BHARATHIAR UNIVERSITY::COIMBATORE-641 046
B. Sc. MATHEMATICS DEGREE C OURSE - CBCS PATTERN
(For the students admitted from the academic year **2010-2011** and onwards)
Scheme of Examination

Part	Study Components	Course title	Ins. hrs/ week	Examinations				Credit
				Dur.hrs	CIA	Marks	Total Marks	
	Semester I							
I	Language – I		6	3	25	75	100	4
II	English – I		6	3	25	75	100	4
III	Core Paper I - Classical Algebra		4	3	25	75	100	4
III	Core Paper II-Calculus		5	3	25	75	100	4
III	Allied A : Paper I Chosen by the college		7	3	25	75	100	4
IV	Environmental Studies #		2	3	-	50	50	2
	Semester II							
I	Language – II		6	3	25	75	100	4
II	English – II		6	3	25	75	100	4
III	Core Paper III Analytical Geometry		4	3	25	75	100	4
III	Core Paper IV- Trigonometry, Vector Calculus and Fourier Series		5	3	25	75	100	4
III	Allied A: Paper II Chosen by the college		7	3	25	75	100	4
IV	Value Education – Human Rights #		2	3	-	50	50	2
	Semester III							
I	Language – III		6	3	25	75	100	4
II	English – III		6	3	25	75	100	4
III	Core Paper V- Differential Equations and Laplace Transforms		3	3	25	75	100	4
III	Core Paper VI- Statics		3	3	25	75	100	4
III	Allied B - Paper III Chosen by the college		7	3	20	55	75	3
IV	Skill based Subject - Operations Research -I		3	3	20	55	75	3
IV	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights#		2	3	50		50	2

	Semester IV						
I	Language – IV	6	3	25	75	100	4
II	English – IV	6	3	25	75	100	4
III	Core Paper VII-Dynamics	3	3	25	75	100	4
III	Core Paper VIII- Programming in C	3	3	**	**	100**	4
III	Allied B : Paper II – Chosen by the college	5	3	20	55	75	3
III	Practical - (Allied)	2	3	20	30	50	2
IV	Skill based Subject - Operations Research – Paper II	3	3	20	55	75	3
IV	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	3	50		50	2
	Semester V						
III	Core Paper IX-Real Analysis-I	5	3	25	75	100	4
III	Core Paper X- Complex Analysis-I	6	3	25	75	100	4
III	Core Paper XI- Modern Algebra-I	6	3	25	75	100	4
III	Core Paper XII- Discrete Maths	5	3	25	75	100	4
III	Elective I	5	3	20	55	75	3
IV	Skill based Subject - Operations Research Paper III	3	3	20	55	75	3
	Semester VI						
III	Core Paper XIII Real Analysis-II	5	3	25	75	100	4
III	Core Paper XIV Complex Analysis-II	6	3	25	75	100	4
III	Core Paper XV Modern Algebra-II	6	3	25	75	100	4
III	Elective II	5	3	20	55	75	3
III	Elective III	5	3	25	75	100**	4
IV	Skill Based Subject - Operations Research - Project	-	-	-	-	75*	3
V	Extension Activities @	-		50	-	50	2
	Total					3500	140

**** All Computer papers have theory and practical exams.**	**Theory**			20	55	100	
	Practical			10	15		

* Project report - 80 marks; Viva-voce – 20 marks

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.

Allied subjects : 1.Physics, 2.Chemistry, 3.Accountancy & 4.Statistics.

List of Elective papers (Colleges can choose any one of the paper as electives)		
Elective – I	**A**	Astronomy- I
	B	Numerical Methods-I
Elective – II	**A**	Astronomy- II
	B	Numerical Methods-II
Elective - III	**A**	Graph Theory
	B	Automata Theory & Formal Languages
	C	Programmin in C++ **

SEMESTER – I

Annexure No. 10A
SCAA- Dt. 10.06.2016

BHARATHIYAR UNIVERSITY, COIMBATORE – 641046

UNDER GRADUATE DEGREE PROGRAMMES (CBCS SEMESTER PATTERN)

(For the students admitted during the academic year 2016 – 2017 and onwards)

பாடத்திட்டம் - முதற்பருவம் - பகுதி -1. தாள் 1

(2016 - 17 ஆம் கல்வியாண்டில் சேர்வோர்க்குரியது (செய்யுள் . சிறுகதை , இலக்கிய வரலாறு, இலக்கணம் , மொழிபெயர்ப்பு)

அலகு 1

1. பாரதியார் - தமிழ்த்தாய், தமிழ்
2. பாரதிதாசன் - அழகின் சிரிப்பு
3. நாமக்கல் கவிஞர் - தமிழ்வழி அரசு
4. ஆரூர் தமிழ்நாடன் - கரிக்கிறது தாய்ப்பால்
5. கவிமணி தேசிக விநாயகம் பிள்ளை - ஒற்றுமை , இலக்கிய மும்மணி

அலகு 2 **சமூகம்**

6. நவீன தாலாட்டு	-	வைரமுத்து
7. சாவிலா வீட்டில்	-	கண்ணதாசன்
8. சருகுகள் சலசலக்கின்றன ஒரு கல்லின் கதை	-	வெ.இறையன்பு
9. மு. மேத்தா கவிதைகள்	-	மு.மேத்தா
10. ரிஷி கவிதைகள்	-	முடிந்தது , இங்கே, படைப்பு, மதி, தாகம்

அலகு -3 **சிறுகதைத் தொகுப்பு**

அறிவுப் பதிப்பகம், இராயப்பேட்டை, சென்னை.

அலகு - 4 **இலக்கிய வரலாறு** - (பாடத்திட்டத்தைத் தழுவியது)

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. படிமம் , குறியீடு - பற்றிய விளக்கங்கள்
4. இலக்கணம்

   1. மொழித்திறன், சொற்பொருள் வேறுபாடு, ர,ற, ல.ள.ழ. ந.ண.ன, வேறுபடுத்தி அறியும் முறை

   2. தொடரில் வழுஉச் சொற்களை நீக்கி எழுதுதல்

   3. உண்டு , உள, உளது, அன்று, அல்ல, அல்லன், அல்லர், பயன்பாடு, ஒரு, ஓர் - பயன்பாடு

   4. ஒருமை - பன்மை - தொடரில் அமையும் விதம்

அலகு - 5 மொழி பெயர்ப்பு , பொதுப்பகுதி, அலுவலகப்பகுதி - ஆங்கிலத்தில் இருந்து தமிழில் மொழிபெயர்த்தல்.

குறிப்பு: முதற் பருவம் தாள் 1 – அலகு -3 **சிறுகதைத் தொகுப்பு** மாற்றம் செய்யப்பட்டுள்ளது .

ஏனைய பகுதிகளில் மாற்றம் இல்லை .

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
Part I – Hindi Language
For Under-graduate Degree Programmes
(For the Students admitted during 2016-2017 onwards)

FIRST SEMESTER – Paper I
(Prose, Non-detailed , Grammar & Translation)

1. PROSE : NUTHAN GADYA SANGRAH
   Editor: Jayaprakash
   (Prescribed Lessons – only 6)
   Lesson 1 – Bharthiya Sanskurthi
   Lesson 3 - Razia
   Lesson 4 – Makreal
   Lesson 5- Bahtha Pani Nirmala
   Lesson 6 – Rashtrapitha Mahathma Gandhi
   Lesson 9 – Ninda Ras.

   Publisher: Sumitra Prakashan
   Sumitravas, 16/4 Hastings Road,
   Allahabad – 211 001.

2. NON DETAILED TEXT: KAHANI KUNJ.
   Editor: Dr.V.P.Amithab.
   (Stories 1 -6 only)
   Publisher : Govind Prakashan
   Sadhar Bagaar, Mathura,
   Uttar Pradesh – 281 001.

3. GRAMMAR : SHABDHA VICHAR ONLY
   (NOUN,PRONOUN, ADJECTIVE, VERB, TENSE,CASE ENDINGS)
   Theoretical & Applied.
   Book for reference : Vyakaran Pradeep by Ramdev.
   Publisher : Hindi Bhavan,
   36,Tagore Town
   Allahabad – 211 002.

4. TRANSLATION: English- Hindi only.
   ANUVADH ABHYAS – III
   (1-15 lessons Only)
   Publisher: DAKSHIN BHARATH HINDI PRACHAR SABHA
   CHENNAI -17.

5. COMPREHENSION : 1 Passage from ANUVADH ABHYAS – III (16- 30)
   DAKSHIN BHARATH HINDI PRACHAR SABHA
   CHENNAI- 17.

BHARATHIAR UNIVERSITY, COIMBATORE

PART-I, PAPER-I, FRENCH
(COMMON FOR ALL U.G. COURSES)
SYLLABUS - UNDER CBCS – AFFILIATED COLLEGES
[with effect from 2014-2015]

SEMESTER- I

PAPER I

Prescribed text	: **ALORS I**
Units	: 1 – 5
Authors	: Marcella Di Giura Jean-Claude Beacco
Available at	: Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.
Tel	: 011 – 23852986 / 9650597000

Bharathiar University – Coimbatore

Part II English-Semester I

(For the students admitted from the academic year 2016-17 and onwards)

Prescribed Text: AROMA
Board of Editors
Publishers: New Century Book House(p)Ltd.,
41B,SIDCO Industrial Estate
Chennai-98.

Unit I:-Poetry

1.Where the mind is without Fear-Rabindranath Tagore
2. The Road not Taken-Robert Frost
3. The Village Schoolmaster-Oliver Goldsmith

Unit II: Prose

1. Spoken English and Broken English-G.B.Shaw
2. How to Avoid Foolish Opinion Bertrand Russell
3. At School –M.K. Gandhi

Unit III: Short Stories

1.Lalajee-Jim Corbett
2.A Hero-R.K.Narayan
3. A Day's Wait-Hemingway

Unit IV: One Act Plays

1.Refund-Fritz Karinthy
2. The Never Never Nest-Cedric Mounte

Unit V: Grammar and Composition

1. Parts of Speech
Noun
Pronoun
Adjective
Verb
Adverb
Preposition
2. Reading Comprehension(a Passage with 5 questions)

Question Paper Pattern: Existing Pattern is to be followed.

Annexure No.	**20 G**
SCAA Dated	**29.02.2008**

BHARATHIAR UNIVERSITY, COIMBATORE
(For the students admitted from 2008 – 2009 onwards)
ALLIED PAPER-I
(For B.Sc Mathematics /Mathematics (C.A))

Subject title: Statistics for Mathematics-I

Course number: **Number of credit hours**:**7(SEVEN)**
Subject description: This course introduces Statistical concepts and mathematical analysis.
Goal: To enable the students to understand mathematical aspects of statistics
Objective: on successful completion of the paper the students should have understood the concepts of probability, random variable, various discrete and continuous probability distributions and the concepts of correlation and regression.

UNIT-I

Random variables- discrete and continuous random variables –distribution function-properties- probability mass function, probability density function-mathematical expectation – addition and multiplication theorems on expectations

UNIT II

Moment generating and cumulating generating & characteristic functions and their properties.
Joint probability distributions-marginal and conditional probability distributions-independence of random variables-transformation of variables (one & two dimensional only).Tchebychev's inequality, weak law of large numbers and central limit theorem

UNIT III

Probability distributions: Binomial, Poisson and Normal distributions and their properties and fitting of distributions. Chi-square, t and F Statistics, their probability functions and their properties.

UNIT IV
Curve fitting and principle of least squares: fitting of curves of straight line, second degree parabola, power curve and exponential curves-correlation and regression analysis.

UNIT-IV

Simple problems related to the above units.

Books recommended for study:

1. Fundamentals of Mathematical statistics by Guptha, S.C &Kapoor, V.K
2. Introduction to Statistical methods by Guptha ,C.B and Vijay Guptha (1988)

BHARATHIAR UNIVERSITY, COIMBATORE.
B.Sc. Mathematics
(revised papers with effect from 2014-15 onwards)

Note: The revised syllabi for the following papers furnished below be followed and there is no change in the existing scheme of examination and syllabi of remaining papers.

Semester: I - Core Paper- I
Subject title: Classical Algebra
Credit hours-4

Subject description: This course focuses on the convergence and divergence of different types of series, also discusses the standard methods of solving both polynomial and transcendental type equations.
Goal: To enable the students to learn about the convergence and divergence of the series and to find the roots for the different types of the equation.
Objectives: On successful completion of this course the students should gain knowledge about the convergence of series and solving equations.

UNIT I:

Binomial & exponential theorems (statements only) - their immediate application to summation and approximation only.

UNIT II:

Logarithmic series theorem-statement and proof-immediate application to summation and approximation only. Convergency and divergency of series –definitions, elementary results-comparison tests-De Alemberts and Cauchy's tests.

UNIT III:

Absolute convergence-series of positive terms-Cauchy's condensation test-Raabe's test.

UNIT: IV

Theory of equations: Roots of an equation- Relations connecting the roots and coefficients- transformations of equations-character and position of roots-Descarte's rule of signs-symmetric function of roots-Reciprocal equations.

UNIT V:

Multiple roots-Rolle's theorem - position of real roots of f(x) =0 - Newton's method of approximation to a root - Horner's method.

Treatment as in

Algebra-T.K .Manicavachasam Pillai, T.Natarajan, K-S Canapathy.
S. Viswanatham (Printers & Publishers Private Ltd-2006)

Reference:

1. Mathematics for B.Sc. Branch I -Vol. I- P. Kandasamy and K. Thilagavathy
(For B.Sc-I semester) S. Chand and Company Ltd, New Delhi, 2004.
2. Algebra. -- N.P.Bali- Laxmi publications

Core Paper- II
Subject title: CALCULUS
C**redit hours-5**

Subject description:

This course presents the idea of curvatures, integration of different types of functions, its geometrical applications, double, triple integrals and improper integrals.

