B.A. : Maths, Economics, Statistics

Paper title: Economics Theory

Paper number Group Paper - 1
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

Paper-I - Economics Theory

i) Scope:

Micro and macro Economics – Circular flow of economic activities.

ii) Demand:

Concept of ordinal utility – indifference curve analysis - Consumer's Equilibrium price, Income and substitution effects – Derivation of Demand Curve – Law of Demand Elasticity of Demand – Types and measurement.

iii) Production:

Production function – Law variable proportions – Returns to scale – concept
Of cost – opportunity cost – Types of costs total, average and marginal costs – short – run, longrun costs – Supply curves.

iv) Markets:

Concept of equilibrium of firm – price and output determination under perfect competetion – monopoly and discriminating monopoly – monopolistic competition – concept of kindly demand curve in oligopohy

IV) National income:

National Income – Concepts and components – measurement of National Income pricing factors of production – Marginal productivity theory.

V) Income and employment theory:

Elements of classical theory – Keyne's theory of Income determination - Concept of APC and MPC in consumption function – concept of MEC in investment function - Multiplier and accalerator – Liquidity preference theory of interest – relevance of Keyne's theory to developing economics.

VI) Money & Banking:

Concept of money and RBI classification – M1 M2 M3 M4 – Value of money
And cost of living index – Credit creation by commercial banks – outline of RBI monetary policy - concept of inflation – Constpush demand pull and phillips's curve – Consequences

B.A. : Maths, Economics, Statistics

Paper title: DIFFERENTIAL EQUATIONS, ABSTRACT ALGEBRA AND VECTOR CALCULS

Paper number Group Paper - 1
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A / B.Sc. Mathematics I year Common core Syllabus
Title: DIFFERENTIAL EQUATIONS, ABSTRACT ALGEBRA AND VECTOR CALCULS
Differential Equations:
Unit - 1
Differential Equations of First Order and First Degree
Linear Differential Equations
Differential Equations Reducible to Linear Form
Exact Diffrential Equations
Integrating Factors
Change of Variables
Total Differential Equations
Simultaneous Total Differential Equations
Equations of the Form
(i) Method of Grouping (ii) Method of Multipliers
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 Homogeneous in x and y
Equations of the First Degree in x and y - Clairaut's Equation

Unit - 2
Higher Order Linear Differential Equations
Solution of Homogeneous Linear Differential Equations of Order n with constant Coefficients.
Solution of the Non-homogeneous Linear Diffrential Equations with Constant Coefficients by means of Polynomial Operators.
(i) When and
(ii) When and
(iii) When
(iv) When or
(v) When , where V is a function of x
(vi) When and
(vii) When , where V is any function x.
Method of Undetermined Coefficients
Method of Variation of Parameters
Linear Differential Equations with Non-constant Coefficients
The Cauchy-Euler Equation
System of Linear Differential Equations
Solution of a system of Linear Equations with Constant Coefficients
An Equivalent Triangular System
Degenerate Case:
(Scope as in Differential Equations and their Applications, by Zafar Ahsan, published by Prentice- Hall of India Private Limited, New Delhi).
Abstract Algebra
Unit-3
Elements of Number Theory
Divisibility, Primes
Congruences, Solutions of Congruences, Congruences of Degree1
The Function
(Scope as in An Introduction to the Theory of Numbers by Ivan Niven, Herbert S. Zuckerman, published by Wiley Eastern Limited)
Binary Operations

Definition and Properties, Tables
Groups
Definition and Elementary Properties
Finite Groups and Group Tables
Sub Groups
Subsets and Subgroups
Cyclic Subgroups
Permutations
Functions and Permutations
Groups of Permutations
Cycles and Cyclic Notation
Even and odd permutation
The Alternating Groups
Cyclic Groups
Elementary Properties
The Classification of Cyclic Groups
Subgroups of Finite Cyclic Groups
Isomorphism
Definition and Elementary Properties
How to Show that Groups are Isomorphic
How to Show that Groups are Not Isomorphic
Cayley's Theorem
Groups of Cosets
Cosets
Applications
Normal Subgroups and Factor Groups
Criteria for the Existence of a Coset Group
Inner Automorphisms and Normal Subgroups
Factor Groups
Simple Groups
Homomorphisms
Definition and Elementary Properties
The Fundamental Homomorphism theorem
Applications
(Scope as in A First Course in Abstract Algebra by John B. Fraleigh, published by Narosa Publishing House).
Unit-4
Vector Differentiation
Differential Operator
Gradient
Divergence
Curl
Vector Integration
Theorems of Gauss, Green and Stokes and Problems related to them
(Scope as in Advanced Engineering Mathematics by Erwin Kreyszig, published by John Wiley & Sons, Inc.) Abstract Algebra
Unit-3
Elements of Number Theory
Divisibility, Primes
Congruences, Solutions of Congruences, Congruences of Degree1
The Function
(Scope as in An Introduction to the Theory of Numbers by Ivan Niven, Herbert S. Zuckerman, published by Wiley Eastern Limited)
Binary Operations
Definition and Properties, Tables
Groups
Definition and Elementary Properties
Finite Groups and Group Tables
Sub Groups
Subsets and Subgroups
Cyclic Subgroups
Permutations
Functions and Permutations
Groups of Permutations
Cycles and Cyclic Notation

Even and odd permutation
The Alternating Groups
Cyclic Groups
Elementary Properties
The Classification of Cyclic Groups
Subgroups of Finite Cyclic Groups
Isomorphism
Definition and Elementary Properties
How to Show that Groups are Isomorphic
How to Show that Groups are Not Isomorphic
Cayley's Theorem
Groups of Cosets
Cosets
Applications
Normal Subgroups and Factor Groups
Criteria for the Existence of a Coset Group
Inner Automorphisms and Normal Subgroups
Factor Groups
Simple Groups
Homomorphisms
Definition and Elementary Properties
The Fundamental Homomorphism theorem
Applications
(Scope as in A First Course in Abstract Algebra by John B. Fraleigh, published by Narosa Publishing House).
Unit-4
Vector Differentiation
Differential Operator
Gradient
Divergence
Curl
Vector Integration
Theorems of Gauss, Green and Stokes and Problems related to them
(Scope as in Advanced Engineering Mathematics by Erwin Kreyszig, published by John Wiley & Sons, Inc.)

1. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967.
2. A.R.Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
3. Jane Cronin, Differential Equations, Marcel Dekkar, 1994.
4. Frank Ayres, Theory and Problems of Differential Equations, McGraw Hill Book Company, 1972.
5. Richard Bronson, Theory and Problems of Differential Equations, McGraw Hill,Inc. 1973.
6. I.N.Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975.
7. N.Jacobson, Basic Algebra, Vols. I & II W.H.Freeman, 1980 (also published by Hindustan Publishing Company)
8. Shanti Narayan, A.Text Book of Modern Abstract Algebra, S.Chand & Co. New Delhi.
9. S.K.Jain, A. Gunawardena & P.B.Battacharya , Basic Linear Algebra with MATLAB, Key College publishing (Springer - Verlag) 2001.
10. Vivek Sahai and Vikas Bist, Algebra, Norosa Publishing House, 1997.
11. Murray R. Spiegel, Theory and Problems of advanced calculus, Schaum Publishing company, New York
12. Murray R.Spiegel, Vector Analysis, Schaum publishing Company, New York.
13. N.Saran and S.N.Nigam, Introduction to Vector Analysis, Pothishala, Pvt. Ltd., Allahabad.
14. Shanti Narayana, A Text Book of Vector Calculus, S.Chand & Co., New Delhi.

