccum cleaner, washing machine, mixer andgrinder, toaster
- Smokeless chullah and Biogas- importance, construction and principle
- Factors to be considered for choice and purchase of equipment's

Unit- 8 Care and Maintenance House

- Cleaning and care of metals and non-metals
- Eradication of household pests
- Prevention of accidents and safety measure in home

PRACTICALS

Unit 1. Housing

1. Learning to read House plan – Identification of Symbols
    - Site plan
    - Floor plan
    - Elevation
    - Perspective view
    - Land scape plan
2. Drawing house plan for different income groups
3. Drawing different types of Kitchen plan

Unit 2. Interior Decoration

1. Drawing Different design using Art Principle
2. Colour- Painting Prang Color chart
3. Principle of Table setting-Indian and western
4. Flower arrangement
5. Furniture arrangement
6. Preparation of Resource file

REFERENCE BOOKS

1. Julius Panero and Martin Zelink, (1979), Human Dimensions and Interior Space, 1st edition, Watson –Guptil Publications, Newyork, pp 23,131-163
2. M.N. Jogelekar and Neelkamal Sharma, Housing Architectural Details, Hudco publication, New Delhi.
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B.Sc.(Three Year) Pre Final Examination

Second Year Examination, Academic Year 2015-16

Part II- HOME SCIENCE

Paper VI– Housing and Interior Decoration

Time: 3 Hours Max Marks: 100

Answer any FIVE questions. (5 x 8 = 40 marks)

9. Factors to considered for selection of housing site
10. Measures need to be taken to control household pests
11. Types of kitchen plans
12. Importance of ergonomics in planning life space
13. Describe Prang color chart
14. Functions of house
15. Importance of Biogas
16. Types of Accessories

PART B

Answer any FOUR questions (4 x 15 = 60 marks)

9. Write advantage and disadvantage of owning and renting a house.
10. Explain the Principles of Art and its application in interior decoration
11. Write the factors to be considered while planning different rooms in a home
12. Describe the various elements of design
13. Describe the importance storage space in home
14. Explain factors to be considered for selection and purchase of household equipment
15. Write in detail about Flower arrangement
16. Explain prevention of accidents and safety measure in home

Paper VII. SOCIOLOGY, MARRIAGE AND FAMILY RELATIONS

Theory - 4 lec / week Theory- 100 marks

Objectives

1. To introduce students various aspects of marriage, family, gender issues.
2. To orient the students with the changing trends in family and parenting.
3. To introduce the concept of guidance and counseling.

Theory

Unit 1 Sociology- meaning, importance and scope-

- ❖ Relationship of sociology with home science;
- ❖ Understanding basic sociological concepts: society, community, association, institution
- ❖ Social groups; Social structure: Family, Caste, Class, Kinship

Unit 2 Social Institutions-Family, Marriage, Religion and educational institution

- ❖ Elements of social system
- ❖ Differences between tribal, rural and urban society

Unit 3 Culture-meaning, importance, cultural components-norms, customs, mores,folkways

- ❖ Prevailing problems of our society – Poverty, Illiteracy, Malnutrition, Beggary, Delinquency, Prostitution, Corruption and Communal Problem
- ❖ Social change: Meaning and Importance, Social Progress with special reference to women.

Unit 4Marriage in Indian Society-Meaning and definition

- Goal and Function of marriage
- Types of Marriage-Prevalent form of marriage in India
- Readiness for marriage-Psychological,Social, Physiological, Economical
- Preparation for marriage - (i) Selecting a suitable partner, (ii) Premarital association

(iii) Premarital guidance and counseling

Unit 5. Marital Adjustment-Areas of adjustmentwithinthe familyat different stages of family life cycle and occupational cycle.

- Marriage trends: contributory factors of marital discord, dysfunctional relationship and its consequences on child's psychosocial development.

Unit 6. Family - Meaning, Definition, Function and Structure of family

- Nuclear and joint families- Differential structure, roles, interaction and hierarchy of dominance in joint and nuclear families.
- Family trends: Single parent family, Childless family, Dual earner family, Live in relationships

Unit 7.Preparation for Parenthood- Sex Education, Methods of Family Planning

- Population Control- consequences of uncontrolled population
- Parent Child Relationship-Parenting Style/ child rearing practices and disciplinary techniques.
- Parenting responsibilities- Physical, social, emotional, financial and legal responsibilities. Parents' contribution in fostering developmental needs of children such as learning, social, emotional and cognitive development.

Unit 8. Families at risk-(a) Marital disharmony (b) Separation (c) Violence and distress

- **Legal Aspects of Marriage**- (a) Hindu law of Marriage (b)Muslim Law of Marriage (c) Christian Law of Marriage.
- Legal Aspects of Women and child welfare
- **Marriage and Family Counseling**-Need and Importance
- Types, Procedures and Process of counseling
- **Status of women in the modern world** – Education, Employment, Economic Responsibilities and privileges

References:

1. Rice F.P. Marriage and Parenthood. Allyn and Bacon Inc. Toronto.
2. Rice F.P. 1983. Contemporary Marriage. Allynand Bacon Inc. Toronto.
3. Reddy VNK, 1978. Marriages in India, The Academic Press Gurgaon.
4. Landis and Landis 1968. Building as Successful Marriage Prentice Hall Enc.
5. Duval I.M. 1962 Family Development J.P. Lippincot Co.
6. Winch R.F. 1963. The modern Family, Holt Rinehart and Winston.

B.Sc.(Three Year) Degree Pre Final Examination March, 2016

Third Year Examination, Academic Year 2015-16,

Part – II: HOME SCIENCE

Paper -VII: Sociology, Marriage and Family Relations

Time: 3 Hours *Max. Marks:100*

PART A

Answer any FIVE questions. (5 x 8 = 40 marks)

1.Culture of society

2.Religious marriages

3.Nuclear family

4.Social changes

5.Welfare state

6.Goal of marriage

7.Christian marriage

8.Parenthood child

PART B

Answer any FOUR Questions 4x15=60

9.Explain the classification of social goods

10.Explain the consequences of planned and unplanned industrialization

11. Explain the various social practices and problems.

12.Factors promoting marital adjustment with respect to inter marriagesenumerate.

13.Discuss the stages in family life cycle.

14.Explain Hindu customary practices associated with marriages.

15.Explain women status in modern world education.

16. Explain the problems of beggary.

Paper VIII. EARLY CHILDHOOD CARE AND EDUCATION

Theory - 3lec / week	Theory- 100 marks
Practical - 3 hrs/week	Practical-30 marks

Objectives

1. To introduce the need and importance of early childhood education.
2. To understand the contribution of Western and Indian Philosophers to ECE
3. To know about the requirement and activities of ECE to bring out all round development in children

Theory

Unit 1. Early childhood period

- Meaning, Characteristics ,Significance of early childhood period
- **Early childhood education** -Concept of ECCE, Types and Need for ECE
- Brief History of ECE -Status of ECE during Pre and Post-Independence period
- Objectives of ECE Programme

Unit 2. Basic requirements of an ECE center

- Indoor and out- door space, Size of the class, Staff, Number of children, Teacher child ratio, Curriculum, Building facilities, Areas and equipment
- Records and reports maintained in ECE center

Unit 3. Contributions ofWestern Philosophers to Early Childhood Education in brief

- Jean Jacques Rousseau (1712 – 1798)
- Friedrich Wilhelm August Froebel (1782 – 1852)
- John Dewey (1859-1959)
- Maria Montessori (1870 – 1952)to ECCE:
- McMillan Sisters
- Pestalozzi

Unit 4.Contributions of Indian Philosophers to Early Childhood Education in brief

- Mahatma Gandhi
- Rabindranath Tagore (1861-1941)
- Sri Aurobindo (1872-1950)
- Jiddu Krishnamurthy
- TarabaiModak (1892 – 1973)

Unit 5.Curriculum Planning during early childhood period

- Types of Curriculum Planning- Long term, Short term,Weekly, and Daily
- Steps in curriculum planning
- Factors - Child related, Parent & Community related
- Characteristics of a good plan

Unit 6. Play- Purpose and functions

- Types of play activities and their values-
- Outdoor activities-Water Play, Sand Play, Gardening activities, Field trips
- Indoor activities -Block Play,Dramatic play, Creative activities
- Ways of fostering creativity -Easel painting Finger painting, Collage work, Dough & clay, Dance and Music
- **Cognitive activities**- Language activities, Rhymes, Stories, Puppet &Dramatic play

Unit 7.Types of ECCE centers in brief

- Nursery school
- Kindergarten school
- Montessori school
- School for disadvantaged -Head start, Balwadi,Anganwadi

- Creches

Unit 8.Qualities of an ECE teacher- Important characteristics

- Role of teacher in organizing activities
- Parental participation in ECE programme

PRACTICALS

Unit1. Observation and recording development of preschool children (3-6 years)
Unit2. Observational visit to Early Childhood Care and Development Centers
Unit3. Planning activities using thematic approach

- Physical and motor development
- Language development
- Intellectual development
- Socio emotional Development
- Creative activities
- Science experiences

Unit4. Preparation of Teaching Aids
Unit 5. Preparation of resource file

REFERENCES

1.JagannathMohanthy and BhagyadharMohanthy, 2000," Early Childhood Care and Education", Deep and Deep Publications PVT limited, New Delhi p-p.1-4.
2.J.S.Grewel, 1984, "ECE, foundations and Practice", National Psychological Corporation, Agra, New Delhi, p-p 19-30.
3.Claudia Eliason& Loa Jenkins, 1990, "A practical guide to early child curriculum" 4th edition, Merril Publishing Company, London. P-p 3 –8.

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Part – II: HOME SCIENCE

Paper -VIII: Early Childhood Care Education

Time: 3 Hours *Max. Marks:100*

PART A

Answer any FIVE questions. (5 x 8 = 40 marks)

1. Write on the significance of early childhood years
2. Describe the characteristics of early childhood period
3. What are the important qualities of an ECE teacher
4. Enumerate the factors affecting for curriculum planning
5. Write various ways of fostering creativity
6. Explain Pre Basic Education
7. Characteristics of a good curricular plan
8. Write the advantage of play way method

PART B

Answer any FOUR questions (4 x 15 = 60marks)

9. Explain Objectives of an ECE Programme
10. Describe the Status of ECE during Pre and Post-Independence period
11. Write basic requirements of an ECE center
12. Discuss the various methods of Parental participation in an ECE programme
13. Explain the role of teacher in organizing activities
14. Describe the types of play activities and their values
15. Write about various types of ECCE centers in brief
16. Discuss the Contributions of any two Western Philosophers to Early Childhood Education in brief

Paper IX. TEXTILE CHEMISTRY & FASHION DESIGNING

Theory - 3lec / week Theory- 100 marks
Practical - 3 hrs/week Practical-80 marks

Objectives

1.To give the basic knowledge of design and fashion.
2. To enable intelligent selection, use and care of textiles and garments in relation to the individual.
3. To know and appreciate traditional textiles of India.

Unit1. Dye and Dyeing – General principles,function

- Classification – Natural and synthetic - Methods of application -
- Natural Dyes - vegetable, animal, and mineral
- Synthetic- Direct, vat, mordant, acid, basic, disperse etc.
- Methods dyeing-Fiber, Yarn, Fabric, Garment

Unit 2. Printing- Type- hand and machine printing

- Styles of printing- Direct, Resist, Discharge printing
- Methods of Printing- Flat bed, Roller, Block, Discharge, Resist, Stencil, Bubble, Burn out, and Flocking

Unit 3. Fabric finishes

- Mechanical Finishes- Stentering, Calendaring- Embossing, Moire Effect, Sanforizing, Pressing,Decating, Napping, Flocking, Beetling and Softening
- Stiffening finishes- Starching, Weighting, flocking
- Cotton Finishes – Mercerizing, Parchmentization
- Wool finishes- Moth proofing, crabbing, Decantizing
- Synthetic Finishes- Delusturing,Antipilling, durable press etc.

Unit 4.Traditional Indian Textile

- Indian embroidery stitches
- Traditionally dyed, printed, woven and embroidered textiles present in various states of India
- Indian costume

Unit5. Design and fashion–

- Elements of fashion design
- Principles of design in textiles and clothing

Unit 6.Fashion merchandising- importance and steps

- Fashion- definition, and principle of Fashion
- Fashion cycle, factors affecting fashion

Unit 7. Clothing – functions,

- Factors involved in making selection-Fiber content, Yarn & fabric structure etc.
- Family Clothing&household linen - selection for men, women, college going and children, carpets and upholstery etc.
- Selection of Ready- made garments and their evaluation
- Basic and Special buying consideration

- Consumer buying- Budget, Advertising, Labels and Standards

Unit- 8 Fabric maintenance-

- Laundering process, Soaps and Detergents, bleaches, Fabric softeners, Dis-infecting and storage of clothes
- Guidelines for laundering – Drying, Dry cleaning, Pressing,
- Principles of laundry and dry cleaning
- Stain removal-Steps in removing stain

PRACTICALS

Unit1. Basic Designing using elements of fashion design

- Construction of Blouse, Chudidar and Kameez
- Different types of designs- Floral, animals, geometrical & Human Motifs.
- Selection of appropriate design.
- Motif enlarging & reducing.
- Fabric painting

Unit 2. Hand stitches Samples -Functional, Traditional

- Knitting and applique work

Unit 3. Dyeing and printing

- Tie and dye and Batik
- Block printing

Unit 4. Evaluation of Ready-made garments

- Size labels
- Symbols and usage of care labels

Unit 5.Care and maintenance of different fiberfabrics- cotton, wool and silk

- Pre preparation, washing, bluing, stiffening.
- Mending and darning
- Stain removal

REFERENCES

1.Corbman P. B., (1989), Textiles- Fibre to Fabric, 6 edition, McGraw Hill, New York.
2.D'souza, N., (1998), Fabric Science, New Age International Pvt. Ltd., Delhi.
3.Darlie.O.Koshy (2008), Indian Design Edge, Lotus Collection, Delhi.
4.Ghosh, G.K., and Ghosh, Shukla (1995), Indian Textiles, APH Publishing Co., New Delhi
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6.Sekhri S., (2011) Textbook of Fabric Science: Fundamentals to Finishing, PHI Learning, Delhi.

Model paper

B.Sc.(Three Year) Degree Examination March, 2016

Third Year Examination, Academic Year 2015-16,

Part – II: HOME SCIENCE

Paper IX: TEXTILE AND CLOTHING

Time: 3 Hours *Max. Marks:100*

PART-A

Answer any Five questions. (5 X 8 = 40 marks)

1. Give an account on parts of simple loom.
2. How is crease resistance finish useful?
3. Write about direct dyes.
4. Explain Batik and Tie Dye.
5. Describe elements of fashion.
6. Write about Indian textiles.
7. How you select fabrics for household linen?
8. Explain Shrinkage.

PART-B

Answer any FOUR questions. (4x15=60 marks)

9. What is knitting? Discuss its types in detail.
10. How do you select and examine a garment?
11. Explain how advertising and labeling influence on consumer buying.
12. Write the different types of tie dye.
13. Explain the factors affecting Fashion cycle.
14. Write about different types of methods of printing.
15. Explain synthetic dyes.
16. What is spinning? Explain mechanical spinning process.