Goal:

To enable the students to learn and gain knowledge about curvatures, integrations and its geometrical applications.

Objectives:

On successful completion of course the students should have gain about the evolutes and envelopes, different types of integrations, its geometrical application, proper and improper integration.

UNIT I:

Curvature-radius of curvature in Cartesian and polar forms-evolutes and envelopes-pedal equations- total differentiation- Euler's theorem on homogeneous functions.

UNIT II:

Integration of $f'(x)/f(x)$, $f'(x)\sqrt{f(x)}$,$(px+q)/\sqrt{(ax^2+bx+c)}$], [$\sqrt{(x-a)/(b-x)}$], [$\sqrt{(x-a)(b-x)}$,1/[$\sqrt{(x-a)(b-x)}$,1/(acosx+bsinx+c), $1/(a\cos^2 x+b\sin^2 x+c)$,Integration by parts

UNIT III:

Reduction formulae- problems- evaluation of double and triple integrals- applications to calculations of areas and volumes-areas in polar coordinates.

UNIT IV:

Change of order of integration in double integral- Jacobions.- change of variables in double and triple integrals.

UNITV:

Beta and Gamma integrals-their properties, relation between them- evaluation of multiple integrals using Beta and Gamma functions.

Treatment as in

1. Calculus vol 1 and vol 2"-- S. Narayanan and T.K.M. Pillai. Viswanathan Publishers

Reference:

1. Mathematics for BSc – Vol I and. II - P. Kandasamy & K.Thilagarathy S.Chand and Co-2004
2. A Text book of calculus- Shanthi Narayanan & J.N.Kapoor, S.Chand & Co.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
For Under-graduate Degree Programmes
FIRST SEMESTER – Paper IV
ENVIRONMENTAL STUDIES

SYLLABUS

Unit 1 : Multidisciplinary nature of environmental studies
Definition, scope and importance

Unit 2 : Natural Resources :
Renewable and non-renewable resources :
Natural resources and associated problems.
a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
• Role of an individual in conservation of natural resources.
• Equitable use of resoureces for sustainable lifestyles.
(8 lectures)

Unit 3 : Ecosystems
• Concept of an ecosystem.

Structure and function of an ecosystem.
• Producers, consumers and decomposers.
• Energy flow in the ecosystem.
• Ecological succession.
• Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following ecosystem :-
a. Forest ecosystem
b. Grassland ecosystem
c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
(6 lectures)

Unit 4 : Biodiversity and its conservation

• Introduction – Definition : genetic, species and ecosystem diversity.
• Biogeographical classification of India
• Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
• Biodiversity at global, National and local levels.
• Inida as a mega-diversity nation

Hot-sports of biodiversity.
• Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.
(8 lectures)

Unit 5 : Environmental Pollution

Definition
• Cause, effects and control measures of :-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
• Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
• Role of an individual in prevention of pollution.
• Pollution case studies.
• Diaster management : floods, earthquake, cyclone and landslides.
(8 lectures)

Unit 6 : Social Issues and the Environment

• From Unsustainable to Sustainable development
• Urban problems related to energy
• Water conservation, rain water harvesting, watershed management
• Resettlement and rahabilitation of people; its problems and concerns. Case Studies
• Environmental ethics : Issues and possible solutions.
• Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
• Wasteland reclamation.
• Consumerism and waste products.
• Environment Protection Act.
• Air (Prevention and Control of Pollution) Act.
• Water (Prevention and control of Pollution) Act
• Wildlife Protection Act
• Forest Conservation Act
• Issues involved in enforcement of environmental legislation.

• Public awareness.
(7 lectures)

Unit 7 : Human Population and the Environment

• Population growth, variation among nations.
• Population explosion – Family Welfare Programme.

Environment and human health.
• Human Rights.
• Value Education.
• HIV/AIDS.
• Women and Child Welfare.
• Role of Information Technology in Environment and human health.
• Case Studies.
(6 lectures)

Unit 8 : Field work

• Visit to a local area to document environmental assetsriver/ forest/grassland/hill/mountain
• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
• Study of common plants, insects, birds.
• Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours)

SEMESTER – II

BHARATHIYAR UNIVERSITY, COIMBATORE – 641046

UNDER GRADUATE DEGREE PROGRAMMES (CBCS SEMESTER PATTERN)

(For the students admitted during the academic year 2015 – 2016 and onwards)

இரண்டாம் பருவம்

பாடத்திட்டம் - பகுதி -1. தாள் -2.

(செய்யுள் , உரைநடை, இலக்கிய வரலாறு, விண்ணப்பம் வரைதல்)

அலகு - 1 திருக்குறள் - (மூன்று அதிகாரங்கள்)

அ. நட்பு
ஆ. நட்பாராய்தல்
இ. கூடா நட்பு

2. மூதுரை - ஔவையார் 1-15 (15 பாடல்கள்)
3. பழமொழி நானூறு கல்வி 10 பாடல்கள்

அலகு - 2

1. நந்திக்கலம்பகம்
2. திருப்பாவை. திருவெம்பாவை
3. சித்தர்பாடல்கள்

அலகு -3 **உரைநடை**

1.	சங்கநெறிகள் - முனைவர் .	வ.சுப.மாணிக்கம்.
2.	இன்றைய சூழலில் மகளிரின் பணி-	மீனாட்சி
3.	புதிர் எதிர் காலம் -	சிற்பி பாலசுப்பிரமணியம்
4.	இணையத் தமிழ் வளர்ச்சி -	முனைவர் ப.அர.நக்கீரன்.

அலகு - 4

1. வல்லினம் மிகும் இடம் - மிகா இடம்.
2. வினா- விடை வகைகள் (அறுவகை வினா. எண்வகை விடை. தொல்காப்பியர் வழியில்).
3. ஆகுபெயர் விளக்கம் - பயன்பாடு-வகைகள் 10

அலகு- 5

இலக்கிய வரலாறு பாடத்திட்டத்தைத் தழுவியது

1. பதினெண் கீழ்க்கணக்கு நூல்கள
2. தமிழ் உரைநடையின் தோற்றமும் - வளர்ச்சியும்

பயிற்சிக்குரியன

3. விண்ணப்பங்கள் , மடல்கள், எழுதச்செய்தல்.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
Part I – Hindi Language
For Under-graduate Degree Programmes
(For the Students admitted during 2016-2017 onwards)

SECOND SEMESTER – PAPER II
(Modern Poetry, One Act Play , Translation & Letter Writing)

1. MODERN POETRY; Draupadi by Narendra Sharma

   PUBLISHERS: Rajkamal Prakashan
   1B Nethaji Subash Marg,
   New Delhi

2. ONE ACT PLAY: EKANKÏ SANKALAN – Lesson ''Strike' omitted
   By VEERENDRA KUMAR MISHRA
   PUBLISHER: VANI PRAKASHAM
   NEW DELHI – 110 002.

3. TRANSLATION: HINDI – ENGLISH ONLY,
   (ANUVADH ABYAS – III)
   Lessons.1 – 15 only

   PUBLISHER: DAKSHIN BHARATH HINDI PRACHAR SABHA
   CHENNAI – 600 017.

4. LETTER WRITING: (Leave letter, Job Application, Ordering books, Letter to Publisher, Personal letter)

5. CONVERSATION: (Doctor & Patient, Teacher & Student, Storekeeper & Buyer, Two Friends, Booking clerk & Passenger at Railway station, Autorickshaw driver and Passenger)
   Reference: Bolchal Ki Hindi Aur Sanchar by Dr. Madhu Dhavan
   Vani Prakashan, New Delhi

BHARATHIAR UNIVERSITY, COIMBATORE

PART-I, PAPER-II, FRENCH
(COMMON FOR ALL U.G. COURSES)
SYLLABUS - UNDER CBCS – AFFILIATED COLLEGES
[with effect from 2014-2015]

SEMESTER- II

PAPER II

Prescribed text	: **ALORS I**
Units	: 6 – 10
Authors	: Marcella Di Giura Jean-Claude Beacco
Available at	: Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.
Tel	: 011 – 23852986 / 9650597000

Bharathiar University – Coimbatore

Part II English-Semester II

Prescribed Text: SIZZLERS
Board of Editors
Publishers:Manimekala Publishing House
39, Norh Chitrai Street,
Madurai-625001

Unit I: Poetry

1. Stopping By Woods on a Snowy Evening-Robert Frost
2. A Prayer for my Daughter-W.B.Yeats
3.Enterprise-Nissim Ezekiel

Unit II: Prose

1.Woman, not the weaker sex- M.K.Gandhi
2. Dimensions of Creativity-Dr.A.P.J. Abdul Kalam
3.Three Days to See-Helen Keller

Unit III: Short Stories

1.An Astrologer's Day-R.K.Narayan
2. Little Girls wiser than Men-Tolstoy
3. Boy who Wanted more Cheese-William Elliot Griffir

Unit IV:Biographies

1. Martin Luther King-R.N.Roy
2. Nehru-A.J.Toynbee

Unit V: Grammar and Composition

1. Phrases and clauses
2.Types of sentences
3.Framing questions and answers
4.Dialogue Writing

Question Paper Pattern: Existing Pattern is to be followed.

ALLIED PAPER-II

(For B.Sc Mathematics /Mathematics (C.A))

Subject title: Statistics for mathematics-II

course number: **Number of credit hours**: **7 (Seven)**

Subject description: This paper introduces Applied Statistical concepts and mathematical analysis.

Goal: To enable the students to understand mathematical aspects of applied statistics

Objective: on successful completion of the paper the students should have understood the concepts of estimation ,testing ,sampling, design of experiments

UNIT-I

Concept of population, sample, statistics, parameter-point estimation-concept of point estimation - consistency, unbiased ness, efficiency- sufficiency-Neyman factorization theorem- Cramer Rao inequality -Rao-Blackwell theorem.

UNIT-II

Methods of estimation-maximum likelihood, moments, and minimum chi-square –properties-interval estimation –confidence interval-derivation of confidence intervals based normal, t, and chi-square and F.

UNIT-III:

Test of hypothesis: Type-I error and II errors-power test –Neyman-Pearson Lemma-likelihood ratio tests-concept of most powerful test (statements and results only).

Test of significance-standard error-large sample tests with respect to mean, standard deviaton, proportion, difference between means, standard deviations and proportions-exact tests based on t, chi-square and F distributions.

UNIT-IV

Sampling from finite population-simple random sampling, stratified random sampling and systematic sampling-estimation of mean, total and their standard errors. Sampling and non-sampling errors (concepts only). Analysis of variance: one way, two classifications -fundamental principles of experimentation-CRD, RBD and LSD.

UNIT-V.

Simple problems related to all the above units.

Books recommended for study:

1. Fundamentals mathematical Statistics by Guptha, S.C & Kapoor, V.K
2. Fundamentals of Applied statistics by Guptha, S.C& Kapoor, V.K

Semester: II - Core Paper- III

Subject title: Analytical Geometry **Credit hours-4**

Subject Description:

This course gives emphasis to enhance student knowledge in two dimensional and three dimensional analytical geometry. Particularly about two dimensional conic sections in polar coordinates and the geometrical aspects of three dimensional figs, viz, sphere, cone and cylinder.

Goal:

To enable the students to learn and visualize the fundamental ideas about co-ordinate geometry.

Objectives:

On successful completion of the course students should have gained knowledge above the regular geometrical figures and their properties.

UNIT I:

Analytical geometry of 2D-polar coordinates equation of a conic -directrix-chord-tangent-normal- simple problems - only in deriving equation of a conic.

UNIT II:

Analytical Geometry 3D-stright.lines-coplanarity of straight-line-shortest distance (S.D) and equation of S.D between two lines-simple problems.

UNIT III:

Sphere: standard equation of sphere-results based on the properties of a sphere-tangent plane to a sphere- equation of a circle.

UNIT IV:

Cone and cylinder: Cone whose vertex is at the origin- envelope cone of a sphere-right circular cone-equation of a cylinder-right circular cylinder.

UNIT V:

Conicoides: Nature of a conicoide- standard equation of central conicoid –enveloping cone-tangent plane-condition for tangency –director Sphere- director plane

Treatment as in

1. Analytical Geometry by P. Durai Pandian & others
2. Solid Geometry by N.P. Bali- Laxmi Publications (P) Ltd

Reference:

1. Analytical Geometry of 2D by T.K. M. Pillai and Others – Visvanathan Publications-2006
2. Solid Geometry by M.L. Khanna- Jainath & Co Publishers, Meerut

Semester II - Core Paper – IV
Subject Title: Trigonometry, Vector Calculus and Fourier Series
Credit Hours: 5

Subject Description : This course presents the circular functions, hyperbolic functions, differentiation of functions in scalar and vector field.

Goals: To enable the students to learn about the expansion of trigonometrical functions and to gain knowledge about vector treatment which will help them to deal the analytical geometry problems using vector method.

Objectives: On successful completion of this course the students should have gained knowledge about expansion of trigonometric functions, line integral, surface integral, volume integral and Fourier series.

Unit I:
Expansion in Series – Expansion of $\cos^n \theta$, $\sin^n \theta$, in a series of cosines and sines of multiples of θ – Expansions of $\cos n\theta$ and $\sin n\theta$ in powers of sines and cosines – Expansion of $\sin \theta$, $\cos \theta$ and $\tan \theta$ in powers of θ – hyperbolic functions and inverse hyperbolic functions.