B.A. : Maths, Economics, Statistics

Paper title: Probability and Distributions

Paper number Group Paper - 1
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A / B.Sc (Statistics) First Year: Paper - I
Probability and Distributions
Unit 1:
Analysis of Quantitative data: Univariate data – Measures of central tendency (Mean, Median and Mode with simple applications), Measures of Dispersion (definitions and simple examples), relative Dispersion and their areas of application. Importance of Moments, Central and Non-central Moments, Sheppard's corrections for moments for grouped data. Skew ness and Kurtosis – their measures including those based on quartiles and moments with real life examples. (15L)
Analysis of Categorical data: Consistency of Categorical data. Independence and Association of Attributes, various measures of association for two way data with real life examples. (5L)
Probability and Random experiment: Definition of Probability, Classical and Relative frequency approach to Probability, merits and demerits of these approaches, Random experiment, sample point and sample space,definition of an event, operation of events. Properties of probability based on axiomatic approach, Addition theorem for 'n' events, Conditional Probability, Multiplication rule of probability for 'n' events, Boole's inequality, Independence of events, Baye's theorem and its applications (with examples of real life). (20L)
Unit 2:
Random Variables: Notion of a Random variable, Distribution function and its Properties. Discrete random variable, Probability Mass function, Continuous random variable, Probability Density function. Transformation of one-dimensional random variable (simple 1-1 functions only). (8L)
Mathematical Expectation: Mathematical expectation of random variable and its properties. Moments-Raw and Central moments with examples – Definition of Moment generating function (m.g.f) cumulate generating function (e.g.f), Probability generating function (p.g.f) and Characteristic function, statements of their properties with applications. Chebychev's inequality and its applications. Statement and applications of Weak law of Large numbers and Central limit theorem for i.i.d. random variables with limite variance. (12L)
Unit 3:
Discrete Distributions: Standard discrete distributions and their properties such as m.g.f, c.g.f, p.g.f, Characteristic function, moments up to fourth order of Uniform, Binomial, Poisson, Negative Binomial, Geometric and Hyper-Geometric distributions. Reproductive properly wherever it exists. Binomial approximation to Hyper-Geometric, Poisson approximation to Binomial and Negative Binomial Distributions. Applications of these distributions in real life. (15L)
Unit 4:
Continuous Distributions: Normal distribution-Definition, properties and its importance in Statistics. Normal distribution as limiting case of Binomial and Poisson distributions. Definitions and properties such as m.g.f, c.g.f, Characteristic function, moments up to fourth order to Rectangular, Gamma, Exponential, and Canehy distributions. Reproductive properly wherever it exits. Application of these distributions in real life (15L)
REFERENCE BOOKS:
Fundamentals of Statistics by Goon AM, Gupta MK, Das Gupta B
Introduction to Probability theory by Walpole
New Mathematical Statistics by Sanjay Amora and Dansilal.
Fundamentals of Mathematical Statistics by VK Kapoor and SC Gupta LIST OF PRACTICAL
PAPER – I
1 a: Graphical presentation of data (Histogram, Frequency polygon, Ogives)
1 b: Graphical presentation of data (Histogram, Frequency polygon, Ogives) using MS Excel.
2 a: Diagrammatic presentation of data (Bar and Pie).
2 b: Diagrammatic Presentation of data (Bar and Pie). Using MS Excel
3. Computation of non-central and central moments – Sheppard's corrections for

grouped data.
4 a: Computation of coefficients of Skewness and Kurtosis – Karl Pearson's and Bowley's b1 and b2.
4 b: Computation of measures of Central tendency, Dispersion and coeflicients of Skewness, Kurtosis using MS Excel.
5 a: Fitting of Binomial distribution – Direct Method.
5 b: Fitting of Binomial distribution – Direct Method using MS Excel.
6. Fitting of Binomial distribution – Recurrence relation Method.
7 a: Fitting of Poisson distribution – Direct Method.
7 b: Fitting of Poisson distribution – Direct Method using MS Excel
8. Fitting of Poisson distribution – Recurrence relation Method.
9. Fitting of Negative Binomial distribution
10. Fitting of Normal distribution – Areas Method
11. Fitting of Normal distribution – Ordinates Method.
12 a: Fitting of Exponential distribution
12 b: Fitting of Exponential distribution using MS Excel
13 a: Fitting of Cauchy distribution.
13 b: Fitting of Cauchy distribution using MS Excel

B.A. : Maths, Economics, Statistics

Paper title: General English-I

Paper number Paper - 1
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., B.B.M. General English First Year Syllabus

1) PROSE: “Selection from English Prose” O.U.P.

1. A chat with Mrs. Smiles : W.R. Lee
2. Lovers’ Reimop’m : D.H.Spencer
3. Blood, Toil, Sweat and Tears : Sir Winston Churchill
4. A Snake in the Grass : R.K. Narayan
5. The Topaz Cufflinks Mystery : James Thurber
6. Letter to Indu : Jawaharlal Nehru
7. Dilly at the Dentists : George Bernard Shaw
8. A Sense of the Future : J.Bronowski
9. The Thief’s Story : Ruskin Bond

2) POETRY: “Poetry for Pleasure” – Maruthi

1. On His Having Arrived at the
Age of Twenty – Three : John Milton
2. Go Lovely Rose : Edmond Walker
3. Tables Turned `: William Wordsworth
4. Sonnet to science : Edger Allan poe
5. The Express : Stephen Spender
6. Laugh and Be Merry : John Masefield
7. On Killing a Tree : Gieve Patel
8. Piano and Drums : Gabriel Okara

3) SHORT STORIES: “Best – Loved Stories” – Anu Chitra

1. The Refugee : pearls S. Buck
2. The Gold Watch : Mulk Raj Anamd
3. The Open Window : Saki
4. Lemon; Yellow and Fig : Manohar Malgonkar
5. The Fortune – Teller : Karel Capak
6. God Sees the Truth but waits : Leo Tolstoy

4) LANGUAGE STUDY: “Enrich your Communication in English” – Lorven

1. Vocabulary and Spelling
2. Parts of Speech
3. Sentences, Clauses and Phrases
4. Prepositions and Conjunctions
5. Verbs
6. Tenses
7. Concord : Agreement of the subject and the verb
8. Transformation of Sentences:
a. Degrees of Comparison
b. Active and Passive voice
c. Direct and Indirect Speech
9. Simple, Complex and Compound Sentences
10. Writing Paragraphs
11. Letter writing

B.A. : Maths, Economics, Statistics

Paper title: Hindi-I

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., B.B.M. HINDI First Year Common Core Syllabus
1)Syllabus applicable with effect from 2006-07 Academic Year Batch

Prose Test: Gadya Gaurav: Edited by Dr. Ajaya Kumar Patnaiak published by: Sonam Prakasham. Cuttak Non-detailed Text: Charchit Kahaniya: Edited: Dr. Ghulam M.Khan published by Shabnam Pustak Mahal, Cuttak.

Grammar Pertaining to the following Topics:
Rewriting of sentences as directed based on Case, Gender, Number, Tense, Voice
Correction of sentences Usage of words into sentences
Karyalay Hindi: Administrative terminology (Prashasanik shabdavali), official designations in Hindi (padnam) Sandhi Vichehhed &Identifying the Samas
Letter Writing: Personal letters, Letters of orders, Application for Appointment, letter of complaint.

Book Recommended:
Sarala Hindi Vyakaran: Part I, II & III (Dakshin Bharat Hindi Prachar Sabha, Hyderabad.
Samanya Hindi by Dwij Ram Yadav Sanjaya Book Centre, Varanasi)
Hindi Roop Rachana, Published by Lokbharti Prakashan, Allahabad.