Paper X. RESOURCE MANAGEMENT& ENTREPRENEURSHIP

Theory - 3lec / week	Theory- 100 marks
Practical - 3 hrs/week	Practical-80 marks

Objectives

1. To understand the fundamentals of resource management in a changing scenario.
2. To inculcate skills in identifying,creating, selecting and using available resources judiciously with emphasis on maximization and conservation.
3. To understand the scientific application of the process of management in the judicious use of resources.
4. To orient the students to the concept, need and process of entrepreneurship.

THEORY

Unit1: Introduction to Resource Management

- Concept, scope and significance of management
- Management Process- its importance
- Characteristics of good manager
- **Approaches to Family Resource management** -Meaning and importance, types, and interrelationship between Value,Goals and Standard
- Resources -Meaning, Classification, Importance and Characteristics
- Factors affecting management of resources.

Unit 2.**Decision Making** – importance, types, steps, method of resolving conflicts

- Planning – nature, characteristics, importance
- Organizing; Coordinating, Supervising, directing and guiding;
- Controlling characteristics for effective control
- Evaluation – meaning, importance and methods

Unit 3.**Application of Management Process in**:

- Time - significance, time norms, peak loads
- Energy – work curves, work units
- Work simplification techniques
- Mundel's classes of change
- Fatigue – meaning, types and methods of avoiding fatigue

Unit 4.Family Income& Expenditure - source and types

- Budget- items, steps
- Budget for different income group
- Types of household consumption and Engels law of consumption
- Financial records in money management

Unit 5.**Consumer Economics**

- Purchasing Method- Cash, Credit, Whole-Sale and Retail
- Consumer cooperative
- Consumer problems
- Consumer Protection Act- Objectives and Provisions.

Unit 6.**Entrepreneurship** -Meaning, Benefits

- Process of entrepreneurship development
- Entrepreneurial Development Cycle Components
    - Stimulatory activities
    - Supporting activities
    - Sustaining activities
- Characteristics of good entrepreneur

Unit 7. Setting up an Enterprise

- Enterprise selection
- Market analysis
- SWOT analysis
- Resource mobilization-finance, technology, raw materials, site, man power

Unit.8 Marketing Strategies-

- Identification of different marketing strategy
- Packaging
- Quality control
- Advertisement
- Costing and Taxation

PRACTICAL

1. Resource conservation and optimization/green technologies (natural resources)

2. Identification and development of self as a resource.
    - SWOT analysis-Who am I and Micro lab
    - Building Decision Making abilities through management games

3. Preparation of time plans for self and family

4. Preparation of Family Budget

5. Time and Motion Study
    - Managerial process
    - Resource optimization - time, money, products, space, human capital

6. Preparation of a project proposal

Reference

1 . Koontz.H.andO'Donnel C., 2005, Management – A systems and contingency analysis of managerial functions. New York: McGraw-Hill Book Compan
2. Kreitner. 2009, Management Theory and Applications, Cengage Learning: India
3. Nickell, P., & Dorsey, J.M., Management in family living (4th Edition). New York NY: Wiley.
4.Rao V.S. andNarayana P.S., Principles and Practices of Management, 2007, Konark Publishers Pvt. Ltd. Stoner J., 2008, Management.PHI Learning.

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Model paper

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Part II- HOME SCIENCE

Paper X– RESOURCE MANAGEMENT & ENTREPRENEURSHIP

Time: 3 Hours **Max Marks: 100**

PART A

Answer any FIVE questions. **(5 x 8 = 40 marks)**

1. Classification of Human wants
2. Consumers surplus
3. Sources of Family Income
4. Engles law at consumption
5. Types of savings
6. Super markets
7. Types of Values
8. Classification of decision making.

PART B

Answer any FOUR questions **(4 x 15 = 60marks)**

9.Law diminishing marginal utility

10.Law of equi-marginal utility

11.What are the steps in making budget.

12.Explain various purchasing methods

13.Explain the cannons of taxation

14. Explain characteristics of good manager

15.Explain the causes for inflation

16.Explain various steps in decision making

Paper XI. FAMILY, COMMUNITY & THERAPEUTIC NUTRITION

Theory - 3lec / week	Theory- 100 marks
Practical - 3 hrs/week	Practical-80 marks

Learning objectives

1. To understand the importance of balanced diet, meal planning, community nutrition & medical nutrition therapy .
2. To learn the dietary management of various diseases.
3. To know about various national and international agenciesworking in the field of health and nutrition.

Theory

Unit 1.Balanced Diet- Balanced diet& nutritional requirements for diff age groups

- Energy requirement-Energy units, determination of energy by using Bomb Calorimeter,
- Basal Metabolism- Factors affecting BMR
- Recommended Dietary allowances (RDA)for Indian – Definition, Advantages
- Food exchange lists- Importance Types and Advantages of food exchanges

Unit2.Meal planning – Importance,

- Principles of meal planning and points to be considered in planning diets
- Steps involved in planning diets.
- Meal planning for different age groups –infancy, preschool children, School going children, Adolescent boys and girls, adult and old age,Physiological conditions
- Maternal nutrition - Nutritional requirementsPregnancy and Lactating condition
- Factors affecting meal plans

Unit 3.Assessment of nutritional status of the community

- Purpose of nutritional assessmentMalnutrition- under nutrition and over nutrition
- Methods of nutritional assessment -Direct -Anthropometry,Clinical, Biochemical
- Indirect- Diet surveys and health records

Unit 4.Community health & nutrition programmes

- **I**CDS-Supplementary feeding, Health and nutrition education, Prophylaxis programme, mid-day meal scheme etc.
- Internationalorganizations involved in Nutritional programme- FAO,WHO, UNICEF, CARE
- **Food Adulteration**: Types of adulterants used in different foods, harmful effects
- Prevention – Food Adulteration Act, Food standard- ISI, AGMARK,

Unit 6.Introduction to Medical Nutrition Therapy (MNT) – Definition, Type and Purpose andadvantages

- Therapeutic Adaptation of Normal diets – Liquid and soft diet,
- Diet in nutritional deficiency – PEM, Anaemia, Vitamin Deficiency, Goitre
- Under weight- causes symptoms, Dietary management
- Over weight and obesity- causes symptoms, Dietary management

Unit 7. Dietary management during different diseases

- Fever – Type and MNT

- Gasrto Intestinal disorders -Peptic ulcer, Diarrhea- dehydration and oral rehydration therapy,constipation – causes, complications, MNT
- Liver and Kidney Diseases - causes and dietary management
- CVD and Atherosclerosis - causes symptoms, Dietary management
- Diabetes- causes, Dietary management

Unit 8.Dietitian and other nutritional workers –

- Types and functions of dietitian
- Role of dietitian as a member of medical team
- Role of Nutritional workers

PRACTICALS

Unit 1. Preparation of Cooked Food Exchange Lists -Cereals, Pulses, Vegetables and fruits
Unit 2. Rich Sources of Nutrients -Listing out five rich sources each of variousnutrients- Energy, Protein, Calcium, Iron,Vitamin A, B- complex and C
Unit 3.Nutritional assessment- Diet survey, Anthropometry survey and Blood Hb level
Unit 4.Evaluation of Nutritional Adequacy of Diet Consumed

- Nutritional Guidelines -24 hours Recall method,
- Preparation of diet plans and calculation of nutrient adequacy

Unit 5. Menu Plan- Diet for an Adult Man and Woman

- Diet for a Pregnant Woman and Lactating Mother
- Diet for a Pre School and School going Child

Unit 6. Planning of modified diets for therapeutic purpose

- Preparation of modified diets in terms of consistency- liquid and soft diet
- Foods to be included or excluded in different diseases

Unit 7. Therapeutic Modification of Diets

- Diet in fevers
- Diet in Gastro Intestinal Tract Disorders
- Diet in CVD
- Liver diseases- Jaundice
- Diet for weight Control

Unit 8.Visit to dietetic department ofhospital

- Preparation of a resource file

References

1. Antia, P. (1986). Clinical dietetics and nutrition. Oxford univ. Bombay

2. Moris,E.S. (1994). Modern nutrition in health and disease. Leaned febiger, USA

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4. Corinne H. Robinson, Marilyn R. Lawler, Wanda L. Chenoweth, Ann E. Garwick. (1982). Normal and Therapeutic Nutrition. (pp- 1-16). New York, Macmillan Publishing company.

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Part II- HOME SCIENCE

Paper XI – Family and Community & Therapeutic Nutrition

Time: 3 Hours **Max Marks: 100**

Answer any FIVE questions. **(5 x 8 = 40 marks)**

9. Services of ICDS programme
10. UNICEF
11. Oral rehydration Therapy
12. Dietary management of Obesity
13. Diet for preschool children
14. Food standards
15. Food sources and deficiency disorder of Vitamin A
16. Therapeutic diet

PART B

Answer any FOUR questions **(4 x 15 = 60marks)**

17. What is meal planning? Write principles and steps involved in planning a balance diet
18. What is PEM? Write its causes and prevention
19. Write the causes and dietary treatment of Diabetes Mellitus
20. Write nutritional requirement during pregnancy and Lactation
21. Write the etiology and dietary management of cardiovascular diseases.
22. Write the various methods of assessing the Nutritional status of the community
23. What is Anaemia? What is the causes and measure for prevention
24. Write the causes and dietary management of Peptic Ulcer

Paper XII. HOME SCIENCE EXTENSION & COMMUNICATION

Theory - 3lec / week	**Theory- 100 marks**
Practical - 3 hrs/week	**Practical-30 marks**

Objectives:

1. To understand the concept of extension and communication its relevance for self & national development.
2. To know the role of Home Science extension in community development.
3. To sensitize students towards various methods, preparation and selection of suitable materials for effective communication.

THEORY

Unit 1.**Extension**- Concept, Principles and Philosophy of extension

- Objectives and scope of extension
- Extension Education process
- Role and Qualities of extension workers
- Home Science Extension as a discipline and its contribution towards development.

Unit 2.**Communication** -Concept, Scope,

- Principlesand importance of communication in Extension work
- Communication barriers and ways to overcome
- Adoption- importance, stages of Adoptionprocess- factors affecting Adoption
- Diffusion- concept, elements and role of Extension worker
- Leadership- Meaning, qualities and roles

Unit 3.**Rural Development**

- Concept of strategy of rural development
- Rural Development Programmes in India – Integrated child development services
- (ICDS), DRDA- IRDP&TRYSEM, DWACRA, JRY etc.
- Role of voluntary organizations and NGO's in rural development.

Unit 4.**Community Development**

- Principles and philosophy of Community Development
- Panchyati Raj and Democratic Decentralization
- Functions, structure and three-tier system of administration

Unit 5.**Extension Teaching Methods**

- Concept and steps in extension teaching
- Classification of methods according to form and use
- Description, advantages and limitations of different extension teaching methods
- Factors affecting selection and use of extension teaching methods

Unit 6.**Audio- Visual Aids**

- Classification of Audio-visual aids
- Principle of preparation
- Scope, advantages and limitations of various audio visual aids
- Selection and use of teaching aids

Unit 7.**Programme Planning**

- Importance, objectives and Principle
- Participatory Rural Appraisal- Concept, Importance and Techniques

- Programme development process and execution – methods to finding out the felt and unfelt need ,

Unit.8 **Monitoring & Evaluation**

- Monitoring- concept, meaning, importance and methods
- Evaluation- concept, importance,
- Principle and methods of evaluating individual/Group performance

PRACTICALS

1. Preparation of Teaching aids- visuals, exhibit and non-projected audio-visual
2. Survey in a village/community to find out need and interests of the people and resource available- human and non- human
3. Group Discussion on identified needs of the village and Planning programme
4. Plan two lessons for the women of the community surveyed as per their need & interest

    - Lecture cum Demonstration of recipe
    - Workshop- teach a craft

5. Preparation of Programme proposal
6. Execute the lessons in the community and evaluate performance
7. Visit to self-help groups
8. Preparation of Resource file on different Extension programme

REFERENCES

1. Dhama, O.P. Bhatnagar, O.P., Second Edition 1985, Education and Communication for Development, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.

2. Dubey V.K. andBishnoi Indira, First Edition 2008, Extension Education & Communication, New Age International Publishers, New Delhi.Pg.

3. Supe S.V., Second Edition 1997, An Introduction to Extension Education, Oxford and IBH Publishing Co.Pvt.Ltd, New Delhi.

4. Ray G.L., Seventh Edition, 2008, Extension Communication and management, Kalyani Publishers, New Delhi.Pg. 1-34, 98-164,-338-348.

5. Desai Vasant, First Edition 1991, Fundamentals of Rural Development, Himalaya Publishing Henge. Pg. 1.1-1.27, 4.1-4.66, 14.1-14.32, 15.1-15.29, 16.1-16.30

6. Oakley P. and Garforth C. FAO, 1985, Guide to Extension Training. Pg. 1-20, 41-101.
7. Singh K. Uttam, Nayak A.K., Commonwealth Publishers, 2005, Extension Education.

Time: 3 Hours **Max Marks: 100**

PART-A

Answer any five questions. (5 X 8 = 40 marks)

1. Boards.
2. What is extension – concept?
3. Radio and Television.
4. Scope of Communication in Extension education.
5. Demonstration method.
6. Workshop.
7. Selection of Teaching aids.
8. Formal and Non formal education.

PART-B

Answer any FOUR questions. (4x15=60 marks)

9. How the cone of experience is effective in class room?
10. Write about Panchayat Raj System in India.
11. Explain the scope and principles in communication.
12. Explain contribution of voluntary organization in Extension.
13. What is programme planning? Explain the criteria for good programme planning.
14. Define Community? Explain its characteristics related to Urban and Rural.
15. Describe learning principles and its internal feel in teaching.
16. (a) Quality of extension worker.
    (b) Classification of teaching aids.

Biotechnology

Biotechnology RU Syllabus (2012-15)

RAYALASEEMA UNIVERSITY

UG I DEGREE BIOTECHNOLOGY SYLLABUS FROM
ACADEMIC YEAR 2012-2013

Ist YEAR B.Sc

Theory paper- : BASIC BIOLOGY.

Unit-1: Biomolecules

1.1 **Carbohydrates:**
Monosaccharides- Classification, Structure- Diagrammatic representation, Physical & Chemical properties and Biochemical importance.
Disaccharides- Classification, Structure Diagrammatic representation & importance.
Polysaccharides- Classification, Structure , Homo and hetero polysaccharides.
1.2 **Amino Acids:** Classification, structure and properties.
1.3 **Proteins**: Peptides, Peptide bond- Synthesis and characters, primary,Secondary,Tertiary & Quaternary structures of proteins.
1.4 **Lipids:** Classification, Structures and properties of lipids.
1.5 **Nucleic acids:** Types, Chemical composition and Functions. Physical & Chemical properties of Nucleic acids- Denaturation (Tm values), Renaturation (cot curves).

UNIT-II: Cell Biology & Enzymology

2.1 Ultra structure of Prokaryotes & Eukaryotic cell- Comparative study,
Cell Cycle & Cell Division
2.2 **Enzymes:** Nomenclature, Classification and properties.
2.3 Enzyme activity-units, factors affecting enzyme activity.
2.4 Enzyme kinetics(Brief Study)- Michaelis Menten equation & Line Weaver Burk plot.
2.5 Enzyme inhibition- Irreversible & Reversible.