Unit II:
Logarithm of complex quantities - summation of series – when angles are in arithmetic progression – C + iS method of summation – method of differences.

Unit III:
Scalar and vector fields –Differentiation of vectors – Gradient, Divergence and Curl.

Unit IV:
Integration of vectors – line integral – surface integral – Green's theorem in the plane – Gauss divergence theorem – Strokes theorem – (Statements only) - verification of the above said theorems.

Unit V:
Periodic functions – Fourier series of periodicity 2π – half range series.

Treatment as in
1. Kandasamy. P, Thilagavathi. K " Mathematics for B.Sc. Branch I", Volume I, II and IV, S.Chand and Company Ltd, New Delhi, 2004. (for Unit I).

References:
1. P. Duraipandian, Laxmiduraipandian - Vector Analysis (Revised Edition-Reprint 2005) Emerald Publishers.

2. T.K. Manichavasagam Pillai and S.Narayanan, Trigonometry - Viswanathan Publishers and Printers Pvt. Ltd.

BHARATHIAR UNIVERSITY : COIMBATORE 641 046.

Value Education – Human Rights

(2 hours per week)

(FOR THE UNDER GRADUATE STUDENTS OF AFFILIATED COLLEGES

WITH EFFECT FROM 2008-2009)

UNIT – I : Concept of Human Values, Value Education Towards Personal Development

Aim of education and value education; Evolution of value oriented education; Concept of Human values; types of values; Components of value education.

Personal Development :
Self analysis and introspection; sensitization towards gender equality, physically challenged, intellectually challenged. Respect to - age, experience, maturity, family members, neighbours, co-workers.

Character Formation Towards Positive Personality:
Truthfulness, Constructivity, Sacrifice, Sincerity, Self Control, Altruism, Tolerance, Scientific Vision.

UNIT – II : Value Education Towards National and Global Development

National and International Values:
Constitutional or national values - Democracy, socialism, secularism, equality, justice, liberty, freedom and fraternity.

Social Values - Pity and probity, self control, universal brotherhood.

Professional Values - Knowledge thirst, sincerity in profession, regularity, punctuality and faith.

Religious Values - Tolerance, wisdom, character.

Aesthetic values - Love and appreciation of literature and fine arts and respect for the same.

National Integration and international understanding.

UNIT – III : Impact of Global Development on Ethics and Values

Conflict of cross-cultural influences, mass media, cross-border education, materialistic values, professional challenges and compromise.

Modern Challenges of Adolescent Emotions and behavior; Sex and spirituality: Comparision and competition; positive and negative thoughts.

Adolescent Emotions, arrogance, anger, sexual instability, selfishness, defiance.

UNIT - IV : Theraupatic Measures

Control of the mind through

a. Simplified physical exercise
b. Meditation – Objectives, types, effect on body, mind and soul
c. Yoga – Objectives, Types, Asanas
d. Activities:
   (i) Moralisation of Desires
   (ii) Neutralisation of Anger
   (iii) Eradication of Worries
   (iv) Benefits of Blessings

UNIT; V : Human Rights

1. Concept of Human Rights – Indian and International Perspectives
   a. Evolution of Human Rights
   b. Definitions under Indian and International documents

2. Broad classification of Human Rights and Relevant Constitutional Provisions.
   a. Right to Life, Liberty and Dignity
   b. Right to Equality
   c. Right against Exploitation
   d. Cultural and Educational Rights
   e. Economic Rights
   f. Political Rights
   g. Social Rights

3. Human Rights of Women and Children
   a. Social Practice and Constitutional Safeguards
      (i) Female Foeticide and Infanticide
      (ii) Physical assault and harassment
      (iii) Domestic violence
      (iv) Conditions of Working Women

4. Institutions for Implementation
   a. Human Rights Commission
   b. Judiciary

5. Violations and Redressel
   a. Violation by State
   b. Violation by Individuals
   c. Nuclear Weapons and terrorism
   d. Safeguards.

SEMESTER – III

BHARATHIYAR UNIVERSITY, COIMBATORE – 641046

UNDER GRADUATE DEGREE PROGRAMMES (CBCS SEMESTER PATTERN)

(For the students admitted during the academic year 2015 – 2016 and onwards)

மூன்றாம் பருவம் - பகுதி - 1
தமிழ்த்தாள் - 3
(பாடப்பகுதி செய்யுள், புதினம், இலக்கணம், இலக்கிய வரலாறு, பயிற்சிக் கட்டுரை)

பொருளடக்கம்

அலகு - 1.சிலப்பதிகாரம் - புறஞ்சேரி இருத்த காதை
2.மணிமேகலை - மணிபல்லவத்துத் துயருற்ற காதை
3.சீவக சிந்தாமணி -சுரமஞ்சரியார் இலம்பகம் - 1996 முதல் 2047 முடிய உள்ளபாடல்கள்.

அலகு -2. 1. கம்பராமாயணம் - கைகேயி சூழ்வினைப்படலம்- முதல் 205- 244 வரை உள்ள பாடல்கள்
2.இரட்சணிய யாத்திரிகம் - குமார பருவம் - சிலுவையைச் சுமத்திக்கொண்டு போதல்

நடைமுறை சமூகச் சிந்தனை

அலகு -3. புதினம் - 'ஓடைப்புல் ' சி.ஆர்.ரவீந்திரன்,
நியூ செஞ்சுரி புக் ஹவுஸ்,
சென்னை.

அலகு - 4. அணியிலக்கணம் (பாடப்பகுதியை ஒட்டியவை)
1. நிலைமண்டில ஆசிரியப்பா, அறுசீர் கழிநெடிலடி ஆசிரிய விருத்தம், கலி விருத்தம்
2. உவமையணி, பண்பு உவமை, தொழிலுவமை, பயனுவமை.
3. உருவக அணி - விளக்கம் மட்டும்.
4. தற்குறிப்பேற்ற அணி (2) மட்டும்.
5. இல்பொருள் உவமை அணி.

அலகு -5. இலக்கிய வரலாறு
1. ஐம்பெருங்காப்பியங்கள் - புதினத்தின் தோற்றமும் வளர்ச்சியும் - புதின வகைகள் - வரையறைகள்
2. பொதுக்கட்டுரை

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
Part I – Hindi Language
For Under-graduate Degree Programmes
(For the Students admitted during 2016-2017 onwards)

THIRD SEMESTER – PAPER III

(Poetry, History of Hindi Literature, Alankar and Translation)

1. POETRY: KAVYA LEHAR – by
   Dr.V. Baskhar
   Puplisher: Jawahar Pusthakalay
   Sadar Bazaar,
   Mathura – U.P. 281 001.
   SHORT NOTES ON POETS – All the Poets mentioned in the Text Book.

2. HISTORY OF HINDI LITERATURE:
   Only Aadi Kaal and Bhakthi Kaal. Only a general knowledge of the trends of the difference streams.

3. ALANKAR: Anupras, Yamak, Slesh, Vakrokthi Upama, Rupak, Drishtanth & Virodhabas.

4.TRANSLATION : ENGLISH - HINDI only
   ANUVADH ABHYAS – III
   (16-30 Lessons only)

REFERENCE BOOKS: HINDI SAHITHYA KA SARAL ITHIHASS
By Rajnath Sharma,
VINOD PUSTAK MANDIR,
AGRA – 282 002.

Kavya Pradeep
Rambadri Shukla,
Hindi Bhavan, 36, Tagore Town,
Allahabad – 211 002.

Anuvadh ABYAS-III
Dakshin Bharath Hindi Prachar Sabha,
Chennai – 17.

BHARATHIAR UNIVERSITY, COIMBATORE

PART-I, PAPER-III, FRENCH
(COMMON FOR ALL U.G. COURSES)
SYLLABUS - UNDER CBCS – AFFILIATED COLLEGES
[with effect from 2014-2015]

SEMESTER- III

PAPER III

Prescribed text	: **ALORS II**
Units	: 1 – 5
Authors	: Marcella Di Giura Jean-Claude Beacco
Available at	: Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.
Tel	: 011 – 23852986 / 9650597000

Bharathiar University – Coimbatore

Part II English-Semester III

(For the students admitted from the academic year 2015-16 and onwards)

Prescribed Text: The Fluent Speaker
Board of Editors
Publishers: Thamarai Publictions P.Ltd.,
41B,SIDCO Industrial Estate
Ambattur,
Chennai-98.

Unit I:Prose

1.My Lost Dollar-Stephen Leacock
2.The Fun they had-Isaac Asimov
3. A wrong man in the Worker's Paradise-Rabindranath Tagore

Unit II:Poetry

1.The Ballad of Father Gilligan-W.B.Yeats
2. Laugh and Be Merry-John Masefield
3.La belle Dame Sans Merci – John Keats

Unit III:Short Stories

1. Two Gentlemen of Verona-A.J.Cronin
2.The Nightingale and the Rose-Oscar Wilde
3.The Romance of a Busy Broker-O Henry

Unit IV:One Act Plays

1.The Trial of Billy Scott-Mazie Hall
2. Grandmother's Gold-Ella Adkins

Unit V:Grammar

1. Articles
2.Identifying Sentence Patterns
3.Tenses-(Simple present, present continuous, present perfect, present perfect continuous)
4.Transformation of Sentences(Direct to indirect, Active – Passive Voice)
5. Telephone Etiquettes(Dialogue Form)

Question Paper Pattern: Existing Pattern is to be followed.

Annexure No.	57 D
SCAA Dated	29.02.2008

BHARATHIAR UNIVERSITY :: COIMBATORE – 641 046.

ALLIED PAPER – ACCOUNTANCY – I FOR B.Sc., MATHEMATICS
(for the students admitted from the academic year 2007-2008 and onwards)

Subject Title: PRINCIPLES OF ACCOUNTANCY I

Course/Subject code: **Credit Hours: 5 (Five) per week**

Goal: To enable the students to learn principles and concepts of Accountancy.

Objective: On successful completion of this course, the student should have understood

- Concepts and conventions of Accounting.
- Basic Accounting framework

UNIT –I

Fundamentals of Book Keeping – Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

UNIT – II

Final accounts of a sole trader with adjustments – Errors and rectification

UNIT – III

Bills of exchange- Accommodation bills – Average due date – Account current.

UNIT – IV

Accounting for consignments and Joint ventures

UNIT – V

Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Note : Distribution of Marks between problems and theory shall be 80% and 20%.

REFERENCE BOOKS

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan – *Principles of Accountancy* – S.Chand & Company Ltd.,

2. T.S.Grewal – *Introduction to Accountancy*- S.Chand & Company Ltd.,

3. R.L.Gupta, V.K.Gupta, M.C.Shukla – *Financial Accounting* – Sultanchand & sons

4. T.S.Grewal, S.C.Gupta, S.P.Jain – *Advanced Accountancy*- Sultanchand & sons

5. K.L.Narang, S.N.Maheswari - *Advanced Accountancy*-Kalyani publishers

6. S.K.Maheswari, T.S.Reddy - *Advanced Accountancy*-Vikas publishers

7. A.Murthy -Financial Accounting – Margham Publishers

8. P.C.Tulsian - *Advanced Accountancy* – Tata McGraw Hill Companies.

9. A.Mukherjee, M.Hanif – *Modern Accountancy. Vol.1*- Tata McGraw Hill Companies

Semester: III - Core paper V

Subject Title: Differential Equations and Laplace Transforms
Credit Hours: 3

Subject Descriptions:

This course presents the method of solving ordinary differential Equations of First Order and Second Order, Partial Differential equations. Also it deals with Laplace Transforms, its inverse and Application of Laplace Transform in solving First and Second Order Differential Equations with constant coefficients.

Goals: It enables the students to learn the method of solving Differential Equations.

Objectives: End of this course, the students should gain the knowledge about the method of solving Differential Equations. It also exposes Differential Equation as a powerful tool in solving problems in Physical and Social sciences.

Unit I:

Ordinary Differential Equations: Equations of First Order and of Degree Higher than one – Solvable for *p, x, y* – Clairaut's Equation – Simultaneous Differential Equations with constant coefficients of the form

i) $f_1(D)x + g_1(D)y = \phi_1(t)$

ii) $f_2(D)x + g_2(D)y = \phi_2(t)$

where f_1 , g_1 , f_2 and g_2 are rational functions $D = \frac{d}{dt}$ with constant coefficients ϕ_1 and ϕ_2 explicit
functions of *t*.

Unit II:

Finding the solution of Second and Higher Order with constant coefficients with Right Hand Side is of the form Ve^{ax} where *V* is a function of *x* – Euler's Homogeneous Linear Differential Equations.

Unit III:

Partial Differential Equations: Formation of equations by eliminating arbitrary constants and arbitary functions – Solutions of P.D Equations – Solutions of Partial Differential Equations by direct integration – Methods to solve the first order P.D. Equations in the standard forms - Lagrange's Linear Equations.

Unit IV:

Laplace Transforms: Definition – Laplace Transforms of standard functions – Linearity property – Firsting Shifting Theorem – Transform of $tf(t)$, $\frac{f(t)}{t}$, $f^1(t)$, $f^{11}(t)$.

Unit V:

Inverse Laplace Transforms – Applications to solutions of First Order and Second Order Differential Equations with constant coefficients.

Treatment as in

Kandasamy. P, Thilagavathi. K "Mathematics for B.Sc – Branch – I Volume III", S. Chand and Company Ltd, New Delhi, 2004.