Gadya Gavrav:
Omitted Lessons:
1. Lajja our glance
2. Sona Hiranee
3. Bajar Darshan
4. Apane meri Rachana Padhee
5. Maree Rumal Kho gayee
6. Jaha Akash Nahee Dikhee Deta

Selected Lessons:
Kavi our Kavitha
Earshya too Na gauee mere dilse
Bharateeya Sahitya Kee Ekhatha
Atithi
Ashunikathe our Sahitya
Neela Kanth
Nondetail book is Charchit Kahaniya

Stories Omitted:
Aadami ka Bacha
Lal pap kee begum
Sadachar ka taveej
Har

Stories Selected:
Usne Kaha tha
Puraskar
Thakur ka kuva
Roj
Chur hi da vat

B.A. : Maths, Economics, Statistics

Paper title: Hindi-I

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., B.B.M. HINDI First Year Common Core Syllabus
1)Syllabus applicable with effect from 2006-07 Academic Year Batch

Prose Test: Gadya Gaurav: Edited by Dr. Ajaya Kumar Patnaiak published by: Sonam Prakasham. Cuttak Non-detailed Text: Charchit Kahaniya: Edited: Dr. Ghulam M.Khan published by Shabnam Pustak Mahal, Cuttak.

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Letter Writing: Personal letters, Letters of orders, Application for Appointment, letter of complaint.

Book Recommended:
Sarala Hindi Vyakaran: Part I, II & III (Dakshin Bharat Hindi Prachar Sabha, Hyderabad.
Samanya Hindi by Dwij Ram Yadav Sanjaya Book Centre, Varanasi)
Hindi Roop Rachana, Published by Lokbharti Prakashan, Allahabad.

Gadya Gavrav:
Omitted Lessons:
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2. Sona Hiranee
3. Bajar Darshan
4. Apane meri Rachana Padhee
5. Maree Rumal Kho gayee
6. Jaha Akash Nahee Dikhee Deta

Selected Lessons:
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Earshya too Na gauee mere dilse
Bharateeya Sahitya Kee Ekhatha
Atithi
Ashunikathe our Sahitya
Neela Kanth
Nondetail book is Charchit Kahaniya

Stories Omitted:
Aadami ka Bacha
Lal pap kee begum
Sadachar ka taveej
Har

Stories Selected:
Usne Kaha tha
Puraskar
Thakur ka kuva
Roj
Chur hi da vat

B.A. : Maths, Economics, Statistics

Paper title: SANSKRIT-I

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., B.B.M. SANSKRIT First Year Common Core Syllabus
1)Syllabus applicable with effect from 2006-07 Academic Year Batch

(I) Poetry (II) Prose (III) Grammar
I. Poetry – Lesson No. 1 - Dasharathasya Rajyapalanam, from Ramanyana, Balakanda, Sixth Sarga, Shloka no. 1 to 28.

Lesson No. 2 – Yiduraneetayah FormVidura Neeti, Ist Chapter
I) Pandita laxanani, Shloka No. 20 to 34
II) Moorkha Laxanani, Shloka no. 35 to 45

Lesson No. 3 – Aparna jatilam
From Kumara Sambhava, Vth Canto
Sloka No. 37 to 86

Lesson No. 4 – Rtughoshana
from Yashodhara Mahakavya of Ogeti Parikshit Sharma, 1st Canto
1. Vasanta varmanam – Shloka No.1, 2, 5, 7, 8, 9
2. Greeshma varnanam – Shloka No. 13, 14, 16, 17, 19
3. Varshartu varnanam – Shloka No. 20, 21, 22
4. Sharadrtu varnanam – Shloka No. 29, 30, 31
5. Hemantartu varnanam – 34, 35, 36, 37
6. Shishirartu varnanam – 39, 40, 41, 42, 43

II. Prose – Lesson No. 5 – Dvijopakrtih
from Dashakumaracharitam

Lesson No. 6 - Mrtojjeevanam
from Dwatrimsha Puttalika Simhasanam
Saptamopakhyanam

Lesson No. 7 – Catura Shashkah
from Panchatantra, Kakolukeeyam,
First story, Samskriti Sansthan Edition
Bareli (U.P.), 1972
Page No.332 to 338, Upto 89th Shloka

III. Grammar: Conjugations;
1st Conjugation – Bhoo, Gam, Shtha, Drsh, Ghush, Vi+ tr, Labh, Mud
2nd Conjugation – As ( )
3rd Conjugation – Div, Yudh, Sam + Tush
4th Conjugation – Pra + Vish, Mune, Ish
8th Conjugation – Likh, Kri ( )
9th Conjugation – Kreen ( )
10th Conjugation – Cur, kath, Bhash, Ram, Vand

Declensions:
Nouns ending in Vowels:
Deva, Kavi, Bhanu Dhatr, Pitr, Go, Rama, Mati, Nadee, Tanu, Vadhoo, Matr, Phala, Vari, Madhu

Sandhi:

Swara Sandhi: Savarnadeergha, Ayavayava, Guna, Vrddhi, Yanadesha
Vyanjana Sandhi: Scutva, Stutva, Anunasikadvitva, Anunasika, Latva, Jastva
Visarga Sandhi: Visarga Utva Sandhi, Visargalopa Sandhi, visarga Repha sandhi, Ooshama Sandhi

samasa :
1. Dwandwa
2. Tatpurusha (common)
a. Karmadharaya
b. Dwigu
c. Paradi Tatpurusha
d. Gatitatpurusha
e. Upapada Tatpurusha
3. Bahuvrihi
4. Avyayibhava

B.A. : Maths, Economics, Statistics

Paper title: INDIAN HERITAGE AND CULTURE

Paper number Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., : INDIAN HERITAGE AND CULTURE First Year Common Core Syllabus

PART: A

1. Fundamental Unity of Indian Harappan and Vedic Culture – Evolution of Caste System – Jainism and Buddhism – Gandhara Art.
2. Political unification of India under Mauryas and Guptas – Cultural achievements
3. Cultural conditions under the Satavahanas
4. Contribution of Pallavas and Cholas to Art and letters – Chola Administrative Systems
5. Influence of Islam on Indian Culture – The Sufi, Bhakthi and Vishnavite movements.
6. Cultural Achievements of Vijayanagara Rulers.
7. Contribution of Shershah and Akbar to the evolution of administration system in India – Cultural Development under Mughals.
8. Western Impact on India – Introduction of Western Education – Social and Cultural awakening and social reform movements – Raja Rama Mohan Roy – Dayananda Saraswathi – Theosophical Society – Ramakrishna Paramahamsa and Vivekananda – Iswara Chandra Vidyasagar and Veeresalingam – Emancipaition of women and struggle against Caste.
9. Rise of Indian Nationalism – Mahatma Gandhi – Non Violence and Satyagraha – Eradication of untouchability – Legacy of British rule.

Books for Consultation:

Majumdar, A.L. : Advanced History India (Macmillan, 1983)
Basham, A.L. : The wonder that was India (OUP, Madras 1983)
Basham, A.L. : Cultural heritage of India Vols.I to IV
(Published by Ramakrishna Mission, Calcutta during different years)
Luniya, B.A. : Evolution of Indian Culture
(From the earliest times to the present day)
(L.N.Agarwal, Book – sellers & Publishers, Agra 1980)
Bipan Chandra et.al.: Freedom struggle (New Delhi, 1972)

PART-B

I. a. On the nature of Culture : Meaning, Definition and various interpretations of Culture.
b. Culture and its salient features.
II. The Vedic – Upanishadic culture and society.
Human aspirations in those societies – Values – Chaturvidha Purusharthas, Chaturvarna theory Chaturasramsa theory.
III. The Culture in Artha Sastra : Kautilyan conception of the function of philosophy, State,Religion and King.
IV. Culture in Ramayana and Mahabharatha.
a. The Ideal Man and Woman
b. Concepts Maitri, Karuna, Seela, Vinaya, Kshama, Santi, Anuraga as exemplified in the stories and anecdotes of the Epics.
V. a) The Culture of Jainism: Jaina Conception of Soul, Karma and Liberation.
b) Buddhism as a humanistic culture : The four noble Truths of Budhism.
Vedanta and Indian Culture.
Religion and Ethical Practices : The Hindu View.
Text Books:

F. Max Mullar : Heritage of India, Chapter III & IV, 'Vedic Deities and Veda and Vedanta' (Susil Gupta India Ltd. Calcutta,1951).
K.Satchidananda Murthy (Ed.): Reading in Indian History, Politics and Philosophy, Part – C "The Culture of India" (AlliedPublishers, Bombay 1967)
-do- :The Indian Spirit, PP.185 – 217 (Andhra University Press, Waltair, 1965.)