Unit- III: Genetics

3.1 Mendel's Experiments- Laws of Segregation, Purity of gamates & Independent assortment
3.2 Deviations of Mendel's Laws- Partial or incomplete dominance, Co-dominance.
3.3 Epistasis- Modified dihybrid ratios
3.4 Linkages & Recombinations-Recombination frequency & Map distance
3.5 Sex Linked inheritance.
3.6 Sex Determination- Theories.
3.7 Genome organization in prokaryotes & eukaryotes.
3.8 Extra Chromosomal DNA – Plasmids, Mitochondrial and Chloroplast DNA.
3.9 DNA as genetic material- Griffith's & Avery,Mc Leod and Mc Carty's & Harshey-Chase experiments.
3.10 RNA as genetic material – TMV example.

21/1/19

UNIT- IV: Fundamentals of Microbiology

4.1 Outline classification of Living organisms- Haeckal, Whittaker & Carl-Woese Systems.
4.2 Isolation and Preservation of pure cultures of bacteria.
4.3 Methods of Sterilization.
4.4 Bacterial Growth Curve.
4.5 Disease causing pathogens and their symptoms- HIV, Typhoid, Bird flu and Prions.

1st year B.Sc Biotechnology.

Practical Paper-1: Basic biology.

1. Preparation of Molar , Molal and Normal solutions.
2. Preparation of buffers (Acidic, Alkaline and Neutral buffers)
3. Qualitative analysis of sugars.
4. Qualitative analysis of amino acids.
5. Qualitative analysis of lipids
6. Enzyme assay- Amylase or Protease or Lipase or Urease, Alkaline phosphatase.
7. Chromosome staining.
8. Monohybrid and dihybrid ratio in Drosophila or Maize(models\Problems)
9. Identification of phases of Mitosis / Meosis.
10. Preparation of Microbiological media.
11. Isolation of bacteria and Fungi.
12. Staining techniques- simple and grams staining.

RAYALASEEMA UNIVERSITY

IInd YEAR DEGREE

BIOTECHNOLOGY

SYLLABUS FROM THE ACADEMIC YEAR 2013 – 2014

THEORY PAPER – II :- ANALYTICAL TECHNIQUES, MOLECULAR BIOLOGY AND GENETIC ENGINEERING

UNIT- I : ANALYTICAL TECHNIQUES :-

1.1 Dialysis and lyophilization.

1.2 Chromatography – Principles and applications of paper, thin layer, Ion exchange, gel permeation and affinity.

1.3 Electrophoresis –Principles and applications of agarose gel and SDS - PAGE

1.4 Centrifugation – Principles and applications of differential and density gradient centrifugation.

1.5 Spectroscopy – principles and applications of visible and U.V

1.6 Radio isotopes and their uses in biology

UNIT – II : DNA REPLICATION, DAMAGE AND REPAIR :-

2.1 Repititive and Non-repititive DNA

2.2 Modes of DNA replication

2.3 Enzymes involved in DNA replication

2.4 Mechanism of DNA replication in E-coli

2.5 Mechanism of DNA replication- Rolling circle and θ models of DNA replication

2.6 DNA damage and repair – types and mechanism

UNIT – III : GENE EXPRESSION AND GENE REGULATION

3.1 Transcription in prokaryotes and eukaryotes

3.2 Post transcriptional modifications in prokaryotes and eukaryotes

3.3 Genetic code – Deciphering and features

3.4 wobble hypothesis

3.5 Translation in prokaryotes

3.6 Post translational modification in prokaryotes

3.7 Operon concept – lac operon

3.8 Regulation of gene expression in eukaryotes

NIT – IV: RECOMBINANT DNA TECHNOLOGY.

1 Different methods of Gene isolation – chemical, enzymatic and DNA libraries

.2 Restriction endonucleases – Types, classification and functions

.3 Modification of DNA ends – Phosphatases, methylases, kinases and ligases

.4 Cloning vectors – plasmids, phages, cosmids , phagemids and shuttle vectors

.5 Expression vectors

.6 Gene transformation methods in prokaryotes

.7 Selection and identification of cloned genes

.8 Principles and applications of southern, northern, and western blotting techniques

.9 Principles and applications of PCR and DNA finger printing

II YEAR B.Sc

'RACTICAL PAPER – II: ANALYTICAL TECHNIQUES, MOLECULAR BIOLOBY AND GENETIC ENGINNEEING

1. Estimation of protein by Biuret/Folin lowry method.
2. Paper chromatography separation of amino acids or lipids
3. Isolation of DNA from bacteria/ Plant/animal
4. Analysis of DNA by agarose gel electrophoresis.
5. Restriction digestion of DNA
6. SDS - PAGE of proteins/nucleic acids
7. Estimation of DNA by diphenylamine method
8. Estimation of RNA by orcinol method
9. UV - absorption spectra of nucleic acids
10. Problems related to DNA and RNA characteristics

    a)Tm b)Purity c)GC content

RAYALASEEMA UNIVERSITY, KURNOOL.

III Year B.Sc., BIOTECHNOLOGY.

Academic year 2014-15

Theory Paper – III: Immunology, Metabolism, Industrial Biotechnology & Bioinformatics **120Hrs**

nit – I: Immunology. **30Hrs**

.1 Immune system–Organs & Cells.
.2 Immunity –types & examples.
.3 Antigens–Nature, physical & chemical properties, incomplete & complete antigens, Haptens.
.4 Antibodies & Immunoglobulins –types & structure.
.5 Antigen –Antibody reactions.
.6 MHC complex –role in organ transplantation.
.7 Antibody diversity.
.8 Hyper sensitivity –classification & types, combs test.
.9 Auto immune diseases –types & mechanism.

nit – II: Intermediary Metabolism **30Hrs**

1 Carbohydrate Metabolism -
Glycolysis, Citric acid cycle, Electron transport chain & oxidative phosphorylation Gluconeogenisis, HMP shunt.
.2 Amino acid metabolism –
Deamination, transamination & Decarboxylation of amino acids. Inborn errors of amino acid metabolism.
.3 Lipid metabolism –
β oxidation of fatty acids, Inborn errors.

nit – III: Industrial Biotechnology **30Hrs**

1 Screening ,isolation and preservation of Industrial Microorganisms.
2 Primary & Secondary metabolic products of microorganisms.
3. Structure of fermentor
4 Principles of fermentation technology.
5 Fermentative production of microbial enzymes (amylase), antibiotics (penicillin), vitamins B_{12}) and organic acids (citric acid).
6 Fermentative production of foods (SCP) and dairy products (cheese, yoghurt).
7 Animal cells as bioreactors - Monoclonal antibodies.

Unit – IV: Bioinformatics 30Hrs

8 Introduction – Genomics, transcriptomics, proteomics, functional genomes, structural genomes, metabolomics, pharmacogenomics.

9 Biological databases – Nucleotide sequence and protein databases, their utilization in Biotechnology. Data banks, Data retrieval from data base and their utilization. NCBI, EMBL,DDBJ, SWISS-PROT, PDB & KEGG.

10 Human Genome Project – Science behind Human Genome Project & Achievements.

11 Biosafety issues & bioethics.

12 Intellectual Property Rights & Patenting issues

III Year B.Sc., BIOTECHNOLOGY.

Practical Paper – III: Immunology, Metabolism, Industrial Biotechnology & Bioinformatics.

1. Ouchterlony Double Immuno Diffusion.
2. Single Radial Immuno Diffusion.
3. Blood Grouping.
4. TC & DC of Blood cells
5. Estimation of Hemoglobin.
6. Antibiotic assay- Minimum Inhibitory Concentration test (MIC).
7. Viable test of bacterial cells (Evans blue & Trypan blue tests).
8. Production of Wine.
9. Production of alcohol by fermentation.
10. Estimation of alcohol (colorimetry).
11. Estimation of citric acid (colorimetry).
12. Acquaintance with biological data bases through internet.
    (a) Nucleotide sequencing
    (b) Protein sequencing
13. NCBI search for books, authors & publications.

RAYALASEEMA UNIVERSITY, KURNOOL.
III Year B.Sc., BIOTECHNOLOGY.
Academic year 2014-2015

Theory Paper – IV: Applications of Biotechnology 120hrs

nit – I: Animal Biotechnology. 40hrs

1 Introduction to Animal Biotechnology.
2 Animal cell culture media preparation, sterilization, culture vessels & types of cultures.
3 Establishment & preservation of cell lines.
4 Explants & cell disaggregation.
5 Stem cells and their applications.
6 *Invitro* fertilization and embryo transfer technology.
7 Methods of gene transfer in animals.
8 Applications of transgenic animals.
9 Principles of gene therapy.

nit – II: Plant Biotechnology. 45hrs

1 Plant tissue culture media & sterilization methods.
2 Role of plant growth regulators in differentiation.
3 Induction of callus.
4 Single cell culture & applications.
5 Clonal propagation of plants.
6 Production of Haploids & Triploids.
7 Meristem culture & production of virus free plants.
8 Protoplast culture.
9 Somatic hybridization.
10 Gene transfer methods in plants.
11 Applications of r-DNA technology in Agriculture.

nit – III: Environmental Biotechnology. 35hrs

1 Introduction to Environmental Biotechnology.
2 Conventional energy sources(fossil fuels) and their impact on environment
3 Non-conventional fuels and their impact on environment (biogas, bioethanol production nd uses)
4 Microbiological treatment of municipal and industrial effluents (sewage water treatment).
5 Bioremediation-- Microbial degradation of pesticides and toxic chemicals
6 Biopesticides and Biofertilizers (Nitrogen fixing, phosphate solubilizing microbes)
7. Microbial ore leaching.

III Year B.Sc., BIOTECHNOLOGY.

Practical Paper – IV: Applications of Biotechnology

1. Preparation of Plant tissue culture media (MS medium).
2. Induction of Callus.
3. Plant regeneration from callus.
4. Preparation of synthetic seeds.
5. Preparation of animal cell culture media.
6. Culture of Animal cells / tissues.
7. Cell disaggregation and cell counting.
8. Cytotoxicity studies on animal cells using MTT method.
9. Isolation of microbes from polluted soil / industrial effluents.
10. Growth curves of bacteria isolated from industrial effluents.
11. Estimation of BOD in water samples.
12. Quality testing of milk by MBRT.

Biochemistry

1st Year Theory – Paper-I : Biomolecules and Enzymology

120 hrs

(4 hrs/week)

Unit – I : Carbohydrates and Lipids — 30 hours

Water as a biological solvent and its role in biological processes.

Carbohydrates: Classification, monosaccharides, D and L designation, open chain and cyclic structures, epimers and anomers,mutarotation, reactions of carbohydrates (due to functional groups - hydroxyl , aldehyde and ketone). Amino sugars, Glycosides. Structure and biological importance of disaccharides (sucrose, lactose, maltose, isomaltose, trehalose), trisaccharides (raffinose, melezitose), structural polysaccharides (cellulose, chitin, pectin) and storage polysaccharides (starch, inulin, glycogen). Glycosaminoglycans, Bacterial cell wall polysaccharides. Outlines of glycoproteins, glycolipids and blood group substances.

Lipids: Classification, saturated and unsaturated fatty acids, structure and properties of fats and oils (acid, saponificition and iodine values, rancidity). General properties and structures of phospholipids, sphingolipids and cholesterol. Prostaglandins- structure and biological role of PGD_2,PGE_2 and $PGF_{2\,\alpha}$. Lipoproteins: Types and functions

Biomembranes: Behavior of amphipathic lipids in water- formation of micelles, bilayers, vesicles, liposomes. Membrane composition and organization – Fluid mosaic model.

Unit-II : Amino Acids, Peptides and Proteins — 30 hours

*p*H, Buffers, Henderson- Hasselbalch equation.

Amino Acids: Classification, structure, stereochemistry, chemical reactions of amino acids due to carbonyl and amino groups. Titration curve of glycine and p*K* values. Essential and non-essential amino acids, non-protein amino acids. Peptide bond - nature and conformation. Naturally occurring peptides – glutathione, enkephalin.

Proteins: Classification based on solubility, shape and function. Determination of amino acid composition of proteins. General properties of proteins, denaturation and renaturation of proteins. Structural organization of proteins- primary, secondary, tertiary and quaternary structures (Eg. Hemoglobin and Myoglobin), forces stabilizing the structure of protein. Outlines of protein sequencing.

Unit-III : Nucleic Acids and Porphyrins **25 hours**

Nature of nucleic acids. Structure of purines and pyrimidines, nucleosides, nucleotides. Stability and formation of phosphodiester linkages. Effect of acids, alkali and nucleases on DNA and RNA. Structure of Nucleic acids- Watson-Crick DNA double helix structure, introduction to circular DNA, super coiling, helix to random coil transition, denaturation of nucleic acids- hyperchromic effect, *T*m-values and their significance. Reassociation kinetics, cot curves and their significance. Types of RNA and DNA .

Prophyrins: Structure, properties and functions of heme, chlorophylls and cytochromes.

Unit-IV : Enzymes **35 hours**

Introduction to biocatalysis, differences between chemical and biological catalysis. Nomenclature and classification of enzymes. Enzyme specificity. Active site. Principles of energy of activation, transition state. Interaction between enzyme and substrate- lock and key, induced fit models. Definition of holo-enzyme, apo-enzyme , coenzyme, cofactor. Fundamentals of enzyme assay, enzyme units.

Factors affecting the catalysis- substrate concentration, *p*H, temperature. Michaelis - Menten equation for uni-substrate reaction (derivation not necessary), significance of K_M and V_{max}. Enzyme inhibition- irreversible and reversible, types of reversible inhibitions- competitive and non-competitive.

Outline of mechanism of enzyme action- acid-base catalysis, covalent catalysis, electrostatic catalysis, and metal ion catalysis. Regulation of enzyme activity- allosterism and cooperatitvity, ATCase as an allosteric enzyme, covalent modulation- covalent phosphorylation of phosphorylase, zymogen activation- activation of trypsinogen and chymotrypsinogen. Isoenzymes (LDH). Multienzyme complxes (PDH). Ribozyme .

1st Year Practicals – Paper-I: Qualitative Analysis and Enzymology

90 hrs

(3 hrs/week)

Introduction to Good Laboratory Practice (GLP). Principles of Laboratory Hygiene and Safety.

List of experiments:

1. Preparation of buffers (acidic, neutral and alkaline) and determination of *p*H.
2. Qualitative identification of carbohydrates- glucose, fructose, ribose/xylose, maltose, sucrose, lactose, starch/glycogen.
3. Qualitative identification of amino acids – histidine, tyrosine, tryptophan, cysteine, arginine.
4. Qualitative identification of lipids- solubility, saponification, acrolein test, Salkowski test, Lieberman-Burchard test.
5. Preparation of Osazones and their identification.
6. Absorption maxima of colored substances- *p*-Nitrophenol, Methyl orange.
7. Absorption spectra of protein-BSA, nucleic acids- Calf thymus DNA.
8. Titration curve of glycine and determination of *p*K and *p*I values.
9. Assay of amylase
10. Assay of urease
11. Assay of catalase.
12. Assay of phosphatase
13. Determination of optimum temperature for amylase.
14. Determination of optimum *p*H for phosphatase.

2nd Year Theory – Paper-II: Metabolism and Biochemical Techniques 120 hrs

(4 hrs/week)

Unit- I : Bioenergetics and Biological Oxidations 30 hours

Energy transformations in the living system, Free energy concept. Exergonic and endergonic reactions. High energy compounds. Phosphate group transfer potential. Substrate level phosphorylation.

Biological oxidations: Definition, enzymes involved- oxidases, dehydrogenases and oxygenases. Redox reactions. Redox couplers. Reduction potential (ε, ε_0, ε'_0). Standard reduction potential (ε'_0) of some biochemically important half reactions.