References:

1) S. Narayanan and T.K. Manickavasagam Pillai, Calculus, S. Viswanathan (Printers and Publishers) Pvt. Ltd, Chennai 1991
2) N.P. Bali, Differential Equations, Laxmi Publication Ltd, New Delhi, 2004
3) Dr. J. K. Goyal and K.P. Gupta, Laplace and Fourier Transforms, Pragali Prakashan Publishers, Meerut, 2000

Semester: III - Core Paper – VI
(for the candidates admitted from the academic year 2010-11 onwards)
Subject title: Statics **Credit hours: 3**

Subject Description:

This course contains the nature of forces acting on a surface, friction and center of gravity.

Goal:

To enable the students to realize the nature of forces and resultant forces when more than one force acting on a particle.

Objectives:

On successful completion of course the students should realize the concept about the forces, resultant force of more than one force acting on a surface, friction and center of gravity. Also he can differentiate static and dynamic forces.

UNIT-I

Forces acting at a point – Parallelogram law-triangle law –Converse of Triangle Law-Polygon Law of Forces- Lami's Theorem

UNIT- II

(λ,μ) theorem –Resolution of forces- Components of a force- Resultant of any number of Coplanar forces acting at a point- Conditions of equilibrium.

UNIT – III

Parallel Forces and Moments –Resultant of two parallel forces (Like and unlike)- Conditions of equilibrium of three coplanar forces- Moment of a force- Geometrical representation- Sign of the moment- Unit of moment – Varignon's Thorem on couples- Equilibrium of two couples-Equivalence of two couples.

UNIT – IV

Co-planar forces acting on a rigid body – Theorem on three co-planar forces in equilibrium – Reduction of a system of coplanar forces to a single force and a couple- Equation to the line of action of the resultant – Necessary and sufficient conditions of equilibrium only.

UNIT – V

Center of gravity (using integration only) – Equilibrium of strings and chains – Equation of the common catenary – Definitions – Tension at any point – Geometrical properties of the common catenary .

Treatment as in

M.K.Venkataraman, Statics, Agasthiar Publications, Trichy, 1999.

References

1. A.V.Dharmapadam, Statics , S.Viswanathan Printers and Publishing Pvt., Ltd, 1993.
2. P.Duraipandian and Laxmi Duraipandian, Mechanics , S.Chand and Company Ltd, Ram Nagar, New Delhi -55, 1985.
3. Dr.P.P.Gupta, Statics , Kedal Nath Ram Nath, Meerut, 1983-84.

BHARATHIAR UNIVERSITY, COIMBATORE.
B.Sc. Mathematics
(revised papers with effect from 2015-16 onwards)

Note: The revised syllabi for the following papers furnished below be followed from the academic year 2015-16 onwards and there is no change in the existing scheme of examination and syllabi of remaining papers.

Semester III - Skill Based Subject - Operations Research – Paper I
Credit hours: 3

Subject description:

This course contains advantages, limitations and applications of O.R, formulation of Linear Programming Problems (L.P.P), methods to solve L.P.P. like simplex method, Charnes Penality Method and Two Phase Simplex method. Also it deals about duality in L.P.P and Transportation with applications

Goal:

It enables the students to use the mathematical knowledge in optimal use of resources.

Objectives:

On successful completion of this course students should have gained knowledge about optimal use of resources.

Unit I:

Basics of O.R – Definition of O.R – Characteristics of O.R - Scientific methods in O.R – Necessary of O.R in Industry – O.R and Decision Making – Scope of O.R in Modern Management – Uses and limitations of O.R. Linear Programming Problem – Formulation of L.P.P .

Unit II:

Graphical solutions of L.P.P – Problems. Simplex Method – Problems

Unit III:

Charnes Penality Method (or) Big – M Method - Two Phase Simplex method – Problems.

Unit IV:

Duality in L.P.P – Concept of duality – Duality and Simplex Method – Problems

Unit V:

The transportation Problems – Basic feasible solution by L.C.M – NWC- VAM- optimum solutions – unbalanced Transportation problems

References:

1. Operations Research – Prem Kumar Gupta D. S. Hira, S. Chand & Company Ltd, Ram Nagar, New Delhi

Annexure – 1-D
SCAA Dt. 21-5-2009

BHARATHIAR UNIVERSITY : COIMBATORE

SYLLABUS FOR

"Women's Rights

FOR PART – IV IN THIRD SEMESTER OF UNDERGRADUATE CANDIDATES
WITH EFFECT FROM 2008-09
IN CBCS PATTERN

UNIT I

Laws, Legal Systems and Change

Definition - Constitutional law, CEDAW and International Human Rights – Laws and Norms – Laws and Social Context – Constitutional and Legal Framework.

UNIT II

Politics of land and gender in India

Introduction – Faces of Poverty – Land as Productive Resources – Locating Identities – Women's Claims to Land – Right to Property - Case Studies.

UNIT III

Women's Rights: Access to Justice

Introduction – Criminal Law – Crime Against Women – Domestic Violence – Dowry Related Harassment and Dowry Deaths – Molestation – Sexual Abuse and Rape – Loopholes in Practice – Law Enforcement Agency.

UNIT IV

Women's Rights

Violence Against Women – Domestic Violence - The Protection of Women from Domestic Violence Act, 2005 - The Marriage Validation Act, 1982 - The Hindu Widow Re-marriage Act, 1856 - The Dowry Prohibition Act, 1961

UNIT V

Special Women Welfare Laws

Sexual Harassment at Work Places – Rape and Indecent Representation – The Indecedent Representation (Prohibition) Act, 1986 - Immoral Trafficking – The Immoral Traffic (Prevention) Act, 1956 - Acts Enacted for Women Development and Empowerment - Role of Rape Crisis Centers.

References

1. Nitya Rao "Good Women do not Inherit Land" Social Science Press and Orient Blackswan 2008
2. International Solidarity Network "Knowing Our Rights" An imprint of Kali for Women 2006
3. P.D.Kaushik "Women Rights" Bookwell Publication 2007
4. Aruna Goal "Violence Protective Measures for Women Development and Empowerment" Deep and Deep Publications Pvt 2004
5. Monica Chawla "Gender Justice" Deep and Deep Publications Pvt Ltd.2006
6. Preeti Mishra "Domestic Violence Against Women" Deep and Deep Publications Pvt 2007
7. ClairM.Renzetti, Jeffrey L.Edleson, Raquel Kennedy Bergen, Source Book on "Violence Against Women" Sage Publications 2001

NON-MAJOR ELECTIVE
CONSTITUTION OF INDIA

UNIT I

Making of Constitution - Constituent Assembly - Dr.Rajendra Prasath - Dr.B.R.Ambedkar - Salient features - Fundamental Rights.

UNIT II

Union Executive - President of India - Vice-President - Prime Minister - Cabinet - Functions

UNIT III

Union Legislature - Rajiya Sabha - Lok Sabha - Functions and Powers

UNIT IV

Union Judiciary - Supreme Court - Functions - Rule of law

UNIT V

State - Executive - Legislature - Judiciary

Books for Reference:

1. Agharwal.R.C. - National Moment and Constitutional Development - New Delhi, 1977
2. Chapra B.R., Constitution of India, New Delhi, 1970
3. Rao B.V., Modern Indian Constitution, Hyderabad, 1975.
4. Nani Palkhivala - Constitution of India, New Delhi, 1970
5. Krishna Iyer, V.R., Law and Justice, New Delhi, 2009

பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்
பகுதி – IV : தமிழ்த் தாள் - 1 - முன்றாம் பருவம்
இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது
(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)
அக மதிப்பீட்டுத் தேர்வு மட்டும் - பல்கலைக்கழக எழுத்துத் தேர்வுகள் கிடையாது

1. தமிழ் மொழியின் அடிப்படைக் கூறுகள்.
   எழுத்துகள் : முதலெழுத்துகள் (உயிர் எழுத்து, மெய் எழுத்து, உயிர்மெய் எழுத்து)
   சொற்கள் : வகைகள் (பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்)
   தொடர் : தொடரமைப்பு (எழுவாய், செயப்படுபொருள், பயனிலை)
2. குறிப்பு எழுதுதல் : பத்துப் பதினைந்து தொடர்களில் குறிப்பு வரைதல்
   பிழைநீக்கி எழுதுதல் : (ஒற்றுப்பிழை, எழுத்துப்பிழை)

2012-2013 கல்வியாண்டு முதல் பயில்பவர்களுக்குப் பின்வரும் வினாத்தாள் அமைப்பு பின்பற்றப்பட வேண்டும்.

	அக மதிப்பீட்டுத் தேர்வு மதிப்பெண் வழங்கும் முறை	மதிப்பெண்கள்
1.	வகுப்புத் தேர்வு-1	**10**
2.	வகுப்புத் தேர்வு-2	**10**
3.	மாதிரித் தேர்வு	**10**
4	பயிற்சிக் கட்டுரை	**10**
5	வாய்மொழித் தேர்வு	**10**
	மொத்த மதிப்பெண்கள்	**50**

குறிப்பு : வாய்மொழித் தேர்வில் தமிழ்ச் செம்மொழி வரலாறு தொடர்பான வினாக்கள் மட்டுமே கேட்கப்பட வேண்டும்.

பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்

பகுதி – IV : சிறப்புத் தமிழ் தாள் - 1
முன்றாம் பருவம்
இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது
(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு)

கூறு – 1 : பாரதியார் கவிதைகள்
கண்ணன் என் சேவகன்
பாரதிதாசன் - அழகின் சிரிப்பு (முழுவதும்)
மீரா (கவிஞர்) – குக்கூ (புதுக்கவிதை)

கூறு – 2 : மொழித் திறன்
பிழைநீக்கி எழுதுதல் - றன ர வேறுபாடு அறிதல்
ளன, ழன, லன வேறுபாடு அறிதல்
ன, ண, ந வேறுபாடு அறிதல்
குறில் நெடில் வேறுபாடு அறிதல்

கூறு – 3 : கடிதங்கள் எழுதுதல் - பாராட்டுக் கடிதம், நன்றிக்கடிதம்
அழைப்புக்கடிதம், அலுவலக விண்ணப்பம்.

கூறு – 4 : சொற்களைத் தந்து தொடர்களை அமைக்கும் பயிற்சி அளித்தல்
வல்லினம் மிகும் இடங்கள்.

கூறு – 5 : பாடந்தழுவிய வரலாறு.

2012-2013 கல்வியாண்டு முதல் பயில்பவர்களுக்கு பின்வரும் வினாத்தாள் அமைப்பு பின்பற்றப்பட வேண்டும்.

Maximum 50 Marks – wherever applicable			
Section A	Multiple choice questions with four options	10*1=10	10 questions – 2 each from every unit
Section B	Short answer questions of either / or type (like 1.a (or) b	5*3=15	5 questions – 1 each from every unit
Section C	Essay-type questions of either / or type (like 1.a (or) b	5*5=25	5 questions – 1 each from every unit
NOTE: In Section "C" one of the questions shall be application oriented or a problem or a case study.			

SEMESTER – IV

BHARATHIYAR UNIVERSITY, COIMBATORE – 641046

UNDER GRADUATE DEGREE PROGRAMMES (CBCS SEMESTER PATTERN)

(For the students admitted during the academic year 2015 – 2016 and onwards)

நான்காம் பருவம் - பகுதி - 1, தாள் -4. பாடத்திட்டம்

(செய்யுள் , நாடகம், இலக்கணம், இலக்கிய வரலாறு, படைப்பிலக்கியப் பயிற்சி)

அலகு -1 எட்டுத்தொகை

1. குறுந்தொகை - 7 பாடல்கள் (63,75, 79, 131, 251, 260, 262,)
2. நற்றிணை - 4 பாடல்கள் (150, 152, 155, 158)
3. அகநானூறு - 2 பாடல்கள் (66,106)
4. கலித்தொகை - 2 பாடல்கள் - குறிஞ்சிக்கலி (41, 62)
5. புறநானூறு- 3 பாடல்கள் (3,5,9)

அலகு -2. பத்துப்பாட்டு

1. நெடுநல்வாடை முழுதும்.

அலகு -3 நாடகம்

"வைகையில் வெள்ளம் வரும் " ___ (குறு நாடகங்கள்)

சேதுபதி.

பாவை பப்ளிகேஷன்ஸ். சென்னை.

அலகு -4. பொருள் புலப்பாட்டுத் திறன்

1. இலக்கிய வரலாறு - சங்க இலக்கியம், எட்டுத்தொகை- பத்துப்பாட்டு

   நாடகத்தின் தோற்றமும் வளர்ச்சியும்
2. இலக்கணம் - பாடப்பகுதியை ஒட்டிய அகப்புற இலக்கணங்களைப் பொருத்திக்காட்டல்

அலகு -5. படைப்பிலக்கியப் பயிற்சி

1. கவிதை , சிறுகதை, நூல் மதிப்பீட்டுப் பயிற்சி

   ஏதேனும் ஒரு கருவைக் கொடுத்து கதை, கவிதை எழுதச் செய்தல்

   ஏதேனும் ஒரு நூலினை மதிப்பீடு செய்தல்

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
Part I – Hindi Language
For Under-graduate Degree Programmes
(For the Students admitted during 2016-2017 onwards)

FOURTH SEMESTER – PAPER IV

(DRAMA, NOVEL, GENERAL ESSAY AND TRANSLATION)

1. DRAMA: Andher Nagari
   Bharathendu Harischandra

   PUBLISHER : VANI PRAKASHAN
   NEW DELHI – 110 002.