Reference Books:

Theodore de Barry (Ed.) : Sources of Indian Tradition (Motilal Banarasi Das, Varanasi)

Nirmal Kumar Bose : Culture and Society in India (Manimala, Calcutta, 1967)
B.S.Sanyal : Culture:An Introduction (Macmillan, Madras, 1927)
S.Radhakrishnan : Hindu View of Life, (Asia Publishing House, Bombay,1962)
S.Radhakrishnan : Idealistic View of Life, (Allen & Unwin, London, 1964)
Sri Aurobindo : Foundations of Indian Culture, (Sri Aurobindo Library, New York, 1953)

B.A. : Maths, Economics, Statistics

Paper title: DEVELOPMENT ECONOMICS AND ISSUES IN INDIAN ECONOMY

Paper number Group Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

Paper – II : DEVELOPMENT ECONOMICS AND ISSUES IN INDIAN ECONOMY

1. Concepts: Development and underdevelopment – Factors conductive and hindrance to development Measurement with reference to per capital income, physical quality of life Index, Human Development. Index and Net Economic welfare.
2. Approaches to Development: Balanced and Unbalanced growth – Import substitution and exported growth – Investment criteria – Sen's choice of techniques.
3. Structure of Indian Economy: Structural changes in India economy since independence – Trends in the composition of national – income distribution – Poverty and inequalities – A critical appraisal.
4. Human Resources: Population – Changes in occupational structure – Age, genders, rural and urban – Literacy, Education, Health and National Policies – Unemployment.
5. Planning and State Intervention: A brief review of achievements of earlier lans – current five year plan, its objectives and allocation – Current fiscal policy – On overview of public distribution system.
6. Agriculture and Rural Development: A brief review of land reforms – Impact of New agricultural strategy – Agricultural Finance – Marketing and Agricultural price policy – Rural Development Programmes with reference to IRDP, Rozgar Yojanas and their impact on women and weaker sections.
7. Industry and Trade: Structure and problems of industry including public sector – roel of small scale industries and sickness among them – Household Industries: Hand – looms. Dairy and Poultry – Source of Industrial Finance an outline of institutional finance and role of IDBI and IFCI – New Industrial policy – Trade policy – Balance of payments – Role of IMF and IBRD in Indian economic development –State policy – CATT.

Books for Reference and Study:

1. G.M. Meri : Leading issues in Economic Development
2. A.K. Sen : Choice of Techniques, Bodil Blockwell
3. Gatak S. : Development Economics, Longmen.
4. Agarwal, A.N. : Indian Economy, Vikas
5. Dutt & Sundaram : Indian Economy, S. Chand & Co.,
6. Gahosh A. : Indian Economy, World Press
7. Hicks J.R.M. Mukherjee and S.Ghosh :The Frame work of the Indian Economy, Oxford.
8. Misra S.K. and V.K. Puri : Indian Economy, Himalaya
9. Wadha, C.D. : Some problems of Indian Economy, Tata – MC Graw Hill.
10. Srivastava : Advanced Economics of Development and Planning alliod Publishers.
11. Ghosh A and SK : Planning Techniques and Indian Plans
12. S. Chandrasekhar and Ranigopal : Population growth, Health and Nutrition.
13. Meri and Baldwin : Economic Development
14. Telugu Akdemi Publications

B.A. : Maths, Economics, Statistics

Paper title: SOLID GEOMETRY AND REAL ANALYSIS

Paper number Group Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A./B.Sc. MATHEMATICS SECOND YEAR
Paper - II Solid Geometry and Real Analysis
SYLLABUS
SOILD GEOMETRY
UNIT - I
The Plane
Every equation of the first degree in x, y, z represents a plane
Converse of the preceeding theoremB.A./B.Sc. MATHEMATICS, PRACTICAL SYLLABUS
Paper - II : SOLID GEOMETRY AND REAL ANALYSIS

Bisectors of angles between two planes
The length and equations of the line of shortest distance between two straight lines
Sphere through a given circle
Angle of intersection of two spheres
Condition that the general equation of the second degree should represent a cone
Reciprocal cones
Right circular cone
The right circular cylinder
Sequences and Their Limits
Series
Limits of Functions
Continuous Functions
The Mean value Theorem
L'Hospital Rules
Riemann Sums

Transformation to the normal form
Determination of a plane under given conditions
(i) Equation of a plane in terms of its intercepts on the axes
(ii) Equations of the plane through three given points
Systems of planes
Two sides of a plane
Length of the perpendicular from a given point to a given plane
Bisectors of angles between two planes
Joint equation of two planes
Orthogonal Project of the Plane
Volume of a tetrahedron in terms of the co-ordinates of its vertices
Equations of a line
Right line
Equations of a line
Angle between a line and a plane
The condition that a given line may lie in 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 shortest distance between two straight lines.
Length of the perpendicular from a given point to a given line
Intersection of three planes Triangular prism.
The Sphere
Definition and equation of the sphereEquation 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 plane.
Angle of intersection of two spheres. Conditions for two spheres to be orthogonal
Radical plane. Coaxial system of spheres
Simplified form of the equation of two spheres.
UNIT - II
Cones, Cylinders
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 homogeneous.
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.
Intersection of two cones with a common vertex.
Right circular cone. Equation of the right circular cone with a given vertex, axis and semi - vertical angle.
Definition of a cylinder. Equation to the cylinder whose generators intersect a given conic and are parallel to a given line, Enveloping cylinder of a sphere.
The right circular cylinder. Equation of the right circular cylinder with a given axis and radius.
The Conicoid
The general equation of the second degree and the various surfaces represented by it
Shapes of some surfaces. Natutre of Ellipsoid. Nature of hyperboloid of one sheet
Enveloping Cone
Enveloping Cylinder
(Scope as in Analytical Solid Geometry by Shanti Narayan, published by S. Chand & Company Ltd.)
REAL ANALYSIS
UNIT - III
The Real Numbers The Algebraic and Order Properties of R
Absolute Value and Real Line
The completeness property of R
Applications of the Supremum property.
Intervals
(No question should be set from this part)
Sequences and Series
Sequences and Their Limits
Limit Theorems
Monotone Sequences
Subsequenes and the Bolzano - Weierstrass Theorem
The Cauchy Criterion
Properly Divergent Sequences
Series
Limits
Limits of Functions
Limit Theorems
Some Extensions of the Limit Concept
Continuous Functions
Continuous Functions
Combinations of Continuous Functions
Continuous Functions on Intervals
Uniform Continuity, Definition, Non Uniform Continuity Criteria,
Uniform Continuity Theorem.
UNIT - IV
Differentiation
The Derivative
The Mean Value Theorem
L'Hospital Rules
Taylor's Theorem
The Riemann Integral
The Riemann IntegralRiemann Integrable Functions
The Fundamental Theorem
(Scope as in Introduction to Real Analysis by Robert G. Bartle & Donald R. Sherbert, published by John Wiley & Sons, Inc.)