Ultra structure of mitochondria. Electron transport chain and carriers involved. Oxidative phosphorylation, theories of oxidative phosphorylation- Mitchell's chemiosmotic theory. F_0 F_1- ATPase. Inhibitors of respiratory chain and oxidative phosphorylation, uncouplers. Formation of reactive oxygen species and their disposal through enzymatic reactions.

Ultra structure of chloroplast, Cyclic and non-cyclic photophosphorylation.

Unit- II : Carbohydrate and Lipid Metabolism 30 hours

Concept of anabolism and catabolism. Glycolytic pathway, energy yield. Fate of pyruvate- formation of lactate and ethanol, Pasteur effect. Citric acid cycle, regulation, energy yield, amphipathic role. Anaplerotic reactions. Glycogenolysis and glycogenesis. Pentose phosphate pathway. Gluconeogenesis. Photosytnthesis- Light and Dark reactions, Calvin cycle, C_4 Pathway.

Catabolism of fatty acids (â- oxidation) with even and odd number of carbon atoms, Ketogenesis, *de novo* synthesis of fatty acids, elongation of fatty acids in mitochondria and microsomes, Biosynthesis and degradation of triacylglycerol and lecithin. Biosynthesis of cholesterol.

Unit-III : Metabolism of Nitrogen Compounds 30 hours

General reactions of amino acid metabolism- transamination, decarboxylation and deamination, Urea cycle and regulation, Catabolism of carbon skeleton of amino acids- glycogenic and ketogenic amino acids. Metabolism of glycine, serine, aspartic acid, methionine, phenylalanine and leucine. Biosynthesis of creatine. Inborn errors of aromatic and branched chain amino acid metabolism.

Biosynthesis and regulation of purine and pyrimidine nucleotides, *de novo* and salvage pathways. Catabolism of purines and pyrimidines. Biosynthesis of deoxyribonucleotides- ribonucleotide reductase and thymidylate synthase and their significance. Disorders of nucleotide metabolism- Gout, Lesch- Nyhan syndrome.

Biosynthesis and degradation of heme.

Unit-IV : Biochemical Techniques **30 hours**

Methods of tissue homogenization: (Potter-Elvejham, mechnical blender, sonicator and enzymatic).

Principle and applications of centrifugation techniques- differential, density gradient.

Ultra-centrifugation- preparative and analytical..

Principle and applications of chromatographic techniques- paper, thin layer, gel filtration, ion- exchange and affinity chromatography. Elementary treatment of an enzyme purification.

Electrophoresis- principles and applications of paper, polyacrylamide (native and SDS) and agarose gel electrophoresis.

Colorimetry and Spectrophotometry- Laws of light absorption- Beer-Lambert law. UV and visible absorption spectra, molar extinction coefficient, biochemical applications of spectrophotometer. Principle of fluorimetry.

Tracer techniques: Radio isotopes, units of radio activity, half life, â and ã- emitters, use of radioactive isotopes in biology.

2nd Year Practical – Paper-II: Quantitative Analysis and Biochemical Techniques

90 hrs

List of Experiments:

(3 hrs/week)

1. Estimation of amino acid by ninhydrin method.
2. Estimation of protein by Biuret method.
3. Estimation of protein by Lowry method.
4. Estimation of glucose by DNS method.
5. Estimation of glucose by Benedict's titrimetric method.
6. Estimation of total carbohydrates by anthrone method.
7. Isolation of egg albumin from egg white.
8. Isolation of cholesterol from egg yolk.
9. Isolation of starch from potatoes.
10. Isolation of casein from milk.
11. Separation of amino acids by paper chromatography.
12. Determination of exchange capacity of resin by titrimetry.
13. Separation of serum proteins by paper electrophoresis.
14. Separation of plant pigments by TLC.

3rd Year Theory – Paper-III: Physiology, Clinical Biochemistry and Immunology

90 hrs

(3 hrs/week)

Unit- I : Physiology **24 hours**

Digestion and absorption of carbohydrates, lipids and proteins. Composition of blood and coagulation of blood. Hemoglobin and transport of gases in blood (oxygen and CO_2).

Heart- structure of the heart, cardiac cycle, cardiac factors controlling blood pressure.

Muscle- kinds of muscles, structure of myofibril, organization of contractile proteins and mechanism of muscle contraction.

Nervous system- structure of neuron, resting potential, action potential, propagation of nerve impulse, synapse, synaptic transmission, excitatory and inhibitory neurotransmitters.

Physiology of vision- visual pigments and visual cycle.

Endocrinology- organization of endocrine system. Classification of hormones. Outlines of chemistry, physiological role and disorders of hormones of pancreas, thyroid, parathyroid, gonads, placenta, adrenals, pituitary and hypothalamus. Introduction of gastrointestinal hormones. Mechanism of hormonal action- signal transduction pathways for adrenaline, glucocorticoids and insulin.

Unit- II : Nutrition **21 hours**

Balanced diet. Calorific values of foods and their determination by bomb calorimeter. BMR and factors affecting it. Specific dynamic action of foods. Energy requirements and recommended dietary allowance (RDA) for children, adults, pregnant and lactating women. Sources of complete and incomplete proteins. Biological value of proteins. Role of essential fatty acids in human nutrition. Malnutrition- Kwashiorkar, Marasmus and PEM.

Vitamins- sources, structure, biochemical roles, deficiency disorders of water and fat soluble vitamins. Introduction to neutraceutical and functional foods. Bulk and trace elements-Ca, Mg, Fe, I, Cu, Mo, Zn, Se and F. Obesity and starvation.

Unit- III : Clinical Biochemistry **23 hours**

Plasma proteins in health and disease. Disorders of blood coagulation (haemophilia).

Types of anemias, haemoglobinopathies-sickle cell anemia and thalassemias.

Structure and functions of the liver. Liver diseases-jaundice, hepatitis, cirrhosis. Liver function tests- conjugated and total bilurubin in serum, albumin: globulin ratio, hippuric acid and bromsulphthalein tests. Serum enzymes in liver diseases- SGPT, GGT and alkaline phosphatase.

Kidneys-structure of nephron, urine formation, normal and abnormal constituents of urine. Biological buffers. Role of kidneys in maintaining acid-base and electrolyte balance in the body. Renal function tests- creatinine and urea clearance tests, phenol red test.

Disorders of carbohydrate metabolism- hypoglycemia, hyperglycemia, glycosuria, renal threshold value. *Diabetes mellitus*-classification, glucose tolerance test (GTT), diabetic ketoacidosis.

Disorders of lipid metabolism- plasma lipoproteins, lipoproteinemias, fatty liver, hyper cholesterolemia, atherosclerosis.

Biochemical tests for the diagnosis of heart diseases- HDL/LDL cholesterol, SGOT, LDH, CK, C-reactive protein, cardiac troponins.

Unit- IV : Immunology **22 hours**

Organization of immune system. Organs and cells of immune system. Innate and acquired immunity. Cell mediated and humoral immunity (T- and B- cells). Classification of immunoglobulins, structure of IgG. Epitopes / antigenic determinants. Concept of haptens. Adjuvants. Theories of antibody formation- clonal selection theory. Monoclonal antibodies.

Antigen-antibody reactions- agglutination, immunoprecipitation, immunodiffusion.

Blood group antigens. Immunodiagnostics-RIA, ELISA. Vaccines and their classification. Traditional vaccines-live and attenuated, toxoids. Modern vaccines-recombinant and peptide vaccines. Outlines of hypersensitivity reactions. Fundamentals of graft rejection and MHC proteins.

3rd Year – Practical -III: Nutritional and Clinical Biochemistry

90 hrs

(3 hrs/week)

List of Experiments:

Estimation of calcium by titrimetry

1. Estimation of iron in apple juice by phenanthroline method.
2. Estimation of sodium by flame photometry.
3. Estimation of vitamin C by 2, 6 -dichlorophenol indophenol method.
4. Isolation of total lipids by gravimetric method.
5. Determination of iodine value of an oil.
6. Determination of acid value of an oil.
7. Estimation of hemoglobin in blood.
8. Total count - RBC and WBC. Differential count.
9. Determination of blood group and Rh typing.
10. Visualization of antigen antibody reactions (Ouchterlony technique).
11. Urine analysis for albumin, sugars and ketone bodies.
12. Estimation of urinary creatinine.

13. Estimation of blood urea.

14. Estimation of serum total cholesterol.

15. . Determination of serum alkaline phosphatase activity.

16. Determination of SGOT and SGPT activity

3rd Year Theory – Paper-IV: Microbiology and Molecular Biology

90 hrs **(3hrs/week**

Unit- I : Microbiology 24 hours

Introduction to brief history of microbiology. Classification of microorganisms- prokaryotic and eukaryotic microorganisms. Isolation and cultivation of bacteria. Selective media and enriched media. Bacterial growth curve and kinetics of growth. Batch, continuous and synchronous cultures. Gram's staining- Gram positive and Gram negative bacteria, motility and sporulation.

Industrial uses of *Aspergillus niger*, yeast and Spirulina.

Structure and composition of viruses. One-step growth and determination of plaque forming units (PFU). Isolation and cultivation of bacterial plaques. Lytic and lysogenic life cycle of ë phage. TMV, Retro viruses- HIV. Prions and Mycoplasma.

Unit- II : DNA Replication and Transcription 21 hours

Organization of genome in prokaryotes and eukaryotes. Experimental evidences to prove nucleic acids as genetic material. Nature and structure of the gene. DNA replication- models of replication, Meselson-Stahl's experimental proof for semi-conservative model. DNA polymerases I, II and III of *E.coli*, helicase, topoisomerases, primase, ligase. Bidirectional replication model. Okazaki fragments, leading and lagging strands of DNA synthesis. Inhibitors of DNA replication.

Transcription - RNA synthesis, RNA polymerases of prokaryotes. Promoters, Initiation- sigma factors and their recognition sites. Elongation- role of core enzyme. Termination- rho dependent and rho independent. RNA polymerase I, II and III of eukaryotes.

Transcriptional events in eukaryotic m-RNA synthesis, post-transcriptional modifications of eukaryotic m-RNA. Inhibitors of RNA synthesis.

Unit- III : Protein Synthesis and Regulation of Gene Expression 21 hours

Introduction to protein synthesis- Genetic code, structure of t-RNA, deciphering of genetic code, Nirenberg's and Khorana's experiments, wobble hypothesis, degeneracy of genetic code.

Protein synthesis- activation of amino acids (aminoacyl t-RNA synthetases). Ribosome structure. Initiation, elongation and termination of protein synthesis. Post- translational modifications- signal hypothesis. Inhibitors of protein synthesis.

Regulation of prokaryotic gene expression- induction and repression. Lac operon, catabolite repression. Tryptophan operon and attenuation.

Unit- IV : Recombinant DNA technology **24 hours**

Outlines of cloning strategies. DNA sequencing- Maxam Gilbert and Sanger's methods. Tools of r-DNA technology: Enzymes- Restriction endonucleases, ligase, phosphatases, reverse transcriptase, polynucleotide kinases, terminal transferase nucleases-S_1 and RNAase H. Restriction mapping. Cloning vectors- Plasmids, Ti plasmids, Cosmids, ë phages, shuttle vectors, expression vectors. Host- *E.coli*, *Sacchromyces cereviciae*, *Agrobacterium tumifaciens.*

Construction of c-DNA and genomic libraries. Isolation and sequencing of cloned genes- colony hybridization, nucleic acid hybridization, hybrid released translation (HRT) and hybrid arrested and released translation (HART) using reporter genes [â- galactosidases, green fluorescent proteins (GFP)].

Polymerase chain reaction- principle and applications. Outlines of blotting techniques- Southern, Northern and Western.

Applications of gene cloning- production of insulin and human growth hormone, production of Bt cotton and edible vaccines.

Introduction to Bioinformatics- definitions of proteomics and genomics. Gene bank, NCBI, DDBJ, Swissprot, PDB. Sequence alignments- BLAST and FASTA.

3rd Year Practical – Paper-IV: Microbiology and Molecular Biology

90 hrs

(3 hrs/week)

List of Experiments:

1. Preparation of culture media and sterilization methods.
2. Isolation of pure cultures: (i) Streak plate method.

   (ii) Serial dilution method.
3. Gram staining.
4. Motility of bacteria by hanging drop method.
5. Bacterial growth curve.
6. Antibiotic sensitivity by paper disc method.
7. Isolation of DNA from onion/liver/coconut endosperm.
8. Isolation of plasmids.
9. Determination of purity of nucleic acids by UV-spectrophotometric method.
10. Estimation of DNA by diphenylamine method.
11. Estimation of RNA by orcinol method.
12. Electrophoresis of nucleic acids and visualization by methylene blue staining.
13. Restriction mapping: ë- DNA with any two restriction enzymes.
14. Sequence alignments of insulin/BSA with other proteins using BLAST and FASTA.

Recommended Books for UG Course (Biochemistry)

General Biochemistry

1. Lehninger's Principles of Biochemistry – Nelson.D.L. and Cox.M.M., Freeman & Co.
2. Biochemistry – Berg.J.M., Tymoczko.J.L. and Stryer.L., Freeman & Co.
3. Biochemistry – Voet.D and Voet., J.G., John Wiley & Sons .
4. Textbook of Biochemistry – West.E.S.,Todd.W.R,Mason.H.S..and. Bruggen, J.T.V., Oxford & IBH Publishers.
5. Principles of Biochemistry: General Aspects-Smith, E. L., Hill, R.L. Lehman, Lefkowitz, I. R.

   R.J. Handler, P., and White, A. McGraw-Hill
6. Outlines of Biochemistry – Conn.E.E.,Stumpf.P.K., Bruening, G and Doi.R.H., John Wiley & Sons .
7. Harper's Illustrated Biochemistry – Murray, R.K., Granner.D.K. & Rodwell,V.W., McGraw-Hill 8. Bichemistry-Lippincott's Illustrated Reviews. Champe, P.C. and Harvey, R. A. Lippincott
9. Fundamentals of Biochemistry –Jain, J.L., Jain, S., Jain, N. S. Chand & Co.
10. Biochemistry – Satyanarayana. U and Chakrapani. U, Books & Allied Pvt. Ltd.
11. Biochemistry – Rama Rao. A and Ratna Kumari. D, Kalyani Publishers.
12. Biochemistry- The Molecular Basis of Life – McKee. T and McKee, J. R, McGraw-Hill.

Enzymology

1. Fundamentals of Enzymology – Price.N.C.and Stevens.L., Oxford University Press.
2. Understanding Enzymes – Palmer.T., Ellis Harwood.
3. Enzymes – Biochemistry, Biotechnology, Clinical Chemistry – Palmer.T., Affiliated East-West Press

Biochemical Techniques

1. Principles and Techniques of Practical Biochemistry- Wilson, K. and Walker, J. Cambridge Press.
2. The Tools of Biochemistry- Cooper, T. G. John Wiley & Sons Press.
3. Physical Biochemistry- Friefelder, D. W.H. Freeman Press.
4. Analytical Biochemistry – Holme.D.J. and Peck.H., Longman.
5. Biophysical Chemistry: Principle and techniques- Upadhyay A, Upadhyay K and Nath. N. Himalaya Publishing House.
6. Experimental Biochemistry- Clark Jr. J.M and Switzer, R. L. Freeman & Co..