2. NOVEL : GABAN - Premchand

   PUBLISHER: RAJKAMAL PRAKASHAN
   NEW DELHI.

4. GENERAL ESSAY :
   Book for reference : AADARSH NIBANDH
   VINODH PUSTAK MANDIR
   HOSPITAL ROAD, AGRA – 282 002.

5. TRANSLATION : HINDI – ENGLISH only
   ANUVADH ABHYAS – III
   (16-30 Lessons only)

BHARATHIAR UNIVERSITY, COIMBATORE

PART-I, PAPER-IV, FRENCH
(COMMON FOR ALL U.G. COURSES)
SYLLABUS - UNDER CBCS – AFFILIATED COLLEGES
[with effect from 2014-2015]

SEMESTER- IV

PAPER IV

Prescribed text	: ALORS **II**
Units	6 – 10
Authors	: Marcella Di Giura Jean-Claude Beacco
Available at	: Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.
Tel	: 011 – 23852986 / 9650597000

Bharathiar University – Coimbatore

Part II English-Semester IV

Prescribed Text: Visions of Life
Board of Editors
Publishers: Harrows Publications
Jains Ashraya, Phase I FB, I Block,
Vembuli Amman Kovil Street,
Virugambakkam,
Chennai-92.

Unit I: **Prose**
1.The Truth about Pyecraft-H.G.Wells
2. On Saying 'please''-A.G.Gardiner
3. My visions for India-Dr.A.P.J.Abdul Kalam

Unit II: **Poetry**
1. Incident of the French Camp-Robert Browning
2. Snake-D.H.Lawrence
3.The Journey of the Magi-T.S.Eliot

Unit III:Scenes From Shakespeare
1.Trial scene from Merchant of Venice
2.Seven Stages of man-As you Like It
3. Polonius Advice to his son-Hamlet

Unit IV:Grammar
Tenses-(Simple past, past continuous, past perfect, past perfect continuous and modals)

Unit V: Composition
1. Writing CV/Resume
2.Drafting E-Mail
3.Jumbled Sentences
4.Translation of sentences (Tamil to English)

Question Paper Pattern: Existing Pattern is to be followed.

ALLIED PAPER – ACCOUNTANCY – II FOR B.Sc. MATHEMATICS

(For the Students admitted from the Academic Year 2007 – 2008 and onwards)

Subject Title : PRINCIPLES OF ACCOUNTANCY – II

Course/Subject code: **Credit Hours : 5 (Five) per week**

Goal : To enable students to learn the Principles and Concepts of Accountancy.

Objective : On successful completion of the course, the student should have understood the

- **Concepts and Conventions of Accounting &**
- **Basic Accounting Framework.**

UNIT I:
Depreciation - Meaning- Features- Methods- Straight Line Method– WDV Method - Annuity Method - Sinking Fund Method

UNIT II :
Single Entry System – Meaning and Features – Statement of Affairs Method and Conversion Method

UNIT III :
Departmental Accounts –Branch Accounts excluding Foreign Branches

UNIT IV :
Hire Purchase and Installment Systems excluding Hire Purchase Trading Account

UNIT V :
Royalties excluding Sub-lease.

Note: Distribution of Marks for theory and problems shall be 20% and 80% respectively.

Books for Reference:

1. Principles of Accountancy - M.C.Shukla
2. Introduction to Accountancy - T.S.Grewel
3. Financial Accounting - R.L.Gupta & Radhaswamy
4. Advanced Accountancy - S.N.Maheswari
5. Principles of Accountancy - N. Vinayakam, P.L. Mani, K.L. Nagarajan
6. Fundamentals of Accounting - Jain and Narang

SEMESTER IV - Core Paper – VII
(for the candidates admitted from the academic year 2010-11 onwards)

Subject title: Dynamics **Credit hours: 3**

Subject Description: This course provides the knowledge about the field Kinematics, projectile, simple harmonic motion and impact of a particle on a surface.

Goal: To enable the students to apply Laws, Principles, Postulates governing the Dynamics in physical reality.

Objectives: End of this course, the student understands the reason for dynamic changes in the body.

UNIT – I

Projectiles: Path of a projectile-Greatest height-time of flight – Range -range on an inclined plane through the point of projection-Maximum range.

UNIT – II

Central Orbits: Radial and transverse components of velocity and acceleration – areal velocity of central orbits - Differential equation of central orbit in polar coordinates only.

UNIT – III

Simple Harmonic Motion: Amplitude, periodic time, phase-composition of two simple harmonic motions of the same period in a straight line and in two perpendicular lines.

UNIT – IV

Collision of elastic bodies : Impulsive force – Newton's experimental law- Principle of conservation of momentum- Direct Impact on a smooth fixed plane -Direct impact of two smooth spheres- loss of kinetic energy during direct impact.

UNIT – V

Oblique impact of a smooth sphere on fixed smooth plane – oblique impact of two smooth spheres - Loss of Kinetic energy during oblique impact.

Treatment as in

M.K.Venkataraman, Dynamics, 11th Ed. Agasthiar Publications, Trichy, 1994.

References

1. A.V.Dharamapadam , Dynamics, S.Viswanathan Printers and Publishers Pvt., Ltd, Chennai, 1998.
2. K.Viswanatha Naik and M.S.Kasi, Dynamics, Emerald Publishers, 1992.
3. Naryanamurthi, Dynamics, National Publishers, New Delhi, 1991.

SEMESTER IV : –CORE PAPER VIII (Theory & Practical)

Subject Title: Programming in C No.of.Hours: 3

Subject Description: This paper presents the importance of c language, its structure, Data types, Operators of C, Various control statements, Arrays, different types of functions and practical problems.
Goals: To enable the students to learn about the basic structure, Statements, arrays, functions and various concepts of C language.
Objectives: On successful completion of the course the students should have:
Learnt the basic structure, operators and statements of c language.
Learnt the decision making statements and to solve the problems based on it.
Learnt arrays,functions and solve the problems Regarding about it.

UNIT I: Introduction – Importance of C Basic structure of C programme - Character set - Constants – Keywords and identifiers – Variables Data types – Declaration of variables – Assigning values to variables –Defining symbolic constants.

UNIT II: Arithmetic operators - Relational operators - logical operators – assignment operators –increment and decrement operates –Conditional operators – Special operators – Arithmetic expressions –Evaluation of expressions –Precedence of arithmetic operators – Some computational problems –Type conversion in expressions – operator precedence and associating mathematical functions.

UNIT III: Reading and Writing character – formatted input and output. Decision making with IF statement – Simple IF statement – The if ELSE statement - Nesting of IF…..ELSE statement – The ELSE IF ladder. The Switch statement –The ? Operator –The GOTO statement.

UNIT IV: The WHILE statement - the DO statement the FOR statement –Jumps in loops.

UNIT V: One, Two dimensional arrays – Initiating two dimensional arrays – Multidimensional arrays –Declaring and initializing string variables –reading strings from terminal – Writing strings on the screen – Arithmetic operations on characters.

TEXT BOOK:
E.Balagurusamy"Programming in ANSI C" Second Edition – Tata McGraw –Hill Publishing company limited, New Delhi.
REFERENCE BOOKS:
1.Byron Gottfried "Programming with C"(Schaum's outline series)-Tata McGrawHill publishing company -1998.
2. Ashok N.Kamthane "Programming with Ansi and Turbo C", Pearson Education publishers, 2002
3.Hentry Mullish and Herbert L cooper , "The spirit of C" Jaico publisher , 1996.
4.THE ANSI C, Second edition , October 1992.BRIAN W.KERNIGHAN,DENNIS M.RITCHIE Published by Prentice- Hall of India Privated Limited, M-97,New Delhi- 110001.
5.ANSI C: With Microsoft C 5.1 and Quick C 2.0 C.Balasubramanian.1992, Tata McGraw-Hill Publishing company limited, New Delhi.
6. "PROGRAMMING IN C ", Kris A.Jamsa 1992 , Galgotia Publications Pvt.ltd.

C-PROGRAMMING PRACTICAL LIST.

1. **Write a C program to generate 'N' Fibonacci number.**
2. **Write a C program to print all possible roots for a given quadratic equation.**
3. **Write a C program to calculate the statistical values of mean, median, mode, Standard Deviation and variance of the given data**
4. **Write a C program to sort a set of numbers.**
5. **Write a C program to sort the given set of names.**
6. **Write a C program to find factorial value of a given number 'N' using recursive function call.**
7. **Write a C program to find the product of two given matrix.**
8. **Write a C program to prepare pay list for a given data.**

SEMESTER IV - SKILL BASED SUBJECT

SUBJECT TITLE - OPERATIONS RESEARCH – PAPER II CREDIT HOURS: 3

Subject Description:

This course gives emphasis to enhance student knowledge in Assignment Problems, game theory, performance measures of queues and optimal use of Inventory.

Unit I:

The Assignment Problems – Assignment algorithm – optimum solutions – Unbalanced Assignment Problems.

Unit II:

Game Theory – Two person zero sum game – The Maxmini – Minimax principle – problems - Solution of 2 x 2 rectangular Games – Domination Property – (2 x n) and (m x 2) graphical method – Problems.

Unit III:

Queueing Theory – Introduction – Queueing system – Characteristics of Queueing system – symbols and Notation – Classifications of queues – Problems in (M/M/1) : (∞/FIFO)

Unit IV:

Problems in (M/M/1):(N/FIFO); (M/M/C) : (∞/FIFO); (M/M/C) : (N/FIFO) Models.

Unit V:

Inventory control – Types of inventories – Inventory costs – EOQ Problem with no shortages – Production problem with no shortages – EOQ with shortages – Production problem with shortages – EOQ with price breaks.

References:

1. Operations Research – Prem Kumar Gupta D. S. Hira, S. Chand & Company Ltd, Ram Nagar, New Delhi
2. Operations Research – Kandiswarup, P. K. Gupta, Man Mohan, S. Chand & Sons Education Publications, New Delhi, 12th Revised edition.
3. Operations Research Principles and Problems: S. Dharani Venkata Krishnan, Keerthi publishing house PVT Ltd.

பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்
பகுதி – IV : தமிழ்த் தாள் - 2 - நான்காம் பருவம்
இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது
(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)
அக மதிப்பீட்டுத் தேர்வு மட்டும் - பல்கலைக்கழக எழுத்துத் தேர்வுகள் கிடையாது

1. நீதி நூல்கள் : ஆத்திச்சூடி (முதல் 12) ("அறம் செய விரும்பு", முதல் "ஔவியம் பேசேல்" வரை.
கொன்றை வேந்தன் - "அன்னையும் பிதாவும் முன்னறி தெய்வம்" முதல் எண்ணும் எழுத்தும் கணணெனத்தகும்" வரை (7)
திருக்குறள் (5) 1. அகர முதல ... (1)
2. செயற்கரிய ... (26)
3. மனத்துக் கண் ... (34)
4. கற்க கசடறக் ... (391)
5. எப்பொருள் யார் யார் ... (423)
எளிய நீதிக் கதைகள் - (தெனாலிராமன் கதைகள், பீர்பால் கதைகள், கிராமியக் கதைகள், ஈசாப் கதைகள்)

2. தமிழ் இலக்கியங்கள் : வரலாறு – குறிப்பு - அறிமுகம்
எடுத்துக்காட்டு : குறள் பற்றி எளிய தொடர்களில் அறிமுகம்
தமிழகம் - உணவுமுறை, விழாக்கள், கலைகள் பற்றியக் குறிப்புகள்.

2012-2013 கல்வியாண்டு முதல் பயில்பவர்களுக்குப் பின்வரும் வினாத்தாள் அமைப்பு பின்பற்றப்பட வேண்டும்.

	அக மதிப்பீட்டுத் தேர்வு மதிப்பெண் வழங்கும் முறை	மதிப்பெண்கள்
1.	வகுப்புத் தேர்வு-1	**10**
2.	வகுப்புத் தேர்வு-2	**10**
3.	மாதிரித் தேர்வு	**10**
4	பயிற்சிக் கட்டுரை	**10**
5	வாய்மொழித் தேர்வு	**10**
	மொத்த மதிப்பெண்கள்	**50**

குறிப்பு : வாய்மொழித் தேர்வில் தமிழ்ச் செம்மொழி வரலாறு தொடர்பான வினாக்கள் மட்டுமே கேட்கப்பட வேண்டும்.

பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்
பகுதி – IV : சிறப்புத் தமிழ் தாள் - 2
நான்காம் பருவம்
இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது
(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு)

கூறு – 1 திருக்குறள் - ஒழிபியலில் முதல் 5 அதிகாரங்கள் மட்டும்

கூறு – 2 உரைநடை : (கட்டுரை)
(இளைஞர்களின் ஒளிமயமான எதிர்காலத்திற்கு
கு.வெ.பாலசுப்பிரமணியம், அனுராதா ஏஜென்ஸிஸ்
கும்பகோணம். தொலைபேசி : 04366-262237, 263237

கூறு – 3 எழுத்துப்பிழை நீக்க வழிகள் - பிழையும் திருத்தமும்
சொற்களைச் சரியாகப் பயன்படுத்தும் பாங்கு – வினைச் சொற்கள்
துணை வினைகள் (எடுத்துகாட்டுகளுடன் விளக்குதல்).

கூறு – 4 வழக்கறிதல் : மரபு வழக்கு – இயல்பு வழக்கு – தகுதி வழக்கு அறிதல்

கூறு – 5 படைப்பாற்றல் பயிற்சி
கட்டுரைகள் எழுதுதல்

2012-2013 கல்வியாண்டு முதல் பயில்பவர்களுக்கு பின்வரும் வினாத்தாள் அமைப்பு பின்பற்றப்பட வேண்டும்.