SUGGESTED READINGS:

1. S.L. Loney, The Elements of Coordinate Geometry, Macmillan and Company, London.
2. Gorakh Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Pvt.Ltd., Allahabad.
3. R.J.T. Bill, Elementary Treatise on Coordinate Geometry of Three Dimensions, Macmillan India Ltd., 1994.
4. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of Two Dimensions, Wiley Eastern Ltd., 1994.
5. P.K. Jain and Khalil Ahmad, A Text Book of a Analytical Geometry of Three Dimensions, Wiley Eastern Ltd., 1999.
6. N. Saran and R.S. Gupta, Analytical Geometry of Three Dimensions. Pothishala Pvt. Ltd., Allahabad.
7. R.R. Goldberg, Real Analysis, Oxford & IBH Publishing Co., New Delhi, 1970.
8. S. Lang, Undergraduate Analysis, Springer - Verlag, New York, 1983.
9. D. Somasundaram and B. Choudhary, A. First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
10. Shanti Narayan, A Course of Mathematical Analysis, S. Chand & Co., New Delhi.
11. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.

B.A./B.Sc. MATHEMATICS, PRACTICAL SYLLABUS
Paper - II : SOLID GEOMETRY AND REAL ANALYSIS

Bisectors of angles between two planes
The length and equations of the line of shortest distance between two straight lines
Sphere through a given circle
Angle of intersection of two spheres
Condition that the general equation of the second degree should represent a cone
Reciprocal cones
Right circular cone
The right circular cylinder
Sequences and Their Limits
Series
Limits of Functions
Continuous Functions
The Mean value Theorem
L'Hospital Rules
Riemann Sums

B.A. : Maths, Economics, Statistics

Paper title: Statistical Methods and Inference

Paper number Group Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A/B.Sc Statistics: Paper - II
Statistical Methods and Inference

Unit 1:
Bivariate data. Scattered Diagram. Principle of Least squares, fitting of Straight line, Quadratic, Power and Exponential curves. Product moment Correlation coefficient and its properties, Partial and Multiple Correlation coefficients (only for three variables) Spearman's Rank correlation coefficient. Simple linear regression, Correlation and Regression-comparison, Coefficient of Determination, Correlation ratio, Bivariate random variable – discrete and continuous, joint, marginal and conditional distributions, distribution function of bivariate random variable, convariance, additive and multiplication theorem of mathematical expectation, correlation coefficient and lines of regression with illustrations. (25L)

Unit 2:
Concept of Population, Parameter, Random Sample, Statistic. Sampling distribution of the sum of observations from Binomial, poisson and Normal distribution, Standard error. Exact Sampling Distributions – Statements and properties of c2, t and F distributions and inter relations.
Theory of Estimation: Point Estimate of a parameter, concept of bias and mean square error of an estimate. Criteria of good estimator-Consistency, Unbiasedness, Efficiency and Sufficiency, Statement of Neyman's Factorization theorem, derivations of Sufficient statistics in Binomial, Poisson, Normal and Exponential cases (one parameter only). Estimation by the Method of Moments and Maximum Likelihood Method. Statements of asymptotic properties of Maximum Likelihood Estimations. Concept of Interval estimation, Confidence intervals of parameters of Normal population. (20L)

Unit 3:
Statistical tests: Concepts of null hypothesis, alternative hypothesis, critical region, two types of errors, level of significance and power of a test. Neymm - Pearson lemma for testing a simple null hypothesis against a simple alternative and examples in the case of Binomial, Poisson, Exponential and Normal (for mean with known SD) distributions.
Large sample tests: Use of central limit theorem for testing and interval estimation of a single mean and a single proportion and difference of two means and two proportions. Fisher's Z-transformation and its uses. (20L)

Unit 4:
Tests of significance based on t, c2 and F distributions, c2 tests for goodness of fit, test for independence of attributes. Comparison of Parametric and Nonparametric tests, their advantages and disadvantages.
Nonparametric tests: One sample Run test. Sign test and Wilcoxon Signed Rank test for one sample and two related samples.
Tests for two independent samples: Median test, Wilcoxon Mann-Wimey U-test, Wald-Wolfowitz Runs test. (Small and Large samples). (25L)

REFERENCE BOOKS:
Fundamentals of Mathematical Statistics by Hoel, PG
Introduction to estimation by Hogg and Craig
Nonparametric Statistics for behavioral Sciences by Sidney and Siegel
Fundamentals of Mathematical Statistics by VK Kapoor and SC Gupta

LIST OF PRACTICALS – PAPER – II

1 a: Simulation of random samples from Uniform (0,1), Uniform (a,b) Exponential, Normal

and
Poisson distributions.
1 b: Simulation of random sample from Uniform (0,1), Uniform (a,b) Exponential, Normal and
Poisson distributions – using MS Excel.
2 a: Fitting of straight line and Parabola by the method of least squares.
2 b: Fitting of straight line and Parabola by the method of least squares – using MS Excel.
3 Fitting of Power curve of the type Y=aCb and Exponential curves of the type Y=abc,
by the Method of least squares.
4 a: Computation of correlation coefficient, forming regression lines for ungrouped and
grouped data.
4 b: Computation of correlation coefficient, forming regression lines for ungrouped data.
5. Computation of Multiple and Partial correlation coefficients.
6. Computation of correlation ratio.
7. Tests for proportions (large sample)
8. Test for means, variances and standard devisions (large sample)
9 a: Test for means and correlation (Single mean, difference of means, paired t, Karl
Pearson, correlation coefficient).
9 b: Test for means and correlation (Single mean, difference of means, paired t, Karl
Pearson, correlation coefficient) using MS Excel.
10 a: Tests for variances (Single variance - c2 and difference of variances – F)
10 b: Tests for variances (Single variance - c2 and difference of variances – F) using MS
Excel.
11. c2 test for goodness of fit
12 a: c2 test for independence of attributes.
12 b: c2 test for independence of attributes using MS Excel.
13. NP Tests for one-sample tests – run test, sign test and wilcoxon signed rank test.
14. NP Tests for two related samples – sign test and wilcoxon Signed rank test.
15. NP Tests for two independent samples – Median test, Whitney U test, Run test.

B.Sc Statistics Third Year

B.A. : Maths, Economics, Statistics

Paper title: INDIAN HERITAGE AND CULTURE

Paper number Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., : INDIAN HERITAGE AND CULTURE First Year Common Core Syllabus

PART: A

1. Fundamental Unity of Indian Harappan and Vedic Culture – Evolution of Caste System – Jainism and Buddhism – Gandhara Art.
2. Political unification of India under Mauryas and Guptas – Cultural achievements
3. Cultural conditions under the Satavahanas
4. Contribution of Pallavas and Cholas to Art and letters – Chola Administrative Systems
5. Influence of Islam on Indian Culture – The Sufi, Bhakthi and Vishnavite movements.
6. Cultural Achievements of Vijayanagara Rulers.
7. Contribution of Shershah and Akbar to the evolution of administration system in India – Cultural Development under Mughals.
8. Western Impact on India – Introduction of Western Education – Social and Cultural awakening and social reform movements – Raja Rama Mohan Roy – Dayananda Saraswathi – Theosophical Society – Ramakrishna Paramahamsa and Vivekananda – Iswara Chandra Vidyasagar and Veeresalingam – Emancipaition of women and struggle against Caste.
9. Rise of Indian Nationalism – Mahatma Gandhi – Non Violence and Satyagraha – Eradication of untouchability – Legacy of British rule.