Physiology, Nutrition and Clinical Biochemistry:

1. Textbook of Biochemistry and Human Biology – Talwar, G.P. and Srivastava. L.M., Printice Hall of India

2. Review of Medical Physiology-Ganong. McGraw-Hill.

3. Human Physiology – Chatterjee.C.C, Medical Allied Agency

4. Textbook of Medical Physiology – Guyton.A.G and Hall.J.E., Saunders
5. William's Textbook of Endocrinology – Larsen, R. P. Korenberg, H. N. Melmed, S. and Polensky, K. S. Saunders

6. Mammalian Biochemistry- White, A. Handler, P. and Smith, E. L. McGraw-Hill.
7. Textbook of Human Nutrition- Bamji, Pralhad Rao and Reddy V. Oxford & IBH Publishers.
8. Foods: Facts & Principle- Shakuntala and Shadaksharaswamy. Wiley Ester Press.
9. Essentials of Food and Nutrition – Swaminathan.M. Bangalore Press.

10. Human Nutrition and Dietetics. Davidson, S. and Passmore, J. R. ELBS.
11. A Textbook of Biochemistry: Molecular and Clinical Aspects. Nagini, S. Scitech Publishers.

12. *Tietz* Fundamentals of Clinical Chemistry- Burtis, A. A. and Ashwood, E. R. Saunders-imprint Elsevier Pub.
13. Textbook of Biochemistry with Clinical Correlations – Devlin.T.M.,Wiley – Liss

14. Textbook of Medical Biochemistry – Chatterjea.M.N. and Shinde.R, Jaypee Brothers Medical Publishers.

15. Textbook of Medical Biochemistry- Ramakrishnan, S., Prasannan, K. G. and Rajan, R. Orient Longman

Immunology:

1. Immunology. Tizard, I. R. Thomson Press.
2. Kuby Immunology – Kindt.T.J., Goldsby.R.A. and Osborne.B.A., Freeman & Co.

3. Roitt's Essential Immunology – Roitt.I.M. and Delves.P.J., Blackwell Science.
4. Immune system- Parham. Garland Publishing.

Microbiology:

1. Introduction to Microbiology: A Case History Approach- Ingraham and Ingraham. Thomson Press.
2. Textbook of Microbiology – Ananthanarayan, R and Jayaram Paniker, C.K., Orient Longman.
3. Microbiology – Prescott.L.M.,Harley.J.P. & Klein.D.A, McGraw-Hill.

4. Microbiology: An Introduction- Tortora, G. J. Funke, B. R. and Case, C. L., Pearson-Benjamin-Cummings Co.
5. Microbiology – Pelczar Jr,.M.J., Chan.E.C.S. and Krieg.N.R., Tata McGraw-Hill.

6. Textbook of Microbiology- Dubey, R. C. and Maheshwari, D. K. S. Chand & Co.

Molecular Biology and Biotechnolgy:

1. Protein Biochemistry & Biotechnology- Walsh. John Wiley & Sons Press.
2. Molecular Biology of Cell- Alberts, B. Bray, D. Lewis, J. Raff, M. Roberts, K. and Watson, J. D. Garland Publishing.
3. Recombinant DNA and Biotechnology: A Guide for teachers- Helen and Massey. ASM Press.
4. Genes VIII – Lewin. B, Oxford University Press .
5. Molecular Biology- Freifelder. D. Naroasa Pub. House
6. Molecular Biology of the Gene- Watson. J.D., Baker, T.A, Bell, S.P.,Gann.A, Levine, M. and Losick.R, Pearson Education.
7. Molecular Biotechnology- Glick, B. R. and Pasternak, J. J. ASM Press
8. Principles of Gene Manipulation: An Introduction to GE- Old, R. V. and Primrose, S. B. Blackwell Sci. Pub.
9. A Textbook of Biotechnology-Dubey, R. C. S. Chand & Co.
10. Gene Biotechnology- Jogdand. Himalaya Pub. House.
11. Introduction to Biotechnology: An Agricultural Revolution-Herren. Thomson Press.
12. Molecular Cell Biology- Lodish, H., Berk, A., Matsudaira, P., Kaiser, C. A., Krieger, M. Scott M. P., Zipursky, S. L. and Darnell, J. Freeman & Co.

Bioinformatics

1. Instant Notes-Bioinformatics- Westhead *et al*., Viva Books (P), Ltd
2. Introduction to Bioinformatics- Attwood T K and Parry-Smith, D. J. Pearson Education.
3. Introduction to Bioinformatics- Lesk, A.M. Oxford University Press

Practical Biochemistry:

1. Experimental Biochemistry: *A Student companion*- Sashidhar Rao, B and Deshpande, V. IK International (P) Ltd. Pub.

2. Modern Experimental Biochemistry- Boyer. R. Pearson Education
3. Biochemical Methods –Sadasivam, S and Manickyam, A.- New Age International publishers

4. An Introduction to Practical Biochemistry- Plummer, D. T. Tata McGraw-Hill.

5. Introductory Practical Biochemistry (ed) Sawhney, S. K. Randhir Singh- Narosa Publications House

6. Lab Manual in Biochemistry, Immunology and Biotechnology- Arti Nigam and Archana Ayyagari- Tata McGraw-Hill New Delhi
7. Enzyme Assays – A Practical Approach – Eisenthal,.R and Dawson, M.J., IRL Press

8. Practical Biochemistry – Rameshwar. A, Kalyani Publisher.
9. Experiments and Techniques in Biochemistry – Sheel Sharma, Galgotia Publications.
10. Practical Clinical Biochemistry-Varley,H. CBS Publishers.
11. Practical Clinical Biochemistry –Methods and Interpretations –Ranjna Chawla- Jaypee

12. Manipal Manual of Clinical Biochemistry-Shivande Naik, B - Jaypee Brother Medical publications, New Delhi
13. Hawk's Physiological Chemistry- (ed) Oser, O. Tata-McGraw-Hill

14. Laboratory Manual in Biochemistry. Jayaraman, J. Wiley-Eastern

15. Biotechnology: A laboratory Project in Molecular Biology- Thiel, Bissen and Lyons. Tata McGraw-Hill.

16. Methods in Biotechnology- Hans-Peter Schmauder. Taylor & Francis.

Practical Microbiology:

1. Microbiology – A Laboratory Manual- Cappuccino, J. G. and Sherman, N. Pearson Education.

2. Laboratory Experiments in Microbiology- Gopal Reddy, M ,.Reddy, M.N., Sai Gopal D. V.R.and. Mallaiah, K.V.

3. Experiments in Microbiology, Plant Pathology, Tissue Culture and Mushroom cultivation-Aneja, K. R - New Age International publishers.
4. Microbiology – A Laboratory Manual- Reddy, S. M. and Ram Reddy, S. Sri Padmavathi Pub.

5. Practical Microbiology- Dubey, R. C. and Maheshwari, D. K. S. Chand & Co.

Mathematical Problems in General Biochemistry:

1. Biochemical Calculations- Segel, I.H. John Wiley & Sons.

Lab Reference Book:

1. Lab Ref A Hand book of Recipes, Reagents and Other Reference Tools for Use at the Bench- (ed) Roskams, J. and Rodgers, L.- I.K International Pvt. Ltd, New Delhi.

Mathematics

RAYALASEEMA UNIVERSITY

UG I Degree Mathematics syllabus from the academic year 2012-13

MODEL CURRICULUM - B.A/B.Sc
Mathematics: Paper - I
DIFFERENTIAL EQUATIONS & SOLID GEOMETRY

UNIT - I: (25hours)

Differential equations of first order and first degree:-

Linear differential equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors; Change of variables; Orthogonal trajectories.

Differential equations of the first order but not of the first degree:-

Equations solvable for *p*; Equations solvable for *y*; Equations solvable for *x*; Equations that do not contain x (or y); Equations of the first degree in *x* and *y* - Clairaut's equation.

UNIT - II: (35hours)

Higher order linear differential equations:-

Solution of homogeneous linear differential equations of order n with constant coefficients. Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators. Method of variation of parameters; Linear differential equations with non- constant coefficients; The Cauchy-Euler equation

Prescribed Text book:- Scope and treatment as in Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Pvt. Ltd. New Delhi- Second edition: Sections: - 2.5 to 2.9, 3.1, 3.2, 4.2, 5.2 to 5.7, 7.3, 7.4.

Reference Book: Rai Singhania, .Ordinary and Partial Differential Equations. , S.Chand & Company,New Delhi.

SOLID GEOMETRY

UNIT - III: (35hours)

The Plane

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.

The Line: **120 hrs(4 hrs/week)**

Equations of a line, Angle between a line and a plane, The condition that a given line may liein a given plane, The condition that two given lines are coplanar, Number of arbitrary constants in the equations of a straight line. Sets of conditions which determine a line, The shortest distance between two lines. The length and equations of the line of shortest distance between two straight lines, Length of the perpendicular from a given point to a given line.

The Sphere:-

Definition and equation of the sphere, Equation of the sphere through four given points, Plane sections of a sphere. Intersection of two spheres; Equation of a circle. Sphere through a given circle; Intersection of a sphere and a line. Power of a point; Tangent plane. Plane of contact. Polar plane, Pole of a plane, Angle of intersection of two spheres. Conditions for two spheres to be orthogonal; Radical plane. Coaxial system of spheres; Simplified from of the equation of two spheres.

UNIT - IV: (25 hours)

Cones:-

Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve. Enveloping cone of a sphere. Equations of cones with vertex at origin are homogenous. Condition that the general equation of the second degree should represent a cone. Condition that a cone may have three mutually perpendicular generators Intersection of a line and a quadric cone. Tangent lines and tangent plane at a point. Condition that a plane may touch a cone. Reciprocal cones. axis and semi-vertical angle.

Prescribed Text book: Scope as in ***Analytical Solid Geometry*** by Shanti Narayan and P.K. Mittal, Published by S. Chand & Company Ltd. Seventeenth edition:
Sections:-2.4, 2.7, 2.9, 3.1 to 3.8, 6.1 to 6.9, 7.1 to 7.8, 8.1, 8.2, 8.6

Reference Book:-

P.K. Jain and Khaleel Ahmed, .A Text Book of Analytical Geometry of Three Dimensions., Wiley Eastern Ltd., 1999.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions 5 X 8 =40 marks

From Unit –I 3 questions
Unit – II 3 questions
Unit – III 3 questions
Unit – IV 1 questions Ten Questions in total

SECTION - B

Answer any FIVE questions 5 X 12 = 60 marks

From Unit –I 2 questions
Unit – II 3 questions
Unit – III 4 questions
Unit – IV 1 questions Ten Questions in total

PRACTICAL SYLLABUS for I year Degree

S.No	Unit	TOPIC	Number of models to be covered
1	I	Bernouli's equation in integrating factor problems	At least 10 Models
2	II	Equations solvable for p,x &y D.E with constant coefficients	At least 12 Models
3	III	Bisecting planes, Image of a point w.r.t a given plane, S.D, Great circle, Orthogonal apheres and limiting points	At least 12 Models
4	IV	Finding the vertex of a cone and reciprocal cone	At least 6 Models

RAYALASEEMA UNIVERSITY

MATHEMATICS

II YEAR B.A/B.SC MATHEMATICS SYLLABUS

II YEAR – B.A/B.SC MATHEMATICS

w.e.f. 2013-14

PAPER II:ABSTRACT ALGEBRA AND REAL ANALYSIS:120 HRS(4 hrs/week)

UNIT-I : (30 HRS)

GROUPS:

Binary operations- Definitions and properties, Groups- Definition and elementary properties, Finite groups and group composition tables, Subgroups (one short question + one essay question)

Permutations – Functions and permutations, Group of permutations, cycles and cyclic notation, even and odd permuations, Cayley's theorem, The alternating groups. Cyclic groups – Elementary properties, the classification of cyclic groups, subgroups of finite cyclic groups.(1 short question + 1 essay question)

Cosets, Applications, Normal subgroups – Factor groups, Criteria for the existence of a coset group (1 short question + 1 essay question)

Homomorphism – Definition and elementary properties, the fundamental theorem of homomorphisms, applicationss. Isomorphism – Definition and elementary properties (1 short question + 1 essay question)

UNIT-II: (30 hours)

RINGS:

Ring definition and examples – properties of rings – commutative rings, examples – Integral domain, examples – skew field, Field – examples – Zero divisors and related. (only the following theorems. 1. Every field is an integral domain. 2.Every finite integral domain is a field.

3. Cancellation laws hold in a ring iff it is has no zero divisors)

(1short question + 1 essay question)

UNIT III:

Sequences and their limits – Convergent and divergent sequences – convergence of $\{r^{n}\}$ for $-1 < r \leq 1$ - monotonic sequence-Necessary and sufficient condition for monotonic sequence to converge and related examples – Bolzano Weistrass theorem - Cauchy sequence – Cauchys's general principle of convergence (1 short question) (No essay question in sequences)

Series – convergence and divergence of series – convergence of $\sum_{n=0}^{\infty} r^n$ for $0 \leq r < 1$. p-series test – comparision test and examples – D'Alemberts's ratio test and examples – Cauchy's n^{th} root test and examples – Alternating series – Leibnitz test. (1 short question + 1 essay question)

Continuity – continuity and discontinuity of a function and examples – Heine's theorem – Borel's theorem – every continuous function is bounded – every continuous and bounded function defined on [a,b] attains its bounds – Bolzano's theorem intermediate value theorem.

(1 short question and 1 essay question)

UNIT IV:

Derivative – every derivable function is continuous –examples – Darboux's theorem increasing and decreasing functions – Rolle's theorem and examples – Lagrange's theorem and examples – Cauchy's Mean value theorem and examples – Taylor's theorem with Lagrange's and Cauchys's form of remainder – Maclaurin's theorem – Taylor's and Maclaurin's series – Expansion of e^x ,sinx, cosx, log(1+x)and $(1+x)^m$

(1 short question and 2 essay questions)

Riemann integration – upper and lower sums- Riemann integration – examples $U(p,f+g) \leq U(p,f)+U(p,g)$ and $L(p,f+g) \geq L(p,f)+L(p,g)$ – if

$p_1 \subset p_2$ then $U(p_1,f) \geq U(p_2,f)$, $L(p_1,f) \leq L(p_2,f)$ - if m, M are inf and sup of

f on (a,b) then $m(b-a) \leq \int_a^b f(x)\,dx \leq M(b-a)$.

Darboux's theorem – Necessary and sufficient condition for integrability – Every continuous function on (a,b) is integrable on (a,b) – if f is monotonic on (a,b) then it is integrable on (a,b) – If f€R(a,b) then |f|€R(a,b) – Fundamental theorem of integral calculus.(1 short question + 1 essay question)

Prescribed text books:

Scope as in "Introduction to Real analysis" by Robert G.Bartle and Donald R.Sherbert, John Wiley, 3^{rd} edition. Chapter 3, (3.1 to 3.7), Chapter 5 (5.1 to 5.4), Chapter 6 (6.1 to 6.4), Chapter 7 (7.1 to 7.3), Chapter 9 (9.1, 9.2 and 9.3)

Reference Books:

1. A course of Mathematical Analysis, Shanthi Narayan and P.K.Mittal, S.Chand and company.
2. Mathematical analysis by S.C.Malik and Savita Arora, Wiley Eastern Ltd.