Maximum 50 Marks – wherever applicable			
Section A	Multiple choice questions with four options	10*1=10	10 questions – 2 each from every unit
Section B	Short answer questions of either / or type (like 1.a (or) b	5*3=15	5 questions – 1 each from every unit
Section C	Essay-type questions of either / or type (like 1.a (or) b	5*5=25	5 questions – 1 each from every unit
NOTE: In Section "C" one of the questions shall be application oriented or a problem or a case study.			

PREFACE

This book aims at imparting knowledge on "General Awareness" prescribed for the examination to be taken by the Undergraduate students of degree courses (Arts, Science, Commerce and Management) at the end of the fourth semester of Bharathiar University.

Following are the areas which cover the various test items prescribed in the syllabus:

1. Verbal Aptitude
2. Numerical Aptitude
3. Abstract Reasoning
4. Tamil and Other Literature
5. General Science and Technology and Education
6. Computer
7. Economics and Commerce
8. Social Studies
9. Sports
10. Current Affairs

In the question paper, there will be ten questions from each one of the ten areas cited above and totally 100 questions will be asked. A set of model questions is also provided in the appendix. The examinations will consist of items given in this book only. For questions on current affairs answers may be updated.

The book aims to inherit confidence among the students to face competitive examinations as UPSC, TNPSC, BSRB, LIC and other such recruiting agencies. The thorough knowledge of the book will equip the students with high level of competence.

SEMESTER V

SEMESTER V - Core Paper – IX

Subject title: Real Analysis - I **Credit hours: 5**

Subject Description: This course focuses on the Real and Complex number systems, set theory, point set topology and metric spaces.

Goal: To introduce the concepts which provide a strong base to understand and analysis mathematics.

Objective: On successful completion of this course the students should gain the knowledge about real and complex numbers, sets and metric space.

UNIT I

The Real and Complex number systems the field axioms, the order axioms –integers –the unique Factorization theorem for integers –Rational numbers –Irrational numbers –Upper bounds, maximum Elements, least upper bound –the completeness axiom –some properties of the supremum –properties of the integers deduced from the completeness axiom- The Archimedian property of the real number system –Rational numbers with finite decimal representation of real numbers –absolute values and the triangle inequality –the Cauchy-Schewarz, inequality –plus and minus infinity and the extended real number system.

UNIT II

Basic notions of a set theory. Notations –ordered pairs –Cartesian product of two sets – Relations and functions – further terminology concerning functions –one –one functions and inverse –composite functions –sequences –similar sets-finite and infinite sets –countable and uncountable sets –uncountability of the real number system –set algebra –countable collection of countable sets.

UNIT III

Elements of point set topology: Euclidean space R^n –open balls and open sets in R^n. The structure of open Sets in R^n –closed sets and adherent points –The Bolzano –Weierstrass theorem –the Cantor intersection Theorem.

UNIT IV

Covering –Lindelof covering theorem –the Heine Borel covering theorem –Compactness in R^n –Metric Spaces –point set topology in metric spaces –compact subsets of a metric space – Boundary of a set.

UNIT V

Convergent sequences in a metric space –Cauchy sequences –Completeness sequences – complete metric Spaces. Limit of a function –Continuous functions –continuity of composite functions. Continuous complex valued and vector valued functions.

Treatment as in

T.M.Apostol, Mathematical Analysis, 2nd ed., Narosa Publishing Company, Chennai, 1990.

Unit I	Chapter 1	Sections 1.2, 1.3, 1.6 to 1.16, 1.18 to 1.20
Unit II	Chapter 2	Sections 2.2 to 2.15
Unit III	Chapter 3	Sections 3.2 to 3.9
Unit IV	Chapter 3	Sections 3.10 to 3.16
Unit V	Chapter 4	Sections 4.2 to 4.5, 4.8 to 4.15

References

1. R.R.Goldberg, Methods of Real Analysis, NY, John Wiley, New York 1976.
2. G.F.Simmons, Introduction to Topology and Modern Analysis, McGraw – Hill, New York, 1963.
3. G.Birkhoff and MacLane, A survey of Modern Algebra, 3rd Edition, Macmillian, New York, 1965.
4. J.N.Sharma and A.R.Vasistha, Real Analysis, Krishna Prakashan Media (P) Ltd, 1997.

SEMESTER V - Core Paper – X

Subject title: Complex Analysis - I **Credit hours: 6**

Subject Description: This course provides the knowledge about complex number system and complex functions.

Goal: To enable the students to learn complex number system, complex function and complex integration.

Objectives: On successful completion of this course the students should gained knowledge about the origin, properties and application of complex numbers and complex functions.

UNIT I

Complex number system, Complex number –Field of Complex numbers – Conjugation – Absolute value -Argument –Simple Mappings.

i) $w = z + \alpha$ ii) $w = az$ iii) $w = 1/z$

invariance of cross-ratio under bilinear transformation –Definition of extended complex plane – Stereographic projection.

UNIT II

Complex functions: Limit of a function –continuity –differentiability – Analytical function defined in a region –necessary conditions for differentiability –sufficient conditions for differentiability –Cauchy-Riemann equation in polar coordinates –Definition of entire function.

UNIT III

Power Series: Absolute convergence –circle of convergence –Analyticity of the sum of power series in the Circle of convergence (term term differentiation of a series) Elementary functions : Exponential, Logarithmic, Trigonometric and Hyperbolic functions.

UNIT IV

Conjugate Hormonic functions: Definition and determination, Conformal Mapping: Isogonal mapping –Conformal mapping-Mapping z--->>f(z), where f is analytic, particularly the mappings.

$w= e^z$; $w = z^{1/2}$; w=sin z ; w =1/2(z +1/z)

UNIT V

Complex Integration: Simply and multiply connected regions in the complex plane. Integration of f(z) from definition along a curve joining z_1 and z_2. Proof of Cauchy's Theorem (using Goursat's lemma for a simply connected region). Cauchy's integral formula for higher derivatives (statement only)-Morera's theorem.

Treatment as in

P.Duraipandian and Laxmi Duraipandian, Complex Analysis, Emerald Publishers, Chennai –2, 1986.

Unit I	Chapter 1	Sections 1.1 to 1.3, 1.6 to 1.9
	Chapter 2	Sections 2.1 to 2.2, 2.6 to 2.9,
	Chapter 7	Section 7.1
Unit II	Chapter 4	Sections 4.1 to 4.10
Unit III	Chapter 6	Sections 6.1 to 6.11
Unit IV	Chapter 6	Sections 6.12 to 6.13
	Chapter 7	Sections 7.6 to 7.9
Unit V	Chapter 8	Sections 8.1 to 8.9

References

1. Churchill and Others, Complex Variable and Applications, Tata Mecgrow Hill Publishing Company Ltd, 1974.
2. Santhinarayan , Theory of functions of Complex Variable, S.Chand and Company, Meerut, 1995.
3. Tyagi B.S. Functions of Complex Variable, 17th Edition, Pragati Prakasham Publishing Company Ltd, Meerut, 1992-93.

SEMESTER V - Core Paper – XI

Subject title: Modern Algebra - I **Credit hours: 6**

Subject description: This course provides knowledge about sets, mappings, different types of groups and rings.

Goals: To enable the students to understand the concepts of sets, groups and rings. Also the mappings on sets, groups and rings.

Objective: On successful completion of course the students should have concrete knowledge about the abstract thinking like sets, groups and rings by proving theorems.

UNIT I

Sets – mappings – Relations and binary operations – Groups: Abelian group, Symmetric group Definitions and Examples – Basic properties.

UNIT II

Subgroups – Cyclic subgroup - Index of a group – Order of an element – Fermat theorem - A Counting Principle - Normal Subgroups and Quotient Groups.

UNIT III

Homomorphisms – Cauchy's theorem for Abelian groups – Sylow's theorem for Abelian groups Automorphisms – Inner automorphism - Cayley's theorem, permutation groups.

UNIT IV

Rings: Definition and Examples –Some Special Classes of Rings – Commutative ring – Field – Integral domain - Homomorphisms of Rings.

UNIT V

Ideals and Quotient Rings – More Ideals and Quotient Rings – Maximal ideal - The field of Quotients of an Integral Domain

Treatment as in

I.N. Herstein, Topics in Algebra, John Wiley & Sons, New York, 2003.

Unit I	Chapter 1	Sections 1.1 to 1.3,
	Chapter 2	Sections 2.1 to 2.3
Unit II	Chapter 2	Sections 2.4 to 2.6
Unit III	Chapter 2	Sections 2.7 to 2.10
Unit IV	Chapter 3	Sections 3.1 to 3.3
Unit V	Chapter 3	Sections 3.4 to 3.6.

References

1. Surjeet Singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house, 1992.
2. A.R.Vasishtha, Modern Algebra, Krishna Prakashan Mandir, Meerut, 1994 - 95.

SEMESTER – V - CORE PAPER XII

Subject Title: DISCRETE MATHEMATICS **Credit Hours: 5**

Subject Description: This course focuses on the mathematical logic, Relations& Functions, Formal languages and Automata, Lattices and Boolean Algebra and Graph Theories.

Goal: To enable the students to learn about the interesting branches of Mathematics.

Objectives: On successful completion of this course should gain knowledge about the Formal languages Automata Theory, Lattices & Boolean Algebra and Graph Theory.

UNIT-I:

Mathematical logic: Connections well formed formulas, Tautology, Equivalence of formulas, Tautological implications, Duality law, Normal forms, Predicates, Variables, Quantifiers, Free and bound Variables. Theory of inference for predicate calcules.
(1-2, 1-2.7. 1-2.9, 1-2.10, 1-2.11, 1-3, 1-5.1, 1-5.2, 1-5.4, 1-6.4)

UNIT-II:

Relations and functions: Composition of relations, Composition of functions, Inverse functions, one-to- one, onto, one-to-one& onto, onto functions, Hashing functions, Permutation function, Growth of functions. Algebra structures: Semi groups, Free semi groups, Monoids, Groups, Cosets, Sets, Normal subgroups, Homomorphism.
(2-3.5, 2-3.7, 2-4.2, 2-4.3, 2-4.6, 3-2, 3-5, 3-5.3, 3-5.4)

UNIT-III:

Formal languages and Automata: Regular expressions, Types of grammar, Regular grammar and finite state automata, Context free and sensitive grammars.
(3-3.1, 3-3.2, 4-6.2)

UNIT-IV:

Lattices and Boolean algebra: Partial ordering, Poset, Lattices, Boolean algebra, Boolean functions, Theorems, Minimisation of Boolean functions.
(4-1.1, 4-2, 4-3, 4-4.2)

UNIT-V:

Graph Theories: Directed and undirected graphs, Paths, Reachability, Connectedness, Matric representation, Eular paths, Hamiltonean paths, Trees, Binary trees simple theorems, and applications. (5-1.1, 5-1.2, 5-1.3, 5-1.4)

Text Books:

J.P Tremblay and R.P Manohar "Discrete Mathematical Structures with applications to computer science", Mc.Graw Hill, 1975.

SEMESTER V - SKILL BASED SUBJECT
SUBJECT TITLE: OPERATIONS RESEARCH – PAPER III - CREDIT HOURS: 3

Subject Description:

This course presents applications and method to solve Network Scheduling, Integer Programming Problems, Non-linear Programming Problems and Dynamic Programming problems.

Unit I:

Simulation – Introduction – simulation models – Event – Types of simulation - Generation of Random Numbers – Mante-carlo simulation – simulation of queueing system.

Unit II:

Network scheduling by PERT / CPM – Introduction – Network and basic components – Rules of Network construction – Time calculation in Networks – CPM.

PERT – PERT calculations – Cost Analysis – Crashing the Network – Problems.

Unit III:

Integer Programming Problem – Gromory's fractional cut Method – Branch Boud Method.

Unit IV:

Non-linear Programming Problems – General NLPP – Lagrange multiplier – Hessian bordered Matrix – Kuhn Tucker Condition – Problems

Unit V:

Dynamic Programming Problem – Recursive equation approach – D.P.P Algorithm – Solution of L.P.P by D.P.P.

References:

1. Operations Research – Prem Kumar Gupta D. S. Hira, S. Chand & Company Ltd, Ram Nagar, New Delhi
2. Operations Research – Kandiswarup, P. K. Gupta, Man Mohan, S. Chand & Sons Education Publications, New Delhi, 12th Revised edition.
3. Operations Research Principles and Problems: S. Dharani Venkata Krishnan, Keerthi publishing house PVT Ltd

SEMESTER- VI

SEMESTER VI - Core Paper – XIII

Subject Title: REAL ANALYSIS - II **Credit hours: 5**

Subject Description: This course presents nature of functions and mappings like continuity, connectivity, and derivative. It also includes the concept of monotonic functions with properties and Riemann - Stieltjes integral.
Goal: To introduce the concepts which provide a strong base to understand and analysis mathematics.
Objective: On successful completion of this course the students should gain the knowledge about the nature of functions mappings.

UNIT I

Examples of continuous functions –continuity and inverse images of open or closed sets – functions continuous on compact sets –Topological mappings –Bolzano's theorem.

UNIT II

Connectedness –components of a metric space – Uniform continuity : Uniform continuity and compact sets –fixed point theorem for contractions –monotonic functions.

UNIT III

Definition of derivative –Derivative and continuity –Algebra of derivatives – the chain rule –one sided derivatives and infinite derivatives –functions with non-zero derivatives –zero derivatives and local extrema –Roll's theorem –The mean value theorem for derivatives – Taylor's formula with remainder.