Books for Consultation:

Majumdar, A.L. : Advanced History India (Macmillan, 1983)
Basham, A.L. : The wonder that was India (OUP, Madras 1983)
Basham, A.L. : Cultural heritage of India Vols.I to IV
(Published by Ramakrishna Mission, Calcutta during different years)
Luniya, B.A. : Evolution of Indian Culture
(From the earliest times to the present day)
(L.N.Agarwal, Book – sellers & Publishers, Agra 1980)
Bipan Chandra et.al.: Freedom struggle (New Delhi, 1972)

PART-B

I. a. On the nature of Culture : Meaning, Definition and various interpretations of Culture.
b. Culture and its salient features.
II. The Vedic – Upanishadic culture and society.
Human aspirations in those societies – Values – Chaturvidha Purusharthas, Chaturvarna theory Chaturasramsa theory.
III. The Culture in Artha Sastra : Kautilyan conception of the function of philosophy, State,Religion and King.
IV. Culture in Ramayana and Mahabharatha.
a. The Ideal Man and Woman
b. Concepts Maitri, Karuna, Seela, Vinaya, Kshama, Santi, Anuraga as exemplified in the stories and anecdotes of the Epics.
V. a) The Culture of Jainism: Jaina Conception of Soul, Karma and Liberation.
b) Buddhism as a humanistic culture : The four noble Truths of Budhism.
Vedanta and Indian Culture.
Religion and Ethical Practices : The Hindu View.
Text Books:

F. Max Mullar : Heritage of India, Chapter III & IV, 'Vedic Deities and Veda and Vedanta' (Susil Gupta India Ltd. Calcutta,1951).
K.Satchidananda Murthy (Ed.): Reading in Indian History, Politics and Philosophy, Part – C "The Culture of India" (AlliedPublishers, Bombay 1967)
-do- :The Indian Spirit, PP.185 – 217 (Andhra University Press, Waltair, 1965.)

Reference Books:

Theodore de Barry (Ed.) : Sources of Indian Tradition (Motilal Banarasi Das, Varanasi)

Nirmal Kumar Bose : Culture and Society in India (Manimala, Calcutta, 1967)
B.S.Sanyal : Culture:An Introduction (Macmillan, Madras, 1927)
S.Radhakrishnan : Hindu View of Life, (Asia Publishing House, Bombay,1962)
S.Radhakrishnan : Idealistic View of Life, (Allen & Unwin, London, 1964)
Sri Aurobindo : Foundations of Indian Culture, (Sri Aurobindo Library, New York, 1953)

B.A. : Maths, Economics, Statistics

Paper title: General English-II

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., B.B.M., : English second Year Common Core Syllabus
1)PROSE :

1. In London : M.K.Gandhi
2. Pecuniary independence : P.T.Barnum
3. The Drunkard (An Excerpt) : William H. Smith
4. Three Days to see : Helen Keller
5. Knowledge society : A.P.J.Abdul Kalam
6. Principles of Good Writing : L.A.Hill
7. Man's Peril : Bertrand Russell
8. Shooting an Elephant : George Orwel
9. The Day Dag Hammarskjold

Rode in my jeep : Jhan Robbins

2) Poetry:

1. London : William Blake
2. Ode to the West Wind : Percy Bysshe Shelley
3. Ode to a Nightingale : John Keats
4. Ulysses : Alfred Tennyson
5. The Last Ride Together : Robert Browning
6. Because I could not stop for Death : Emily Dickinson
7. Mending Wall : Robert Frost
8. The Gift of India : Sarojini Naidu
9. Advice to Fellow Swimmers: Kamala Das

3) Short Stories:

1. The Lottery Ticket : Anton Chekov
2. Ha'penny : Alan paton
3. Subha : Rabindranath Tagore
4. Diamond Rice : RangaRao
5. The only American From Our village : Arun Joshi
6. Luck : Mark Twain

4) LANGUAGE STUDY:

1. Phrasal Verbs and Idioms
2. Reference Skills
3. Information Transfer
4. Summarising, Note-taking
5. Essay Writing
6. Dialogue writing
7. Presentation Skills
8. Interview

B.A. : Maths, Economics, Statistics

Paper title: Hindi-II

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

II Year B.A. / B.Com / B.Sc / B.B.M., Common Core Syllabus
HINDI PAPER – II
A) LESION TO BE STUDIED
1. Kabir Das Ke dohe
2. Tualsee Das ke Dohe
3. Raheem ke Dohe
4. Bihahee Lal ke Dohe
5. Agodhya simha Upadhyar Harioudh – (Karma veer)
6. Mythilee Saran Gupta – (Kaikeyee ka Pasehattap)
7. Sohanlal Dvivadi – (Yugaratar Bapu)
8. Jaya Shankar Prasad – Hamara Pyara Bharat varsh
9. Surya Kanth tripathee nirala – (Bhikshak)
10. Rama Dharee Simha 'Dinakar' – Bhismekasara Sayya se upadesh

B) GENERAL ESSASYS TO BE STUDIED
1. Pustakalay
2. Vignan se Hani Aur labh
3. Deshatan
4. Dahij Pratha
5. Bekaree kee Samasya
6. Saha Siksh
7. Vidyarthi Aur Rajaneethi
8. Paryavaran Pradushan
9. Apna Prija kavi
10. Doora Darshan

C) CHAPTERS TO BE STUDIED FROM HISTORY OF HINDI LITERATURE
1. Kala Vibhajan
2. VeeraGatha kal Aur Chand baradayee
3. Nirguna Bhakri Aur Kbir Das
4. Krishna Bhakti Aur Sura Das
5. Rama Bhakti Aur Thulaseedas
6. Reethikal Aur Bihareelal
7. Upanyas ka Aur Premchand
8. Natak ka vikas Aur jayasankar Prasad

D) TRNSLATION
A Paragraph consists of approximately ten sentences in English to be translated into Hindi.

B.A. : Maths, Economics, Statistics

Paper title: SANSKRIT-II

Paper number Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

II Year B.A. / B.Com / B.Sc / B.B.M., Common Core Syllabus
II YEAR: SANSKRIT SYLLABUS
I. DRAMA:

1. Naganandam Act – I
2. Urubhangam of Bhasa
3. Sri Krishnasya Maittri

II. Champu:

Viswamitrasya Brahmarshitvam

III. Prose:

Bhishajo Bhaishajyam

IV. HISTORY OF LITERATURE:

1. Bharavi 2. Magha 3. Sriharsha 4. Jayadeva
5. Bana 6. Battanarayana 7. Sankaracharya 8. Panchatantram

V. ALANKARAS:
1. Upama 2. Ananvaya 3. Utpreksha
4. Deepakam 5. Aprastutha prasamsa 6. Drstantam
7. Aarthantharanyasa 8. Virodh Bhasa 9. Ullekha
10. Swabhavakti

VI. GRAMMAR:
A. Halantha Sabdas:-
1. Jalamuch 2. vach 3. Maruth 4. Bhagavath
5. Pachath 6. Rajan 7. Gunin 8. Naman
9. Vidwas 10. Manas.

SARVANAMA SABDAS -------
1. Asmad 2. Yusmad 3. Idam 4. Tad 5. Ethad 6. Yad 7. Kim

B. PRATYAYAN THANI ---
1. Ktva 2. Lyap 3. tumun 4. Kta
5. Ktavath 6. Satr 7. Sanach 8. Tavya

VII. TRAVSLATIONS:--

1. General Sentences from Sanskrit toi telugu or English.

B.A. : Maths, Economics, Statistics

Paper title: SCIENCE AND CIVILIZATION

Paper number Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A., B.Com., B.Sc., : SCIENCE AND CIVILIZATION second Year Common Core Syllabus
1. Science:

i) Observation, hypothesis, experiment, theory, proof.
ii) Great discoveries result from: the method the man.
iii) Modern Science: sophisticated equipment, term work.

2. Evolution of civilization :Paleolithic, Neolithic, Age of metals (copper – bronze, early iron); rehistoric, Historic (Ancient, medieval and modern).