RAYALASEEMA UNIVERSITY

UG III Degree Mathematics

III B.A/B.Sc

Mathematics: Paper-III

LINEAR ALGEBRA AND VECTOR CALCULUS

PartA:LINEAR ALGEBRA

120hrs(4hrs/week)

Unit-I: (25Hours)

Vectorspaces,Generalpropertiesofvector spaces,Vector subspaces,Algebraof subspaces, linearcombinationofvectors.Linearspan,linearsumoftwosubspaces,Linearindependenceanddependenceo fvectors,Basisofvectorspace,Finite dimensionalvectorspaces, Dimensionofavectorspace,Dimensionofasubspace.

Lineartransformations,linearoperators,Rangeandnullspaceoflineartransformation, Rankandnullityoflineartransformations.Invertiblelineartransformation.

Unit-II : (20 Hours)

Characteristic values and characteristic vectors, Cayley – Hamilton theorem. Inner product spaces, Euclidean and unitary spaces, Norm or length of a vector, Schwartz inequality, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process.

Prescribedtextbook: LinearAlgebrabyJ.N.Sharma andA.R.Vasista,KrishnaPrakashamMandir,Meerut-250002.

ReferenceBooks:1.LinearAlgebrabyKennethHoffmanandRayKunze,PearsonEducation(lowpricededition), NewDelhi.

2. Linear Algebra by Stephen H. Friedberg et al Prentice Hall of India Pvt. Ltd. 4th edition 2007.

Part-B: VECTORCALCULUS

Unit-Ill: *(25*Hours)

Vectordifferentiation,ordinaryderivativesofvectors,Differentiability- Gradient - Divergence - Curloperators – Formulaeinvolvingtheseoperators(ExcludingSemett-Frennettformulaeandrelatedproblems)

Unit-IV: (20Hours)

Vectorintegration,TheoremsofGaussandStokes,Green'stheoreminplane andapplicationsofthesetheorems.

PrescribedtextBook: VectorAnalysisbyMurray.R.Spiegel,SchaumseriesPublishingCompany,Chapters3,*4,5, 6,*and7

ReferenceBooks: l.Text bookofvectorAnalysisbyShantiNarayana andP.K.Mittal, S.Chand&CompanyLtd,NewDelhi.

2.MathematicalAnalysisbyS.C.MallikandSavithaArora,WileyEasternLtd.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions **5 X 8 =40 marks**

From Unit –I 3questions Unit – II 3 questions
Unit –III 2 questions Unit – IV 2 questions

SECTION - B

Answer any FIVE questions **5 X 12 = 60 marks**

From Unit –I 3 questions Unit – II 3 questions
Unit – III 2questions Unit – IV 2 questions

PRACTICAL SYLLABUS FOR PAPER-III –LINEAR ALGEBRA&VECTOR CALCULUS

S. No	Unit	Topics	Number of models to be covered
1	I	Linearspan,Linearindependenceanddependenceofvectors,Basisofvectorspace,Dimensionofavectorspace,subspace. Lineartransformations,linearoperators,Rangeandnullspaceoflineartransformation, Rankandnullityoflineartransformations.Invertiblelineartransformation.	12 Models
2	II	Characteristic values and characteristic vectors, Cayley – Hamilton theorem. Inner product spaces, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process	12 Models

3	III	Gradient - Divergence - Curloperators – Formulaeinvolvingtheseoperators	8 Models
4	IV	Vectorintegration,TheoremsofGaussandStokes,Green'stheoreminplane andapplicationsofthesetheorems	8 Models

MODEL QUESTION PAPER (PRACTICAL EXAM)

TIME: 3 Hrs **Max Marks :** 50

WRITTEN EXAMS : 30 Marks, **RECORD WORK** : 10 Marks, **VIVA VOCE** : 10 Marks

III B.A/B.Sc
Mathematics: Paper – IV (Elective-B)
LINEAR PROGRAMMING

UNIT-I: (20 hours) 120hrs(4hrs/week)

Linear Programming Problem : convex Set, Extreme points of a convex set, convex combination, Convex hull, Convex polyhedron, Fundamental theorem of linear programming, Definition, Formulation of linear programming of problems (LPP), Graphical solution of linear programming problems, General formulation of LP problems, Standard form and matrix form of LP problems. Graphical Method: formation of inequalities. Solution space. Finding the optimal solution

UNIT-II: (25 hours)

Simplex Method : Introduction, Definitions and notations, Computational procedure of simplex algorithm, Simple way for simplex computations, Artificial variables, Two-phase method, Alternative method of two-phase simplex method, Big-M method, Degeneracy in LPP and method to resolve degeneracy, Alternative solutions, Unbounded solutions, Non-existing feasible solutions, Solution of simultaneous equations by Simplex method'

UNIT-III: (20 hours)

Duality in Linear programming and DuaI Simplex Method : Introduction, Definition of Dual Problems, General rules for converting any primal into its Dual, Relation between the solution of Primal and Dual problem, Initial solution for Dual Simplex Method, Dual Simplex Method.

UNIT-IV: (25 hours)

Assignment and Transportation problems : Introduction, Mathematical formulation of Assignment problem, Reduction theorem, Hungarian Method for solving Assignment problem, unbalanced Assignment problem. Mathematical formulation of Transportation problem, Tabular representation, Definitions, Special structure of the solution, North-west corner rule, Lowest cost entry method, Vogel's approximation method, Method of finding optimal solution, Optimality in transportation problem, Degeneracy in transportation problems, Resolution of degeneracy, Unbalanced transportation problem, Generalized transportation problem.

Prescribed text book scope as in "operations Research" by S.D. Sharma, Kedar Nath Ram Nath & Co, Meerut.

Reference text Book:"Operation Research" by Kanthi Swarup, R.K. Gupta and Manmohan, S. Chand publications, New Delhi.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions **5 X 8 =40 marks**

From Unit –I 3 questions(2 from theory part+1 from graphical method)
Unit – II 3 questions(1 from each of simplex + Big M + II –phase methods)
Unit – III 2 questions(1 question from duality + 1 from dual simplex method)
Unit – IV 2 questions(1 each from assignment and transportation)

Ten Questions in total

SECTION - B

Answer any FIVE questions **5 X 12 = 60 marks**

From Unit –I 2 questions(1 from theory part + 1 from graphical part)
Unit – II 3 questions(1 from each of simplex + Big M + II –phase methods)
Unit – III 2 questions(1 question from duality + 1 from dual simplex method)
Unit – IV 3 questions (1 from assignment and 2 from transportation)

PRACTICAL SYLLABUS FOR PAPER-IV –LINEAR PROGRAMMING

S.No	Unit	TOPIC	Number of models to be covered
1	I	Graphical Method: formation of inequalities. Solution space. Finding the optimal solution	6 Models
2	II	Simplex + big-M + II-phase (4 from each)	12 Models
3	III	Dualiy+ dual simplex (4 from each)	8 Models
4	IV	Assignement (5 models)+ **optimal solution**of transportation(3 from each of N-W + least cost entry + VAM)=9	14 Models

MODEL QUESTION PAPER (PRACTICAL EXAM)

TIME: 3 Hrs **Max Marks :** 50

WRITTEN EXAMS : 30 Marks **RECORD WORK** : 10 Marks **VIVA VOCE** : 10 Marks

RAYALASEEMA UNIVERSITY

UG I Degree Mathematics syllabus from the academic year 2012-13

MODEL CURRICULUM - B.A/B.Sc
Mathematics: Paper - I
DIFFERENTIAL EQUATIONS & SOLID GEOMETRY

UNIT - I: (25hours)

Differential equations of first order and first degree:-

Linear differential equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors; Change of variables; Orthogonal trajectories.

Differential equations of the first order but not of the first degree:-

Equations solvable for *p*; Equations solvable for *y*; Equations solvable for *x*; Equations that do not contain x (or y); Equations of the first degree in *x* and *y* - Clairaut's equation.

UNIT - II: (35hours)

Higher order linear differential equations:-

Solution of homogeneous linear differential equations of order n with constant coefficients. Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators. Method of variation of parameters; Linear differential equations with non- constant coefficients; The Cauchy-Euler equation

Prescribed Text book:- Scope and treatment as in Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Pvt. Ltd. New Delhi- Second edition: Sections: - 2.5 to 2.9, 3.1, 3.2, 4.2, 5.2 to 5.7, 7.3, 7.4.

Reference Book: Rai Singhania, .Ordinary and Partial Differential Equations. , S.Chand & Company,New Delhi.

SOLID GEOMETRY

UNIT - III: (35hours)

The Plane

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.

The Line: **120 hrs(4 hrs/week)**

Equations of a line, Angle between a line and a plane, The condition that a given line may liein a given plane, The condition that two given lines are coplanar, Number of arbitrary constants in the equations of a straight line. Sets of conditions which determine a line, The shortest distance between two lines. The length and equations of the line of shortest distance between two straight lines, Length of the perpendicular from a given point to a given line.

The Sphere:-

Definition and equation of the sphere, Equation of the sphere through four given points, Plane sections of a sphere. Intersection of two spheres; Equation of a circle. Sphere through a given circle; Intersection of a sphere and a line. Power of a point; Tangent plane. Plane of contact. Polar plane, Pole of a plane, Angle of intersection of two spheres. Conditions for two spheres to be orthogonal; Radical plane. Coaxial system of spheres; Simplified from of the equation of two spheres.

UNIT - IV: (25 hours)

Cones:-

Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve. Enveloping cone of a sphere. Equations of cones with vertex at origin are homogenous. Condition that the general equation of the second degree should represent a cone. Condition that a cone may have three mutually perpendicular generators Intersection of a line and a quadric cone. Tangent lines and tangent plane at a point. Condition that a plane may touch a cone. Reciprocal cones. axis and semi-vertical angle.

Prescribed Text book: Scope as in ***Analytical Solid Geometry*** by Shanti Narayan and P.K. Mittal, Published by S. Chand & Company Ltd. Seventeenth edition:
Sections:-2.4, 2.7, 2.9, 3.1 to 3.8, 6.1 to 6.9, 7.1 to 7.8, 8.1, 8.2, 8.6

Reference Book:-

P.K. Jain and Khaleel Ahmed, .A Text Book of Analytical Geometry of Three Dimensions., Wiley Eastern Ltd., 1999.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions **5 X 8 =40 marks**

From Unit –I 3 questions
Unit – II 3 questions
Unit – III 3 questions
Unit – IV 1 questions Ten Questions in total

SECTION - B

Answer any FIVE questions **5 X 12 = 60 marks**

From Unit –I 2 questions
Unit – II 3 questions
Unit – III 4 questions
Unit – IV 1 questions Ten Questions in total

PRACTICAL SYLLABUS for I year Degree

S.No	Unit	TOPIC	Number of models to be covered
1	I	Bernouli's equation in integrating factor problems	At least 10 Models
2	II	Equations solvable for p,x &y D.E with constant coefficients	At least 12 Models
3	III	Bisecting planes, Image of a point w.r.t a given plane, S.D, Great circle, Orthogonal apheres and limiting points	At least 12 Models
4	IV	Finding the vertex of a cone and reciprocal cone	At least 6 Models

RAYALASEEMA UNIVERSITY

MATHEMATICS

II YEAR B.A/B.SC MATHEMATICS SYLLABUS

II YEAR – B.A/B.SC MATHEMATICS

w.e.f. 2013-14

PAPER II:ABSTRACT ALGEBRA AND REAL ANALYSIS:120 HRS(4 hrs/week)

UNIT-I : (30 HRS)

GROUPS:

Binary operations- Definitions and properties, Groups- Definition and elementary properties, Finite groups and group composition tables, Subgroups (one short question + one essay question)

Permutations – Functions and permutations, Group of permutations, cycles and cyclic notation, even and odd permuations, Cayley's theorem, The alternating groups. Cyclic groups – Elementary properties, the classification of cyclic groups, subgroups of finite cyclic groups.(1 short question + 1 essay question)

Cosets, Applications, Normal subgroups – Factor groups, Criteria for the existence of a coset group (1 short question + 1 essay question)

Homomorphism – Definition and elementary properties, the fundamental theorem of homomorphisms, applicationss. Isomorphism – Definition and elementary properties (1 short question + 1 essay question)

UNIT-II: (30 hours)

RINGS:

Ring definition and examples – properties of rings – commutative rings, examples – Integral domain, examples – skew field, Field – examples – Zero divisors and related. (only the following theorems. 1. Every field is an integral domain. 2.Every finite integral domain is a field.

3. Cancellation laws hold in a ring iff it is has no zero divisors)

(1short question + 1 essay question)

UNIT III:

Sequences and their limits – Convergent and divergent sequences – convergence of $\{r^{n}\}$ for $-1 < r \leq 1$ - monotonic sequence-Necessary and sufficient condition for monotonic sequence to converge and related examples – Bolzano Weistrass theorem - Cauchy sequence – Cauchys's general principle of convergence (1 short question) (No essay question in sequences)

Series – convergence and divergence of series – convergence of $\sum_{n=0}^{\infty} r^n$ for $0 \leq r < 1$. p-series test – comparision test and examples – D'Alemberts's ratio test and examples – Cauchy's n^{th} root test and examples – Alternating series – Leibnitz test. (1 short question + 1 essay question)

Continuity – continuity and discontinuity of a function and examples – Heine's theorem – Borel's theorem – every continuous function is bounded – every continuous and bounded function defined on [a,b] attains its bounds – Bolzano's theorem intermediate value theorem.

(1 short question and 1 essay question)

UNIT IV:

Derivative – every derivable function is continuous –examples – Darboux's theorem increasing and decreasing functions – Rolle's theorem and examples – Lagrange's theorem and examples – Cauchy's Mean value theorem and examples – Taylor's theorem with Lagrange's and Cauchys's form of remainder – Maclaurin's theorem – Taylor's and Maclaurin's series – Expansion of e^x ,sinx, cosx, log(1+x)and $(1+x)^m$

(1 short question and 2 essay questions)

Riemann integration – upper and lower sums- Riemann integration – examples $U(p,f+g) \leq U(p,f)+U(p,g)$ and $L(p,f+g) \geq L(p,f)+L(p,g)$ – if

$p_1 \subset p_2$ then $U(p_1,f) \geq U(p_2,f)$, $L(p_1,f) \leq L(p_2,f)$ - if m, M are inf and sup of

f on (a,b) then $m(b-a) \leq \int_a^b f(x)\,dx \leq M(b-a)$.

Darboux's theorem – Necessary and sufficient condition for integrability – Every continuous function on (a,b) is integrable on (a,b) – if f is monotonic on (a,b) then it is integrable on (a,b) – If f€R(a,b) then |f|€R(a,b) – Fundamental theorem of integral calculus.(1 short question + 1 essay question)

Prescribed text books:

Scope as in "Introduction to Real analysis" by Robert G.Bartle and Donald R.Sherbert, John Wiley, 3^{rd} edition. Chapter 3, (3.1 to 3.7), Chapter 5 (5.1 to 5.4), Chapter 6 (6.1 to 6.4), Chapter 7 (7.1 to 7.3), Chapter 9 (9.1, 9.2 and 9.3)

Reference Books:

1. A course of Mathematical Analysis, Shanthi Narayan and P.K.Mittal, S.Chand and company.
2. Mathematical analysis by S.C.Malik and Savita Arora, Wiley Eastern Ltd.