UNIT IV

Properties of monotonic functions –functions of bounded variation –total Variation –additive properties of total variation on (a, x) as a function of x – functions of bounded variation expressed as the difference of increasing functions –continuous functions of bounded variation.

UNIT V

The Riemann - Stieltjes integral : Introduction –Notation –The definition of Riemann –Stieltjes integral –linear properties –Integration by parts –change of variable in a Riemann –stieltjes integral –Reduction to a Riemann integral.

Treatment as in

Tom. M. APOSTOL, Mathematical Analysis, 2nd ed., Addison-Wisely. Narosa Publishing Company, Chennai, 1990.

Unit I	Chapter 4	Sections 4.11 to 4.15
Unit II	Chapter 4	Sections 4.16, 4.17, 4.19, 4.20, 4.21, 4.23
Unit III	Chapter 5	Sections 5.2 to 5.10 and 5.12
Unit IV	Chapter 6	Sections 6.2 to 6.8
Unit V	Chapter 7	Sections 7.1 to 7.7

References

1. R.R.Goldberg, Methods of Real Analysis, NY, John Wiley, New York 1976.
2. G.F.Simmons, Introduction to Topology and Modern Analysis, McGraw – Hill, New York, 1963.
3. G.Birkhoff and MacLane, A survey of Modern Algebra, 3rd Edition, Macmillian, NewYork, 1965.
4. J.N.Sharma and A.R.Vasistha, Real Analysis, Krishna Prakashan Media (P) Ltd, 1997.

SEMESTER VI - Core Paper – XIV

Subject title: COMPLEX ANALYSIS - II **Credit hours: 6**

Subject Description: This course provides the knowledge about complex functions with some fundamental theorems. Singularity and residues in complex functions, integrations of complex functions and meromorphic functions

Goal: To enable the students to learn complex number system, complex function and complex integration.

Objectives: On successful completion of this course the students should gained knowledge about the complex functions and its nature.

UNIT I

Results based on Cauchy's theorem(I) : Zeros-Cauchy's Inequality – Lioville's theorem – Fundamental theorem of algebra –Maximum modulus theorem –Gauss mean value theorem – Gauss mean value theorem for a harmonic function on a circle .

UNIT II

Results based on Cauchy's theorem (II) –Taylor's series –Laurent's series .

UNIT III

Singularities and Residues: Isolated singularities (Removable Singularity, pole and essential singularity) –Residues –Residue theorem.

UNIT IV

Real definite integrals: Evaluation using the calculus of residues – Integration on the unit circle –Integral with $-\infty$ and $+\infty$ as lower and upper limits with the following integrals:

i) $P(x)/Q(x)$ where the degree of $Q(x)$ exceeds that of $P(x)$ at least 2.
ii) $(\sin ax).f(x)$, $(\cos ax).f(x)$, where $a>0$ and $f(z) \to 0$ as $z \to \infty$ and $f(z)$ does not have a pole on the real axis.
iii) $f(x)$ where $f(z)$ has a finite number of poles on the real axis.
Integral of the type $\int_x^{a-1} x/(1+x)\,dx$; $0< a <1$;

UNIT V

Meromorphic functions: Theorem on number of zeros minus number of poles –Principle of argument: Rouche's theorem – Theorem that a function which is meromorphic in the extended plane is a rational function.

Treatment as in

P. Duraipandian and Laxmi Duraipandian, Complex analysis, Emerald Publishers, Chennai –2, 1997.

Unit I	Chapter 8	Sections 8.10, 8.11
Unit II	Chapter 9	Sections 9.1 to 9.3, 9.13.
Unit III	Chapter 9	Sections 9.5 to 9.12, 9.13.
	Chapter 10	Sections 10.1, 10.2 and 10.4.
Unit IV	Chapter 10	Sections 10.3 and 10.4.
Unit V	Chapter 11	Sections 11.1 to 11.3 (Omit theorems 11.5 and 11.6)

References

1. Churchill and Others, Complex Variable and Applications, Tata Mecgrow Hill Publishing Company Ltd, 1974.
2. Santhinarayan , Theory of functions of Complex Variable, S.Chand and Company ,Meerut, 1995.
3. Tyagi B.S , Functions of Complex Variable, 17th Edition, Pragati Prakasham Publishing Company Ltd, Meerut, 1992-93.

SEMESTER VI - Core Paper – XV

Subject title: MODERN ALGEBRA - II **Credit hours: 6**

Subject description:

This course provides knowledge about elementary operations on matrices, different types of matrices, rank of a matrix, spaces and linear transformations.

Goals:

It enables the students to understand the concept of matrices and linear transformations.

Objective:

On successful completion of course the students should have concrete knowledge about the elementary operations on matrices, characteristic vector of a square matrix, vector spaces and linear transformations.

UNIT I

Matrices: Introduction – Addition and Scalar Multiplication of Matrices – Product of Matrices –Transpose of a Matrix – Matrix Inverse – Symmetric and Skew - Symmetric Matrices.

UNIT II

Hermitian and Skew-Hermitian Matrices – Orthogonal and Unitary Matrices – Rank of a Matrix –Characteristic Roots and Characteristic Vectors of a Square Matrix.

UNIT III

Vector space: Elementary Basic Concepts – Subspace of a Vector space - Homomorphism – Isomorphism - Internal and External direct sums - Linear span - Linear Independence and Bases.

UNIT IV

Dual Spaces – Annihilator of a subspace - Inner Product Spaces – Norm of a Vector – Orthogonal Vectors - Orthogonal Complement of a subspace – Orthonormal set.

UNIT V

Linear Transformations: Algebra of Linear Transformations – Regular, Singular Transformations – Range of T – Rank of T - Characteristic Roots – Characteristic Vectors - Matrices.

Treatment as in

1. R.Balakrishnan and M. Ramabadran, Modern Algebra, Vikas Publishing House Pvt. Ltd, New Delhi, (Second Revised Edition 1994) (For Units I & II)

Unit I	Chapter 1	Sections 1.1 to 1.3, 1.5 to 1.7
Unit II	Chapter 1	Sections 1.8 and 1.9
	Chapter 2	Section 2.9
Chapter 3	Section 3.9	

2. I.N. Herstein, Topics in Algebra, John Wiley & Sons, New York, 2003. (For Units III, IV & V)

Unit III	Chapter 4	Sections 4.1 and 4.2
Unit IV	Chapter 4	Sections 4.3 and 4.4
Unit V	Chapter 6	Sections 6.1 , 6.2 and 6.3

References

1. Surjeet Singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house, 1992.
2. A.R.Vasishtha, Modern Algebra, Krishna Prakashan Mandir, Meerut, 1994 – 95.
3. Seymour Lipschutz and Marc Lipson, Linear Algebra, 3rd Edition, McGraw Hill, 2001.

ELECTIVE I - A

SUBJECT TITLE: ASTRONOMY – I **CREDIT HOURS: 5**

Subject Description : This course focuses on the Solar system, Celestial sphere, Dip-Twilight & Keplar's laws.

Goal: To enable the students to understand the Astronomical aspects and about the laws governing the planet movements.

Objectives: On successful completion of this course the students should gain knowledge about Astronomy.

UNIT I:

General description of the Solar system. Comets and meteorites – Spherical trigonometry.

UNIT II:

Celestial sphere – Celestial co – ordinates – Diurnal motion – Variation in length of the day.

UNIT III:

Dip – Twilight – Geocentric parallex.

UNIT IV:

Refration – Tangent formula – Cassinis formula.

UNIT V:

Kepler's laws – Relation between true eccentric and mean anamolies.

Treatment as in "ASTRONOMY" by S.Kumaravelu and Susheela Kumaravelu.

Question paper setters to confine to the above text book only.

ELECTIVE I - B

NUMERICAL METHODS - I

Subject Description:

This course presents method to solve linear algebraic and transcendental equations and system of linear equations. Also Interpolation by using finite difference formulae.

Goal:

It exposes the students to study numerical techniques as powerful tool in scientific computing.

Objective:

On successful completion of this course the student gain the knowledge about solving the linear equations numerically and finding interpolation by using difference formulae.

Unit I: The solution of numerical algebraic and transcendental Equations:

Bisection method – Iteration Method – Convergence condition – Regula Falsi Method – Newton – Raphson method - Convergence Criteria – Order of Convergence.

Unit II: Solution of simultaneous linear algebraic equations:

Gauss elimination method – Gauss Jordan method – Method of Triangularization – Crouts method – Gauss Jacobi method – Gauss Seidel method

Unit III: Finite Differences:

Differences – operators – forward and backward difference tables – Differences of a polynomial – Factorial polynomial – Error propagation in difference table.

Unit IV: Interpolation (for equal intervals):

Newton's forward and backward formulae – equidistant terms with one or more missing values – Central differences and central difference table – Gauss forward and backward formulae – Stirlings formula.

Unit V: Interpolation (for unequal intervals):

Divided differences – Properties – Relations between divided differences and forward differences – Newton's divided differences formula – Lagrange's formula and inverse interpolation.

Treatment as in

Kandasamy. P, Thilagavathi. K and Gunavathi. K "Numerical methods" – S. Chand and Company Ltd, New Delhi – Revised Edition 2007. (Chapters: 3,4,5,6,7 and 8).

References:

1. Venkataraman M. K.,"Numerical Methods in Science and Engineering" National Publishing company V Edition 1999.
2. Sankara Rao K., "Numerical Methods for Scientists and Engineers" 2nd Edition Prentice Hall India 2004.

ELECTIVE I - C
(Theory & Practical)

Subject Title: RDBMS AND ORACLE ** No.of.Hours:5

Subject Description: This paper presents the basic concepts of DBMS, Keys, RDBMS, introduction to SQL, ORACLE data types, Queries in SQL, introduction to PL/SQL, its basic structure, triggers, basic concepts of forms, reports and practical problems.
Goals: To enable the students to learn about the basic concepts of DBMS, RDBMS, SQL, PL/SQL, forms and Reports.
Objectives: On successful completion of the course the students should have
learnt the basic concepts of DBMS and RDBMS.
Learn to build a queries using SQL, PL/SQL.
Learnt to design a forms and reports using ORACLE Developer 2000.

UNIT –I:

Basic concepts of DBMS – Entities and their attribute Keys – Prime Keys, secondary keys, Super Keys, Candidate Keys, Alternative Keys - Examples, Relationship – Records and files, Data independence, Views – Types of Views, Components of a DBMS, DDL, DML, DQL. Advantages and disadvantages of DBMS, RDBMS –Relational Database – Relations and their schemes –Relation representation – Integrity rules.

TEXT BOOKS:

For unit 1 treatment as in "Introduction to Database System" –BipinDesai [chapter 1,sections 4.2 and 6.5.1 and 6.5.2]

UNIT II:

Integrative SQL –invoking SQL plus, data manipulation in DBMS ,The ORACLE data types, two dimention matrix creation, Intersectior of data into tables, data constrains, computation in expression lists used to select data, logical operation, Range searching, pattern matching, Orac'e function, Grouping data from tables in SQL , Manipulating dates on SQL, joins, sub queries.

UNIT III:

PL/SQL-Introduction, The PL/SQL execution enviornment, the PL/SQL syntax, Understanding the PL/SQL Block structure, database triggers.

UNIT IV:

Working with forms, Basic concepts, Application development in forms, Form module, Blocks items, Canvas view windows, Creating a form Generating and running a form, Using the Layout editor ,Master form, Triggers, Data Navigation Via an Oracle form ,Master detail form, Creating a master detail form, Master detail data entry screen.

UNIT V:

Working with reports ,Defining a data model for report , specific the layout of a report, use the Oracle reports interface, Creating a default tabular report, Creating computed columns, Creating user parameter, Arranging the layout, Creating a Master / Detail report, Creating a matrix report.

TEXT BOOK:

For units 2, 3, 4, 5, treatment as in 'Commercial application Development using Oracle developer 2000' by IVAN BAYROSS.

RDBMS PRACTICAL LIST

1. Create a table 'company' with the following fields and insert the values for 10 employees.

Field Name	Field Type	Field Size
Company Name	Character	15
Proprietor	Character	15
Address	Character	25
Supplier Name	Character	15
No of employees	Number	4
GP percent	Number	6 with 2 decimal places

Queries:

a) Display all the records of the company which are in the ascending order of GP percent.
b) Display the detail of the company having the employee ranging from 300 to 1000.

2.Create a table named 'employee' with the following field and insert the values.

Field Name	Field Type	Field Size
Employee Name	Character	15
Employee code	Character	6
Address	Character	25
Designation	Character	15
Grade	Character	1
GP percent	Number	6 with 2 decimal places

Queries:

a) Display the name of the employees whose salary is greater than Rs.10, 000
b) Display the details of employees in ascending order according to employee code.
c) Display the total salary of the employees whose grade is "A".

3.Create a table named "student" with the following fields and insert the values:

Field Name	Field Type	Field Size
Student Name	Character	15
Gender	Character	6
Roll No	Character	10
Department Name	Character	15
Address	Character	25
Percentage	Number	4 with 2 decimal places

Queries:

a) Display the names of the students whose percentage is greater than 80.
b) Display the details of the student whose percentage is between 50 and 70.
c) Display the details of the students whose percentage is greater than the percentage of the Roll no =12CA01.

4.Create a table "product" with the following fields and insert the values:

Field Name	Field Type	Field Size
Product No	Number	6
Product Name	Character	15
Unit of Measure	Character	15
Quantity	Number	6 with decimal places
Total Amount	Number	8 with decimal places.