3. Significant discoveries and inventions with their prime areas of impact.

i) Vaccination, Pencillin, x-rays, Antibiotics, Vitamins, Anesthesia, DDT, Detergents, Contraceptives, Radium therapy, Insulin Cortisones, Antiseptics etc.
(HEALTH)
ii) Wheel, compass, Surveying, Steam Engine Auto – mobile, Ship, Aero plane etc
(TRANSPORT)
iii) Radio, Telephone, Wireless, Camera, Teleprinter, Radar, Television, Satellites etc
(COMMUNICATIONS)
iv) Hybridisation, Green resolution, Artificial insemination, Fertilisers, Insecticides, pesticides etc (AGRICULTURE & ANIMAL HUSBANDRY)
v) Synthetic fibres, electric lamp. Paper, printing Refrigeration, Cincema etc
(SOCIAL WELL BEING)
vi) Gunpowder, Glam Metallurgy, Soutces of energy (Wood coal, oil, electricity, atomic power) Non-cconventional sources (Wind, Water, solar cells, biogas theothermal): Clock, computer.
(INDUSTRY)

4. Relations between Sceinece and Society: complementary an doccasionally adverse also Capitalism-leading to better means of communication to over exploit resources
Warfare: Development of gunpower, bomb, jeepradar, ICBM, biological killers etc.

5. Society: Goals – Welfare, freedom, security, social justice.

B.A. : Maths, Economics, Statistics

Paper title: Rural Development

Paper number Group Paper - 4
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

Paper – IV RURAL DEVELOPMENT

I Scope of Rural Development
The Concept of Rural Development alternative prospectives in Rural Development

II. Rural Demography

Demography problems of rural areas- Approaches to population control – Family Welfare Programmes – Problems of Health Nutrition and Medical care.

III Rural Unemployment

Pattern of land holdings and inequalities in land distribution- Rural unemployment concept and measurement Employment and Minimum wage legislation.

IV Rural Credit and Indebtedness:
Rural Indebtedness – Nature and magnitude of the problem-courses of rural credit-multiagency approach-cooperation Nationalized Banks – Rural Banks.

V Rural Industrialization
Importance of Rural Industrialization cottage and small scale industries-theory sector agro based Industries – problems and prospects

VI Rural Development Programmes:
Asset based and employment based Rural Development programmes – IRDP – NREP – Antipoverty programmes for weaker sections – Rural Education and Audit literacy and its importances

VII Institutions for Rural Development
Democratic decentralization – Panchayat Raj, Co-operative DRDA, ITDA, SCRBC, Corporations DIC – District Planning Boards

VIII Rural Migration:

Surplus labour in rural areas – Rural migration its impact on rural development

IX Rural Labour and Problems
Problems and intensity of unemployment of Rural Labour in different sectors with reference to artisans and other self employed categories – Diversification of economic activities and generation of employment opportunities Alternative models of Rural Development – Gandhian –

Reference Books:
1. K.P. Dutta & Sundaram : Indian Economics
2. Lipton M. Uroan Dasis : Why poor people stay poor
3. Satya Sundaram : Anti-poverty Rural Development
4. R.C. Saxena : Labour Problems and Social Welfare
5. Kuchhel : Industrial Economy of India
6. Sabtaj Azeet : Rural Development

B.A. : Maths, Economics, Statistics

Paper title: Economic Statistics

Paper number Group Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

PAPER –III OPTIONAL ECONOMIC STATISTICS

Module I: Scope of Statistics in Economics:

Definition of statistics – Role of Statistics in the measurement of economics activity

Module II: Collection of Data:

Sources of data – primary and secondary methods of collection of statistical data.

Module III: Data Analysis:

Classification and Tabulation of statistical data – frequency tables

Module IV: Diagrammatic representation :

Bar Diagrams – Pie diagram – Histogram, Frequency polygon frequency curves, ogins and

Module VI: Measures of Dispersion:

Rough, Quartile deviation, mean deviation and Standard deviation – Merits and Demerits – Coefficient of variation – skewness and Kurthosis – Simple correlation and Regression.

Module VII: Index Numbers

Construction of Index Numbers – Laspayer's passches's and Fisher's ideal index number – cost of living index number

Module VIII: Time Series:

Time Series – Components – Methods of calculation of trend.

Module IX: Indian Official statistics & Organization structure

a. National Income statistics
b. Population Statistics (1961 onwards)
c. Agriculture Statistics
d. Statistics of Industrial production
e. Price Statistics
f. C.SO. N.S.S. and ISI.

B.A. : Maths, Economics, Statistics

Paper title: Public Economics

Paper number Group Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

PAPER – III OPTIONAL PUBLIC ECONOMICS

Module 1: Role of Government:

Principle of Maximum social advantage – changing perspective about role of Government – Public Vs. Private Sector-Budget as a means of operationalising the planning process.

Module 2: Public Revenue – Taxation:

Revenue sources and classification-Direct and Indirect Theory of incidence of Taxation, Economic efforts of taxation proportional & progressive taxes.

Module 3: Public Expenditure:

Social and economic objectives and effects-theories of Public expenditure – Wagner's law and Peacock – Wisemen Hypothesis.

Module 4: Public Dept:

Internal and External Dept – Economic and Social effects – methods of redemption.

Module 5: Public Enterprises:

Problems of organization and management – Pricing policies

Module 6: Indian Public Finance

Budget-components of Budget and its role.

Structure and growth of tax system –personal income and corporate income taxation – Modified value – Added Tax – Trends in the Non-tax revenue in India Generation of Indian public expenditure-problems Indian Public Dept. – Import of External dept. on Indian Economy.

Current fiscal policy in India Centre State Relations with special reference to current finance commission – Public enterprises In India.

Books Recommended:
R.A. Musgrave : Public Finance
Palton : Public Finance
R.N. Bhargav : Indian Public Economy
Andley & Sundaram : Public Economy
U.K. Hicks : Public Finance
J.M. Buchanan : The Public Finance
R. Chellaiah : Fiscal Policy in under developed countries

B.A. : Maths, Economics, Statistics

Paper title: Rings and Linear Algebra

Paper number Group Paper - 3
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

SYLLABUS FOR ELECTIVE PAPER IV MODERN APPLIED ALGEBRA FOR
III YEAR B.A./B.Sc., STUDENTS

UNIT 1 & 2 : SETS AND FUNCTIONS
Sets and subsets - Boolean algebra - Functions - Inverse - Functions on S to S - Sums, Products and powers - Peano axioms - Finite induction.
(Sections 1 to 8 of the chapter - 1 of [1]).
UNIT - 3 & 4 : BINARY RELATIONS AND GRAPHS
Relation Matrices - Algebra of relations, Partial orderings - Equivalence relations and Partitions - Modular numbers ; Morphisms - Cyclic unary algebras - Directed graphs.
(Sections 1 to 8 of the chapter - 2 of [1]).
UNIT- 5 & 6 : FINITE STATE MECHINES
Binary devices and states - Finite state machines - Covering and Equivalence - Equivalent states - Minimization procedure - Incompletely specified machines.
(Sections 1 to 6 and 8 of the chapter - 3 of [1]).
UNIT - 7 & 8 : PROGRAMMING LANGUAGES
Arithmetic expressions - Identifiers; Assignment statements - Arrays - For statements - Block structures in ALGOL - The Algol grammar
(Sections 1 to 7 of chapter - 4 of [1]).
UNIT - 9 & 10 : BOOLEAN ALGEBRAS
Order - Boolean polynomials - Block diagrams for gating networks - Connections with logic.
(Sections 1 to 5 of chapter - 5 of [1]).
THE BOOK FOR REFERENCE
[1] G. Birkhoff and T.C. Bartee “Modern Applied Algebra”
Mc. Graw - Hill Book Company, New York, 1970.
ACHARYA NAGARJUNA UNIVERSITY

B.A. : Maths, Economics, Statistics

Paper title: NUMERICAL ANALYSIS AND SPECIAL FUNCTIONS

Paper number Group Paper - 4
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A./B.Sc. MATHEMATICS SYLLABUS
Paper - IV
(NUMERICAL ANALYSIS AND SPECIAL FUNCTIONS)