RAYALASEEMA UNIVERSITY

UG III Degree Mathematics syllabus from the academic year 2014-15

III B.A/B.Sc

Mathematics: Paper-III

LINEAR ALGEBRA AND VECTOR CALCULUS

PartA:LINEAR ALGEBRA

120hrs(4hrs/week)

Unit-I: (25Hours)

Vectorspaces,Generalpropertiesofvector spaces,Vector subspaces,Algebraof subspaces, linearcombinationofvectors.Linearspan,linearsumoftwosubspaces,Linearindependenceanddependenceo fvectors,Basisofvectorspace,Finite dimensionalvectorspaces, Dimensionofavectorspace,Dimensionofasubspace.

Lineartransformations,linearoperators,Rangeandnullspaceoflineartransformation, Rankandnullityoflineartransformations.Invertiblelineartransformation.

Unit-II : (20 Hours)

Characteristic values and characteristic vectors, Cayley – Hamilton theorem. Inner product spaces, Euclidean and unitary spaces, Norm or length of a vector, Schwartz inequality, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process.

Prescribedtextbook: LinearAlgebrabyJ.N.Sharma andA.R.Vasista,KrishnaPrakashamMandir,Meerut-250002.

ReferenceBooks:1.LinearAlgebrabyKennethHoffmanandRayKunze,PearsonEducation(lowpricededition), NewDelhi.

2. Linear Algebra by Stephen H. Friedberg et al Prentice Hall of India Pvt. Ltd. 4th edition 2007.

Part-B: VECTORCALCULUS

Unit-Ill: *(25*Hours)

Vectordifferentiation,ordinaryderivativesofvectors,Differentiability- Gradient - Divergence - Curloperators – Formulaeinvolvingtheseoperators(ExcludingSemett-Frennettformulaeandrelatedproblems)

Unit-IV: (20Hours)

Vectorintegration,TheoremsofGaussandStokes,Green'stheoreminplane andapplicationsofthesetheorems.

PrescribedtextBook: VectorAnalysisbyMurray.R.Spiegel,SchaumseriesPublishingCompany,Chapters3,*4,5, 6,*and7

ReferenceBooks: l.Text bookofvectorAnalysisbyShantiNarayana andP.K.Mittal, S.Chand&CompanyLtd,NewDelhi.

2.MathematicalAnalysisbyS.C.MallikandSavithaArora,WileyEasternLtd.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions **5 X 8 =40 marks**

From Unit –I 3questions Unit – II 3 questions
Unit –III 2 questions Unit – IV 2 questions

SECTION - B

Answer any FIVE questions **5 X 12 = 60 marks**

From Unit –I 3 questions Unit – II 3 questions
Unit – III 2questions Unit – IV 2 questions

PRACTICAL SYLLABUS FOR PAPER-III –LINEAR ALGEBRA&VECTOR CALCULUS

S. No	Unit	Topics	Number of models to be covered
1	I	Linear span,Linear independence and dependence of vectors, Basis of vector space,Dimension of a vector space,subspace. Linear transformations,linearoperators,Rangeandnullspaceoflineartransformation, Rank and nullity of linear transformations. Invertible linear transformation.	12 Models
2	II	Characteristic values and characteristic vectors, Cayley – Hamilton theorem. Inner product spaces, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process	12 Models
3	III	Gradient - Divergence - Curloperators –	8 Models

		Formulaeinvolvingtheseoperators	
4	IV	Vectorintegration,TheoremsofGaussandStokes,Green'stheoreminplane andapplicationsofthesetheorems	8 Models

MODEL QUESTION PAPER (PRACTICAL EXAM)

TIME: 3 Hrs **Max Marks :** 50

WRITTEN EXAMS : 30 Marks, **RECORD WORK** : 10 Marks, **VIVA VOCE** : 10 Marks

III B.A/B.Sc
Mathematics: Paper – IV (Elective-B)
LINEAR PROGRAMMING

UNIT-I: (20 hours) 120hrs(4hrs/week)

Linear Programming Problem : convex Set, Extreme points of a convex set, convex combination, Convex hull, Convex polyhedron, Fundamental theorem of linear programming, Definition, Formulation of linear programming of problems (LPP), Graphical solution of linear programming problems, General formulation of LP problems, Standard form and matrix form of LP problems. Graphical Method: formation of inequalities. Solution space. Finding the optimal solution

UNIT-II: (25 hours)

Simplex Method : Introduction, Definitions and notations, Computational procedure of simplex algorithm, Simple way for simplex computations, Artificial variables, Two-phase method, Alternative method of two-phase simplex method, Big-M method, Degeneracy in LPP and method to resolve degeneracy, Alternative solutions, Unbounded solutions, Non-existing feasible solutions, Solution of simultaneous equations by Simplex method'

UNIT-III: (20 hours)

Duality in Linear programming and DuaI Simplex Method : Introduction, Definition of Dual Problems, General rules for converting any primal into its Dual, Relation between the solution of Primal and Dual problem, Initial solution for Dual Simplex Method, Dual Simplex Method.

UNIT-IV: (25 hours)

Assignment and Transportation problems : Introduction, Mathematical formulation of Assignment problem, Reduction theorem, Hungarian Method for solving Assignment problem, unbalanced Assignment problem. Mathematical formulation of Transportation problem, Tabular representation, Definitions, Special structure of the solution, North-west corner rule, Lowest cost entry method, Vogel's approximation method, Method of finding optimal solution, Optimality in transportation problem, Degeneracy in transportation problems, Resolution of degeneracy, Unbalanced transportation problem, Generalized transportation problem.

Prescribed text book scope as in "operations Research" by S.D. Sharma, Kedar Nath Ram Nath & Co, Meerut.

Reference text Book:"Operation Research" by Kanthi Swarup, R.K. Gupta and Manmohan, S. Chand publications, New Delhi.

THEORY MODEL QUESTION PAPER

Time:3 Hours Max.Marks :100

SECTION –A

Answer any FIVE questions **5 X 8 =40 marks**

From Unit –I 3 questions(2 from theory part+1 from graphical method)
Unit – II 3 questions(1 from each of simplex + Big M + II –phase methods)
Unit – III 2 questions(1 question from duality + 1 from dual simplex method)
Unit – IV 2 questions(1 each from assignment and transportation)

Ten Questions in total

SECTION - B

Answer any FIVE questions **5 X 12 = 60 marks**

From Unit –I 2 questions(1 from theory part + 1 from graphical part)
Unit – II 3 questions(1 from each of simplex + Big M + II –phase methods)
Unit – III 2 questions(1 question from duality + 1 from dual simplex method)
Unit – IV 3 questions (1 from assignment and 2 from transportation)

PRACTICAL SYLLABUS FOR PAPER-IV –LINEAR PROGRAMMING

S.No	Unit	TOPIC	Number of models to be covered
1	I	Graphical Method: formation of inequalities. Solution space. Finding the optimal solution	6 Models
2	II	Simplex + big-M + II-phase (4 from each)	12 Models
3	III	Dualiy+ dual simplex (4 from each)	8 Models
4	IV	Assignement (5 models)+ **optimal solution**of transportation(3 from each of N-W + least cost entry + VAM)=9	14 Models

MODEL QUESTION PAPER (PRACTICAL EXAM)

TIME: 3 Hrs **Max Marks :** 50

WRITTEN EXAMS : 30 Marks **RECORD WORK** : 10 Marks **VIVA VOCE** : 10 Marks

Physics

2012 -13

RAYALASEEMA UNIVERSITY

UG I Degree Physics syllabus from the academic year 2012-13

B.Sc. (Physics)Theory Paper . I

Mechanics and Waves and Oscillations

Unit . I 30 hrs

1. Vector Analysis (10):

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field and related problems. Vector integration, line, surface and volume integrals. Stokes, Gauss and Greens theorems- simple applications.

2. Mechanics of Particles(10)

Laws of motion, motion of variable mass system, motion of a rocket, multi-stage rocket onservation of energy and momentum. Collisions in two and three dimensions, concept of impact parameter, scattering cross-section, Rutherford scattering

3. Mechanics of rigid bodies(10)

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum and inertial tensor. Eulers equation, precession of a top, Gyroscope.

Unit . II 30 hrs

4 Mechanics of continuous media(8)

Elastic constants of isotropic solids and their relation, Poisson.s ratio and expression for Poisson.s ratio in terms of y, n, k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, sign conventions, simple supported beam carrying a concentrated load at mid span, cantilever with an end load

5 Central forces(12)

Central forces , definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational potential and gravitational field, motion under inverse square law, derivation of Kepler s laws.

120 hrs(4 hrs / week)

6 Special theory of relativity (10)

Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity, Lorentz transformation, time dilation, length contraction, addition of velocities, ass-energy relation.

Unit . III 30 hrs

7 Fundamentals of vibrations(12)

Simple harmonic oscillator, and solution of the differential equation. Physical characteristics of SHM, torsion pendulum, - measurements of rigidity modulus , compound pendulum. Measurement of g., combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies, Lissajous figures

8 Damped and forced oscillations(12)

Damped harmonic oscillator, solution of the differential equation of damped oscillator. Energy considerations, comparison with undamped harmonic oscillator, logarithmic decrement, elaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance

9 Complex vibrations(6)

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions- square wave, , saw-tooth wave

Unit . IV 30 hrs

10 Vibrations of bars(12)

Longitudinal vibrations in bars- wave equation and its general solution. Special cases (i) bar fixed at both ends ii) bar fixed at the mid point iii) bar free at both ends iv) bar fixed at one end. Transverse vibrations in a bar- wave equation and its general solution.

11 Vibrating Strings (12)

Transverse wave propagation along a stretched string, general solution of wave equation and its significance, stationery waves, laws of stretched strings,modes of vibration of stretched string clamped at both ends, overtones, harmonics,energy transport, transverse impedance

12. Ultrasonics(6)

Ultrasonics, properties of ultrasonic waves, production of ultrasonics by piezoelectric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves. Applications of ultrasonic waves.

NOTE: Problems should be solved at the end of every chapter of all units.

Textbooks

1. **Berkeley Physics Course. Vol.1, Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008.*
2. **Fundamentals of Physics.** Halliday/Resnick/Walker *Wiley India Edition 2007.*
3. **Waves and Oscillations.** S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman.*
4. **First Year Physics** - *Telugu Academy.*
5. **Mechanics of Particles, Waves and Oscillations.** Anwar Kamal, *New Age International.*
6. **College Physics-I.** T. Bhimasankaram and G. Prasad. *Himalaya Publishing House.*
7. **Introduction to Physics for Scientists and Engineers.** F.J. Ruche. *McGraw Hill*
8. **Waves and Oscillations.** N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited.*
9. **Unified Physics Vol.**I Mechanics, Waves and Oscillations . Jai Prahese Nath & Co.Ltd Meenat.

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.
2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*
3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A. Freedman *Pearson Education Eleventh Edition.*
4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies.*
5. **Mechanics.** Hans & Puri. *TMH Publications.*
6. **Engineering Physics.** R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications.*

Practical Paper . I

FIRST YEAR PRACTICALS

1. Study of a compound pendulum determination of .g. and .k..
2. Study of damping of an oscillating disc in Air and Water logarithmic decrement.
3. Study of Oscillations under Bifilar suspension.
4. Study of oscillations of a mass under different combination of springs.
5. .Y. by uniform Bending (or) Non-uniform Bending.
6. Verification of Laws of a stretched string (Three Laws).
7. Moment of Inertia of a fly wheel.
8. Measurement of errors .simple Pendulum.
9. Determination of frequency of a Bar-Melde.s experiment.
10. Determination of Rigidy modulus by torsion pendulum
11. Observation of Lissajous figures from CRO.
12. Study of flow of liquids through capillaries.
13. Determination of Surface Tension of a liquid by different methods.
14. Study of Viscosity of a fluid by different methods.
15. Volume Resonator .determination of frequency of a tuning fork.
16. Velocity of Transverse wave along a stretched string.
17. Coupled oscillators
18. Determination of force constant (K) of a spring by static and dynamic methods

MODEL PAPER

SECTION . A

(Essay type questions - 4 x 15 = 60)

1. Total Questions : 8 to be given out of 8 questions, 4 to be answered.

SECTION . B

(short questions 5 x 8 = 40)

2.Total questions: 10 to be given out of 10 questions, 5 to be answered.

Note: Small problems may be added to two or three essay question.

Practicals scheme of valuation

1. Formula and/or circuit diagram & tables	- (12 marks)
2.. Observations	- (18 marks)
3. Calculations and graphs(if any) and Results	- (6 marks)
4. General impression	- (4 marks)
5. Practical Record	- (10 marks)
	Total Marks - (50 marks)

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2013 –14

New syllabus from the year 2013 to 2014 Rayalaseema University

B.Sc. (Physics)
Theory Paper – II
Thermodynamics and Optics

120 hrs (4hrs/week)

Unit – I

30 hrs.

1. **Kinetic theory of gases : (8)**

   Introduction – Deduction of Maxwell's law of distribution of molecular speeds. Experimental verification Toothed Wheel Experiment, Transport Phenomena.

2. **Thermodynamics : (12)**

   Introduction – Reversible and irreversible processes – Carnot's engine and its efficiency – Carnot's theorem – Second law of thermodynamics, Kelvin's and Claussius statements – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature – Entropy (T-S) diagram.

3. **Thermodynamic potentials and Maxwell's equations : (10)**

   Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius – Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas.

Unit – II

30 hrs.

4. **Low temperature Physics : (10)**

   Introduction – Joule Kelvin effect – liquefaction of gas using porous plug experiment – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type. Working of refrigerator–properties of substances at low – temperature.

5. **Quantum theory of radiation : (10)**

   Black body – Ferry's black body – distribution of energy in the spectrum of Black body – Wein's displacement law, - Quantum theory of radiation – Planck's law – deduction of Wein's law, Rayleigh – Jeans law from Planck's law – Measurement of radiation – Types of pyrometers – Disappearing filament optical pyrometer – experimental determination – angstrom pyroheliometer – determination of solar constant.

6. Statistical Mechanics : (10)

Introduction to statistical mechanics, concept of ensembles. Maxwell – Boltzmann's distribution law. Bose-Einstein Distribution law. Fermi-Dirac Distribution law, comparison of three distribution laws.

Unit – III 30 hrs.

7. The Matrix methods in paraxial optics : (8)

Introduction, the matrix method. effect of translation, effect of refraction- System matrix, System matrix for thick lens and thin lens imaging by a spherical refracting surface. Imaging by a co-axial optical system - cardinal points of a lens system. A system of two thin lenses.

8. Aberrations : (7)

Introduction – Monochromatic aberrations – spherical aberration, methods of minimizing spherical aberration, coma, astigmatism. Chromatic aberration – the achromatic doublet – Removal of chromatic aberration of a separated doublet.

9. Interference : (15)

Principle of superposition -- coherence – temporal coherence and spatial coherence – conditions for Interference of light.

Interference by division of wave front : Fresnel's biprism – determination of wave length of light. Determination of thickness of a transparent material – change of phase on reflection – Lloyd's mirror experiment.

Interference by division of amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (Cosine law) - Colours of thin films – Non reflecting films – Interference by a film with two non-parallel reflecting surface (Wedge shaped film) – Determination of diameter of wire-Newton's rings in reflected light – Determination of wave length of monochromatic light.

Unit – IV : 30 hrs.

10. Diffraction : (10)

Introduction – Distinction between Fresnel and Fraunhoffer diffraction-Fraunhoffer diffraction - Diffraction due to single slit and circular aperture – Limit of resolution – Fraunhoffer diffraction pattern with N slits (diffraction grating) Resolving Power of grating.