Queries:

a) Using update statements calculate the total amount and then select the record.
b) Calculate the total amount by using sum operation.
c) Calculate the number of records whose unit price is greater than 50 with count Operation.

5.Create the table PAYROLL with the following fields and insert the value:

Field Name	**Field Type**	**Field Size**
Employee No	Number	8
Employee Name	Character	8
Department	Character	10
Basic pay	Number	8 with 2 decimal places.
HRA	Number	6 with 2 decimal places.
DA	Number	6 with 2 decimal places.
PF	Number	6 with 2 decimal places.
Net Pay	Number	8 with 2 decimal places.

Queries:

a) Update the record to calculate the net pay
b) Arrange the records of employees in ascending order of their net pay.
c) Select the details of employees whose HRA >= 1000 and DA <= 900.
d) Display the details of the employee whose department is sales.

6.Create a table publisher and book with the following fields:

Field Name	**Field Type**	**Field Size**
Publisher Code	Varchar	5
Publisher Name	Varchar	10
Publisher City	Varchar	12
Publisher State	Varchar	10
Title of book	Varchar	15
Book Code	Varchar	5
Book Price	Varchar	5

Queries:

a) Insert the records into the table publisher and book
b) Describe the structure of the tables
c) Show the details of the book with the title ‘DBMS’.
d) Select the book code , book title , publisher city is ‘Delhi’.
e) Find the name of the publisher starting with ‘s’.

7.Create a table Deposit and loan with the following fields.

Field Name	**Field Type**	**Field Size**
Account	Varchar	6
Branch Name	Varchar	15
Customer Name	Varchar	20

Balance Amount	Varchar	10
Loan Number	Varchar	7
Loan Amount	Varchar	6

Queries:

a) Insert the records into the table.
b) Describe the structure of the table
c) Display the records of Deposit and loan
d) Find the Maximum loan amount
e) Arrange the records in descending order of the loan amount

ELECTIVE II - A

Subject Title: ASTRONOMY II **Credit Hours -5**

Subject Description:

This course focuses on the Time, Annual Parallax, Precession, Nutation and The Moon, Eclipses.

Goal: To enable the students to learn about the interesting facts of Moon, Sun Planetory Motion.

Objectives: On successful completion of this course the students should gain knowledge about Astronomy.

UNIT-I:

Time: Equation of time – Convertion of time – Seasons – Calendar.

UNIT-II:

Annual Parallax – Abberation.

UNIT-III:

Precession – Nutation.

UNIT-IV:

The Moon – Eclipses.

UNIT-V:

Planetory Phenomenon – The Stellar system.

Treatment as in "ASTRONOMY" by Mr.S.Kumaravelu and Susheela Kumaravelu.

Question paper setters to confine to the above text book only.

ELECTIVE II-B
Numerical Methods II

Subject Description:

This course presents Numerical differentiation, Numerical integration and method to solve the differential equations.

Goal:

It exposes the students to study numerical techniques as powerful tool in scientific computing.

Objective:

On successful completion of this course the student gain the knowledge about solving the linear equations numerically and finding interpolation by using difference formulae.

Unit I: Numerical differentiations:

Newton's forward and backward formulae to compute the derivatives – Derivative using Stirlings formulae – to find maxima and minima of the function given the tabular values.

Unit II: Numerical Integration:

Newton – Cote's formula – Trapezoidal rule – Simpson's $1/3^{rd}$ and $3/8^{th}$ rules – Gaissian quadrature – two points and three points formulae

Unit III: Difference Equation:

Order and degree of a difference equation – solving homogeneous and non – homogeneous linear difference equations.

Unit IV:

Taylor series method – Euler's method – improved and modified Euler method – Runge Kutta method(fourth order Runge Kutta method only)

Unit V: Numerical solution of O.D.E(for first order only):

Milne's predictor corrector formulae – Adam-Bashforth predictor corrector formulae – solution of ordinary differential equations by finite difference method (for second order O.D.E).

Treatment as in

Kandasamy. P, Thilagavathi. K and Gunavathi. K "Numerical methods" – S. Chand and Company Ltd, New Delhi – Revised Edition 2007.
(Chapters: 9,10,11, Appendix and Appendix E).

References:

1. Venkataraman M. K.,"Numerical Methods in Science and Engineering" National Publishing company V Edition 1999.
2. Sankara Rao K., "Numerical Methods for Scientists and Engineers" 2^{nd} Edition Prentice Hall India 2004.

ELECTIVE II – C
(Theory & Practical)
INTERNET AND JAVA PROGRAMMING ** **No. of credit hours: 3**

Subject description:

This paper presents the introduction to internet, ISP, mail, web, URLS, schemes, browser, HTML, Usenet, Gopher, veronica, Jug head, Anonymous ftp, archie, telnet, talk, IRC and muds, Java introduction, data types, operators, statements, class, packages, interfaces, exception handling, threads, applets and AWTS.

Goals:

To enable the students to study about internet,mail,web, HTML,Usenet, Gopher, veronica, Jug head, Archie and Java fundamentals, class, packages, exception handling,threads,applets and AWTS.

Objectives:

On successful completion of the course the students should have:
Learnt the basic concept of internet, mailing, HTML, Archie, telnet, ftp and IRC muds.
Learnt about Java fundamentals, operators and statements.
Learnt the concept of packages, interfaces and exception handling.
Learnt the concept of threads, applets and AWTS.

UNIT I:

Introduction to Internet- Resources of Internet -hardware and software requirements of internet- Internet service providers (ISP)-Internet addressing- Mail Using mail from a shell account - Introduction to web- using the web.

UNIT II:

URLs, schemes host names and port numbers- Using the browser Hypertext and HTML- Using the web from a shell account Introduction to Usenet - Reading and posting Usenet articles- Using Usenet from a shell account- Gopher ,Veronica and Jug head- Using gopher from a shell account.

UNIT III:

Anonymous ftp- Using ftp from a shell account-archie-file type uses on the internet downloading software - mailing lists- telnet- Using telnet from a seller account talk fecilities- Using talks from a shell account – talk felicities – using talks from a shell account – IRC and muds .

UNIT IV:

Features of java - java environment - comparing java with C++ - introduction to java language -types - operators - flow control - classes - packages and interfaces.

UNIT V:

Java classes - string handling- exception handling - threads and synchronization - utilities - input / output - networking - applets - abstrct windows toolkit (AWT)-imaging.

Text book:

1. Harley Hahn, The internet -Complete reference, second edition, Tata McGraw Hill, 1996.
2. Patric Naughton, Java Hand Book, Tata McGraw Hill, 1996

INTERNET AND JAVA PROGRAMMING PRACTICAL LIST

1.Create web pages using HTML to display ordered and unordered list of a departmental store.
2.Program to display image and text using HTML tag for a advertisement of a company product.
3.Create web pages for a business organization using HTML frames.
4.Create a web site of your department with minimum links using HTML .
5.Create a document using formatting and alignment tags in HTML.
6.Write a Java program to print the triangle of numbers.
7.Write a program which creates and displays a message on the windows.
8.Write a program to draw several shapes in the created window.
9.Write a Java program to accept values and find the given no. is even or odd.
10. Write a Java program to calculate standard deviation.

ELECTIVE III - A

Subject Title: GRAPH THEORY **Credit Hours**-5

Subject Description:

This course focuses on the Graphs, Sub Graphs, Trees, Planar graphs, Directed graphs. It also deals about matrix representation of Graphs.

Goal:

To enable the students to understand the basic concepts of Graph Theory.

Objectives:

On successful completion of this course the students should gain knowledge about Graph Theory.

UNIT I:

Graphs –Sub graphs – Degree of a vertex walks, paths and cycles in a Graphs – connectedness cut vertex and cut edge.

UNIT II:

Elur and Hamiltonion Graphs – Algorithm for Entoriom circuits – Bipartite Graphs –Trees.

UNIT III:

Matrix representation of a graph – vector spaces, associated with a graph – cycle spaces and cut set graphs.

UNIT IV:

Planar graphs – Enter's theorem on planar graphs – characterization of planar graphs (no proofs) of the difficult part of the characterization.

UNIT V:

Directed graphs – Connectivity – Enteoriom Digraphs – Tournaments.

Treatment as in "A First Course in Graph Theory" by A.Chandran (Macmillan) Chapters 1 to 7.

Books for References:

1.Narasingh Deo, "Graph Theory" (Prentice Hall of India).

2. Harary: "Graph Theory" (Narosa Publishing HQCK).

ELECTIVE III - B

AUTOMATA THEORY AND FORMAL LANGUAGES

UNIT – I

Introduction – phrase structure languages.

UNIT – II

Closure operations.

UNIT – III

Context free languages.

UNIT – IV

Finite state automata.

UNIT – V

Push down automata.

Content and treatment as in, 'Formal Languages and Automata' by Rani Sriomoney. Revised edition 1984.Pulishied by the Christian Literary Society, Madras-3 Chapters 1 to 6.

Reference Books:

1. Hopcrot and still man-Formal languages and their relation automata-Addision Wesley.
2. R.Y.Kulin-Automata theory-Machines and Languages-McGraw Hill.

BHARATHIAR UNIVERSITY, COIMBATORE.
B.Sc. Mathematics (Colleges)

SEMESTER VI; ELECTIVE III - C
Subject Title: PROGRAMMING IN C++ (Theory & Practical)

(Revised paper for the students admitted from the academic year 2014-2015 and onwards)

No. of Hours: 3

Subject Description: This paper presents the importance of class structure, operators, the types of inheritance and polymorphism, file handling.
Goals: To enable the students to learn about the class structure, operators, inheritance, polymorphism, file handling.
Objectives: On successful completion of the course the students should have
learnt class structure, member functions & data members.
Learnt the concept of inheritance, types and example problems.
Learnt the concepts of polymorphism, types and problems.
Learnt the concepts of File handling.

UNIT-I:
Evolution of C++ - applications of C++ - structure of C++ program. Tokens – keywords – identifiers and constants – basic data types – user-defined data types – constant pointers and pointers to constants – symbolic constants –type compatibility – declaration of variables – dynamic initialization of variables – reference variables – operators in C++ - scope resolution operator – memory management operators – manipulators – type cast operator – expressions and their types – special assignment expressions – implicit conversions – operator precedence.

UNIT-II:
Functions in C++ : The main function – function prototyping – call by reference – return by reference – inline functions – default arguments – const arguments – function overloading.
Managing Console I/O Operations: C++ streams – C++ stream classes – unformatted console I/O operations – formatted console I/O operations –managing output with manipulators.

UNIT-III:
Classes and Objects: Specifying a class – defining member functions – making an outside function inline – nesting of member functions – private member functions – arrays within a class – memory allocation for objects –arrays of objects – objects as function arguments – friend functions – returning objects – const member functions.
Constructors and Destructors: Introduction – constructors – parameterized constructors – multiple constructors in a class – constructors with default arguments – copy constructor.

UNIT-IV:
Operator Overloading: Introduction – defining operator overloading – overloading unary operators – overloading binary operators - overloading binary operators using friends – rules for overloading operators.

UNIT-V:

Inheritance: Introduction – defining derived classes – single inheritance – making a private member inheritable – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance.

Text Books:

1. E.Balagurusamy - 'Object Oriented programming with C++', McGraw Hill.
2. Robert Lafore – 'Object oriented programming in Turbo C++, Galgotia publications Pvt.Ltd, New Delhi- 110002 11994.
3. Bjarne Stroutstrup – 'The C++ programming language', II Edition, Addision Wesley, 1991.

Reference Books:

1. D.Ravi Chandran – 'Programming with C++', Tata McGraw-Hill publishing company limited (1996), New Delhi.
2. Ashok N.Kamthane – 'Object Oriented Programming with ANSI and Turbo C++', Pearson Education publishers (2003).
3. John R.Hubbard – 'Programming with C++, 2nd Edition, TMH publishers (2002).

SEMESTER-VI
SKILL BASED SUBJECT
SUBJECT TITLE: OPERATIONS RESEARCH - PAPER -IV

SUBJECT DESCRIPTION:

This course enhances the students knowledge in decision analysis, sequencing the jobs to be carried out based on cost optimization; improve the power on replacement policies; analyse the cases according to their categories and improves the programming techniques.

Unit I:

Decision Analysis – Decision Making environment – Decisions under uncertainty – Decision under risk – Decision – Tree Analysis.

UNIT--II:
SEQUENCING PROBLEMS
Introduction-problem of sequencing - basic terms used in sequencing- processing n--jobs through 2 machines - processing n –jobs through k machines -- processing 2 jobs through k machines(Problems only).

UNIT-III
REPLACEMENT PROBLEMS
Introduction - Replacement of equipment / assets that deteriorates gradually - replacement of equipment that fails suddenly and problems.

UNIT--IV:
INFORMATION THEORY:
Introduction- A measure of Information-Axiomatic Approach to Information- Entrpy-The expected information- Some properties of entropy function-Joint and conditional entropies.

UNIT -- V :
APPLICATIONS:
General solution of (mxn) rectangular games using simplex method - Reliability and system failure rates using replacement problems.

REFERENCES :

1. Operations research ; Kandiswarup ; P. K. Gupta ; Man Mohan ; S.Chand &sons education publications ; New Delhi.

2. Operations research : P K Gupta ; D S Hira ; S. Chand and company ltd. Ram Nagar; New Delhi.

3. Operations research principles problems ; S Dharani venkata krishnan ;keerthi publishing house Pvt. Ltd.