UNIT - I
Finite differences - operators E and problem of interpolation - problem of subtabulation - Newton's Forward interpolation formula - Newton - Gregory backward interpolation formula - Error in the interpolation formula.
UNIT - II
Interpolation with unequal intervals - Divided differences - Newton's general divided differences formula - Lagrange's interpolation formula - inverse interpolation.
UNIT - III
Central differences- Notation - The Gauss and Stirling formula - The Bessels formula - The Everett formula.
UNIT - IV
Inverse interpolation and solution of equations - The problem of inverse interpolation - The solution of equations - Graphic solution - Roots by inverse interpolation - Iteration method - The regular falsi Newton's method.
UNIT - V
Numerical integration - The trapezoidal rule - The Simpson's 1/3 and 3/8th rules - Weddle's rule.
UNIT - VI
The Beta and Gamma functions - Definitions - Relation between Beta and Gamma functions - Gamma functions for negative values - problems.
UNIT - VII
Legendre polynomial - Differential equation - Solution as polynomials - Rodrigue's formula - Generating function - Recurrence relations - Orthogonality.
UNIT - VIII
Hermite diff. equation - solution - Hermite Polynomials - Rodrigue's formula - Generating function Recurrence relations - Orthogonality.
UNIT - IX
Laguare diff. equation - solution - Laguare Polynomials - Rodrigue's formula - Generating function - Recurrence relations - Orthogonality.
UNIT - X
Bessel's diff. equation - Solution - Bessel's functions - Generating function - Properties - Recurrence relations - Problems.

B.A. : Maths, Economics, Statistics

Paper title: Statistical Methods and Inference

Paper number Group Paper - 2
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A/B.Sc Statistics: Paper - II
Statistical Methods and Inference

Unit 1:
Bivariate data. Scattered Diagram. Principle of Least squares, fitting of Straight line, Quadratic, Power and Exponential curves. Product moment Correlation coefficient and its properties, Partial and Multiple Correlation coefficients (only for three variables) Spearman's Rank correlation coefficient. Simple linear regression, Correlation and Regression-comparison, Coefficient of Determination, Correlation ratio, Bivariate random variable – discrete and continuous, joint, marginal and conditional distributions, distribution function of bivariate random variable, convariance, additive and multiplication theorem of mathematical expectation, correlation coefficient and lines of regression with illustrations. (25L)

Unit 2:
Concept of Population, Parameter, Random Sample, Statistic. Sampling distribution of the sum of observations from Binomial, poisson and Normal distribution, Standard error. Exact Sampling Distributions – Statements and properties of c2, t and F distributions and inter relations.
Theory of Estimation: Point Estimate of a parameter, concept of bias and mean square error of an estimate. Criteria of good estimator-Consistency, Unbiasedness, Efficiency and Sufficiency, Statement of Neyman's Factorization theorem, derivations of Sufficient statistics in Binomial, Poisson, Normal and Exponential cases (one parameter only). Estimation by the Method of Moments and Maximum Likelihood Method. Statements of asymptotic properties of Maximum Likelihood Estimations. Concept of Interval estimation, Confidence intervals of parameters of Normal population. (20L)

Unit 3:
Statistical tests: Concepts of null hypothesis, alternative hypothesis, critical region, two types of errors, level of significance and power of a test. Neymm - Pearson lemma for testing a simple null hypothesis against a simple alternative and examples in the case of Binomial, Poisson, Exponential and Normal (for mean with known SD) distributions.
Large sample tests: Use of central limit theorem for testing and interval estimation of a single mean and a single proportion and difference of two means and two proportions. Fisher's Z-transformation and its uses. (20L)

Unit 4:
Tests of significance based on t, c2 and F distributions, c2 tests for goodness of fit, test for independence of attributes. Comparison of Parametric and Nonparametric tests, their advantages and disadvantages.
Nonparametric tests: One sample Run test. Sign test and Wilcoxon Signed Rank test for one sample and two related samples.
Tests for two independent samples: Median test, Wilcoxon Mann-Wimey U-test, Wald-Wolfowitz Runs test. (Small and Large samples). (25L)

REFERENCE BOOKS:
Fundamentals of Mathematical Statistics by Hoel, PG
Introduction to estimation by Hogg and Craig
Nonparametric Statistics for behavioral Sciences by Sidney and Siegel
Fundamentals of Mathematical Statistics by VK Kapoor and SC Gupta

LIST OF PRACTICALS – PAPER – II

1 a: Simulation of random samples from Uniform (0,1), Uniform (a,b) Exponential, Normal

and
Poisson distributions.
1 b: Simulation of random sample from Uniform (0,1), Uniform (a,b) Exponential, Normal and
Poisson distributions – using MS Excel.
2 a: Fitting of straight line and Parabola by the method of least squares.
2 b: Fitting of straight line and Parabola by the method of least squares – using MS Excel.
3 Fitting of Power curve of the type Y=aCb and Exponential curves of the type Y=abc,
by the Method of least squares.
4 a: Computation of correlation coefficient, forming regression lines for ungrouped and
grouped data.
4 b: Computation of correlation coefficient, forming regression lines for ungrouped data.
5. Computation of Multiple and Partial correlation coefficients.
6. Computation of correlation ratio.
7. Tests for proportions (large sample)
8. Test for means, variances and standard devisions (large sample)
9 a: Test for means and correlation (Single mean, difference of means, paired t, Karl
Pearson, correlation coefficient).
9 b: Test for means and correlation (Single mean, difference of means, paired t, Karl
Pearson, correlation coefficient) using MS Excel.
10 a: Tests for variances (Single variance - c2 and difference of variances – F)
10 b: Tests for variances (Single variance - c2 and difference of variances – F) using MS
Excel.
11. c2 test for goodness of fit
12 a: c2 test for independence of attributes.
12 b: c2 test for independence of attributes using MS Excel.
13. NP Tests for one-sample tests – run test, sign test and wilcoxon signed rank test.
14. NP Tests for two related samples – sign test and wilcoxon Signed rank test.
15. NP Tests for two independent samples – Median test, Whitney U test, Run test.

B.Sc Statistics Third Year

B.A. : Maths, Economics, Statistics

Paper title: Operations Research, Computer Programming and Numerical Analysis

Paper number Group Paper - 4
Maximum marks

Model Question Papers / Past Question Papers

Syllabus details

B.A/B.Sc Statistics: Paper - IV
Operations Research, Computer Programming and Numerical Analysis

1. Aim and scope of operations Research problems, Introduction of allocation models. Assignment Transportation and sequencing problems and their solutions.

2. Formulating of Linear programming problem. Graphical Solutions, Simplex Method of solving a linear programming problems of three variables. Applications of linear programming problems.

3. Elements of Game Theory : Zero sum game, Saddle Point, Value of a Game, Pay off matrix applications and solutions of 2X2 game, 2Xn, nXz, Graphic methods without conversion to LPP)

4. Network Scheduling by PERT / CPM : Introduction, Basic concepts, Constraints in Network Construction of the Network, Time Calculation in Network, Critical Path Method (CPM), PERT, PERT Calculations, Advantages of NEtwork (PERT / CPM).

5. Finite differences, Newton's forward and backward interpolation formulae, Lagrange's interpolation formulae, inverse interpolation.

6. Numerical Differentiation, Numerical integration by Trapezoidal Simpson's and Weddle's rules

7. Numerical Solution of Linear and Non-Linear equations. Gauss Method, Gauss- Siedel Method, Newton - Raphson MEthod, Regular falsi -position method.

8. Data Handling in Excel, Graphs and Charts in Excel

REFERENCE BOOKS:

1. Operations Research by S.D.Sharma
2. Operations Research by Kantiwaroop, P.K. Gupta, Manmohan
3. Numerical Analysis by Schaums outline series
4. Numerical MEthods - Gupta and Malik (Krishna Praksan Mandir Publication)
5. Statistics made simple by K.V.S. Sarma (Prentice Hall of India Do it on your PC, Private Limited, New Delhi.