Fresnel diffraction:

Fresnel's half period zones – area of half period zones - zone plate-Comparison of zone plate with convex lens -- difference between interference and diffraction.

11. Polarization (10)

Polarized light - Methods of Polarization - Polarization by reflection, refraction, Double refraction, selective absorption, scattering of light – Brewsters' law – Malus law – Nicol prism – polarizer and analyzer – Quarter wave plate, Half wave plate – Optical activity.

12. Laser, Fiber Optics and Holography : (10)

Lasers : Introduction – Spontaneous emission – Stimulated emission – Population inversion. Laser principle – Types of Lasers – ruby laser – Applications of lasers.

Fiber Optics : Introduction - Optical fibers – Types of optical fibers – Fiber material – Principles of fiber communication (qualitative treatment only) and advantages of fiber communication.

Holography : Basic Principle of Holography – Gabor hologram and Holography applications.

NOTE: Problem should be solved at the end of every chapter of all units.

Text books

1. **Optics** by Ajoy Ghatak. The McGraw-Hill companies.
2. **Optics** by Subramaniyam and Brijlal.S. Chand & Co.
3. **Fundamentals of Physics**. Halliday/Resnick/Walker.C. Wiley India Edition 2007.
4. **Optics and Spectroscopy**.R. Murugeshan and Kiruthiga Siva Prasath.S. Chand & Co.
5. **Unifeed Physics Vol.2** – S.L. Gupta and Sanjeev Gupta Jai Prakash nath & Co., Meerut.
6. **Second Year Physics** – Telugu Academy.
7. **Modern Physics by R**. Murugeshan and Kiruthiga Siva Prasath (for Statistical Mechanics) S. Chand & Co.

Reference Books

1. **Modern Physics** by G. Aruldhas and P. Rajagopla, Eastern Economy Education.
2. **Berkeley Physics Course. Volume – 5**. Statistical Physics by F Reif. The McGraw-Hill Companies.
3. **An Introduction to Thermal Physics** by Daniel V. Schroeder. Pearson Education Low Price Edition.
4. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay L. Jain Eastern economy Edition.
5. **Modern Engineering Physics** by A.S. Vasudeva. S Chand & Co. Publications.
6. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. Narosa Publications.
7. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, McGraw Hill Inc.

PRACTICAL PAPER – II
SECOND YEAR PRACTICALS

90 hrs
(3 hrs/week)

1. Co-efficient of thermal conductivity of a bad conductor by Lee's method.
2. Thickness of a wire-wedge method.
3. Determination of wavelength of light-Biprism.
4. Determination of Radius of curvature of a given convex lens – Newton's rings.
5. Resolving power of grating.
6. Dispersive power of a prism.
7. Determination of wavelength of light using diffraction grating minimum deviation method.
8. Wavelength of light using diffraction grating – normal incidence method.
9. Resolving power of a telescope.
10. Refractive index (μ) of a liquid and glass (Boys Method)
11. Wavelength of Laser light using diffraction grating.
12. Spectrometer – Cauchy's constants.
13. Refractive index of the material of a concave lens
14. I-d curve.
15. Principles points of a lens system.
16. μ of a liquid – Hollow prisms

2014 – 15

PHYSICS – THIRD YEAR : Syllabus
PAPER – III

Electricity, Magnetism and Electronics

90 Hrs.
(3 hrs/week)

Unit – I

23 hrs.

1. **Electrostatics (10 periods)**
   Gauss law and its applications-Uniformly charged sphere, charged cylindrical conductor and an infinite conducting sheet of charge. Deduction of Coulumb's law from Gauss law. Mechanical force on a charged conductor
2. **Electric potential** – electric potential - Potential due to a charged spherical conductor, electric potential and field strength from the electric dipole,Equipotential surfaces..

3. **Dielectrics (5 periods)**
   An atomic view of dielectrics, potential energy of a dipole in an electric field. Polarization and charge density. Gauss's law for dielectric medium-Relation between D,E and P. Dielectric constant, susceptibility and relation between them. Boundary conditions at the dielectric surface.

4. **Capacitance (8 periods)**
   Capacitance of concentric spheres and cylindrical condenser, capacitance of parallel plate condenser with and without dielectric. Electric energy stored in a charged condenser – force between plates of condenser construction and working of attracted disc electrometer measurement of dielectric constant and potential difference.

Unit – II

24 hrs.

5. **Magnetostatics (6 periods)**
   Magnetic shell – potential due to magnetic shell – field due to magnetic shell– Magnetic induction (B) and field (H)– permeability and susceptibility and their relation

6. **Moving charge in electric and magnetic field (8 periods)**
   Hall effect, cyclotron, synchrocyclotron – force on a current carrying conductor placed in magnetic field, force and torque on a current loop. Biot – Savart's law and calculation of B due to long straight wire - circular current loop

7. **Electromagnetic induction (10 periods)**
   Faraday's law- Lenz's law – expression for induced emf – time varying magnetic fields – Betatron – Ballistic galvanometer – theory – damping correction – self and mutual inductance, coefficient of coupling, calculation of self inductance of a long solenoid — energy stored in magnetic field – transformer – principle and applications

Unit – III 20 hrs

8. **Varying(D.C) and alternating currents** (10 periods)
Growth and decay of currents in LR. CR circuits – Critical damping Alternating current relation between current and voltage in pure R,C and L vector diagrams – Power in ac circuits. LCR series and parallel resonant circuit – Q-factor.

9. **Maxwell's equations and electromagnetic waves (10 periods)**
A review of basic laws of electricity and magnetism – displacement current Maxwell's equations in differential form – Maxwell's wave equation, plane electromagnetic waves – Transverse nature of electromagnetic waves. Poynting theorem.

Unit – IV 23 hrs.

10 .**Basic Electronics (15 periods)**
Formation of electron energy, bands in solids, classification of solids in terms of forbidden energy gap. Intrinsic and extrinsic semiconductors. Fermi level.P-n junction diode, Zener diode characteristics and its applications as voltage regulator. Half wave and full wave rectifiers and filters, ripple factor (quantitative) – p n p and n p n transistors, CB, CE and CC configurations – transistor hybrid parameters — transistor as an amplifier – concept of negative feedback and positive feedback – Barkhausen criteria. RC coupled amplifier and phase shift oscillator. (qualitative).

11. **Digital Principles (8 periods)**
Binary number system, converting Binary to Decimal and vice versa. Binary addition and subtraction. Hexadecimal number system. Decimal to Hexadecimal vice versa.

Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates, Exclusive – OR gate. De Morgan's Laws – statement and proof, Half and Full adders.

NOTE : Problems should be solved from every chapter of all units.

Textbooks:

1. Modern Physics by R. Murugeshan and Kiruthiga Siva PRasath – S. Chand & So for semi conductor& Digital Principles)
2. Fundamentals of Physics – Halliday/Resnick/Walker – Wiley India Edition – 2007.
3. Berkeley Physics Course – Vol. II – Electricity and Magnetism – Edward M Purcell – The McGraw-Hill Companies.
4. Electricity and Magnetism – D.N. Vasudeva. S. Chand & Co.
5. Electronic devices and circuits – Millman and Halkias. McGraw-Hill Education.
6. Electricity and Magnetism Brijlal and Subramanyam. RatanPrakashanMandir.
7. Digital Principles and Applications by A.P. Malvino and D.P.Leach. McGraw Hill Education.
8. Unified Physics Vol.3 – S.L. Gupta and Sanjeev Gupta – Jai PrakasahNAth& Co-Meerut.

Reference Books:

1. Electricity and Electronics – C.C. Tayal. Himalaya Publishing House.
2. Electricity and Magnetism – C.J. Smith, Edward Arnold Ltd.
3. Electricity, Magnetism with Electronics – K KTewari. R. Chand & Co.
4. Third year Physics – Telugu Akademy.
5. Principles of Electronics by V.K. Mehta – S. Chand & Co.

Practical Paper – III

THIRD YEAR PRACTICALS

90 hrs(3 hrs/week)

1. Carey – Foster's Bridge – comparison of low resistances.
2. Internal resistance of a cell by potentiometer.
3. Constants of table Galvanometer.
4. Voltage sensitivity of a moving coil galvanometer.
5. Calibration of high range voltmeter using potentiometer.
6. LR circuits (Frequency response)
7. LCR circuit series parallel resonance, Q-factor.
8. Impedance and Power factor of an A.C. circuit.
9. Determination of ac-frequency-sonometer.
10. Design and construction of multimeter.
11. Construction of a model D.C. power supply.
12. Characteristics of a Junction diode.
13. Characteristics of Transistor.
14. Characteristics of Zener diode.
15. Verification of Kirchoff's laws.
16. Determination of M and H.
17. LR and CR circuits – determination of L and C by applying AC.
18. Field along the axis of a circular coil carrying current – Stewart and Gee's method.
19. Zener diode as voltage regulator.
20. Familiarisation of Computer – Basic parts and working.
21. Carey – Foster's Bridge – Calculation of Alfa.

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PHYSICS – THIRD YEAR : Syllabus

PAPER – IV

Modern Physics

90 Hrs.
(3 hrs/week)

25 hrs.

Unit – I

1. **Atomic Spectra:**
Introduction – Drawbacks of Bohr's atomic model – Sommerfeld's elliptical orbits – relativistic correction (no derivation). Vector atom model and quantum numbers associated with it. L.- S. and j-j coupling schemes. Stern & Gerlach experiment, Spectral terms, selection rules, Zeeman Effect, Paschen-Back Effect and Stark Effect (basic ideas only).

2. **Molecular Spectroscopy:**
Types of molecular spectra, Raman effect, Quantum theory of Raman effect Experimental arrangement for Raman effect and its applications.

Unit – II

3. **Quantum Mechanics:**
Inadequacy of classical Physics, Spectral radiation – Stability of an atom – Bohr's atomic theory, Photoelectric effect – Einstien's photoelectric equation. Compton' effect – Theory and experimental verification..

4. **Matter Waves:**

De Broglie's hypothesis – wavelength of matter waves, properties of matter waves. Phas and group velocities. Davisson and Germer experiment.

5. **Uncertainty Principle:**

Heisenberg's uncertainty principle for position and momentum (x and p_x), Energy an time (E and t). Position of electron in a Bohr orbit.

6. **Schrodinger Wave Equation:**

Schrodinger time independent and time dependent wave equations. Wave functic properties – Significance . Basic postulates of quantum mechanics. Operators, Eige functions and Eigen values. Application of Schrodinger wave equation to particle in or dimensional box.

Unit - III

Nuclear Physics:

7. **Nuclear Structure:** Basic properties of nucleus – size, charge, mass, spin, magne dipole moment and electric quadrupole moment. Binding energy of nucleus, nucle forces. Nuclear models – liquid drop model, shell model.
8. **Alpha and Beta Decays:** Range of alpha particles, Geiger – Nuttal law. Gammov theory of alpha decay.. Beta spectrum – neutrino hypothesis . Fermi's theory of β decay (qualitative).

10. **Nuclear Detectors -** GM counter, Wilson could chamber and Bubble chamber.

Unit – IV

Solid State Physics

11.Crystal Structure: Crystalline nature of matter. Crystal lattice, Unit Cell. Elements of symmetry. Crystal systems. Bravais lattices. Miller indices. Simple crystal structures ((S.C., BCC, FCC, CsCl, NaCl.)

12. X-ray Diffraction: Diffraction of X-rays by crystals, Bragg's law, Experimental techniques -- Laue's method.

13. Nanomaterials: Introduction, nanoparticles, metal nanoclusters, semiconductor nanoparticles, carbon clusters, carbon nanotubes, nanodot, nanowire and quantum well.

14. Bonding in Crystals: Types of Bonding in crystals characteristics of crystals with different bondings. Lattice energy of ionic crystals

15.Magnetism : Magnetic properties of dia, para and ferromagnetic materials. Langevin's theory of paramagnetism. Weiss' theory of ferromagnetism – Concepts of magnetic domains.

16.Superconductivity:
Basic experimental facts – zero resistance, effect of magnetic field, Meissner effect, persistent current. Isotope effect,. Type I and Type II superconductors. Applications of superconductors.

NOTE: Problems should be solved from every chapter of all units.

Text Books:

1. Modern Physics by G. Aurldhas & P. Rajagopal, Eastern Economy Edition.
2. Concepts of Modern Physics by Arthur Beiser. Tata McGraw-Hill Edition.
3. Modern Physics by R. Murugeshan and Kiruthiga Siva PRasath. S. Chand & Co.
4. Nuclear Physics by D.C. Rayal, Himalaya Publishing House.
5. Molecular Structure and Spectroscopy by G. Aruldhas, Prentice Hall of India, New, Delhi.
6. Spectroscopy -- Atomic and Molecular by Gurdeep R Chatwal and Shyam Anand – Himalaya Publishing House.
7. Third Year Physics – Telugu Academy.
8. Elements of Solid State Physics by J.P. Srivastava. (for chapter on nanomaterials) – Prentice-hall of India Pvt. Ltd.
9. Unified Physics Vol.4 – S.L. Gupta and Sanjeev Gupta – Jai Prakasah Nath & Co-Meerut.

Reference Books:

1. University Physics with Modern Physics by Young & Freedman. A. Lewis Ford. Low Price Edition (Eleventh Edition)
2. Quantum Physics by Eyvind H. Wichman, Vol.4, The McGraw-Hill Companies.
3. Quantum Mechanics by Mahesh C. Jani. Eastern Economy Edition.
4. Nuclear Physics Irving Kaplan – Narosa Publishing House.
5. Introduction to Solid State Physics by Charles Kittel. John Wiley and Sons.
6. Solid State Physics by A.J. Dekker. Mac Millan India.

PRACTICALS PAPER IV

1. CONVERSION OF GALVANOMETER INTO AMMETER OF TWO RANGES
2. CONVERSION OF GALVANOMETER INTO VOLTMETER OF TWO RANGES
3. CONSTRUCTION AND CALIBRATION OF OHMMETER
4. THEVENIN'S AND NORTONS THEOREMS
5. ENERGY GAP OF A SEMICONDUCTOR USING JUNCTION DIODE
6. THERMISTOR TEMPARATURE CHARACTERISTICS
7. BASIC AND COMBINATIONAL LOGIC GATES – AND, OR, NOT, X-OR GATES VERIFICATION OF TRUTH TABLES
8. NAND GATE / NOR GATE AS UNIVERSAL GATE
9. CONSTRUCTION AND VERIFICATION OF TRUTH TABLE FOR HALF ADDER AND FULL ADDER CIRCUITS
10. RC COUPLED AMPLIFIER
11. MAXIMUM POWER TRANSFER THEOREM
12. LDR CHARACTERISTICS
13. BRIDGE RECTIFIER AND FILTER CIRCUITS
14. VERIFICATION OF DE MORGAN'S THEOREMS
15. E/M OF AN ELECTRON BY THOMSON METHOD.
16. PHASE SHIFT OSCILLATOR
17. HYSTERESIS CURVE OF TRANSFORMER CORE
18. DETERMINATION OF PLANCK'S CONSTANT (PHOTOCELL)
19. STUDY OF SPECTRA OF HYDROGEN SPECTRUM (RYDBERG CONSTANT)
20. HALL-PROBE METHOD FOR MEASUREMENT OF MAGNETIC FIELD.
21. STUDY OF ALKALINE EARTH SPECTRA USING A CONCAVE GRATING.