Syllabus

for

B.Sc.(M.S.Cs) - R17

VIKRAMA SIMHAPURI UNIVERSITY

Course Structure and Syllabus

BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –I

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam*	Sem. End Exam	Teaching Hours**	Credits
1.	First Language	English	100	25	75	4	3
2.	Second Language	(Tel/Hindi/Urdu/Sans)	100	25	75	4	3
3.	Foundation Course -1	HVPE (Human Values & Professional Ethics)*	50	---	50	2	2
4.	Foundation Course- 2	Environmental Studies	50	---	50	2	2
5.	Mathematics-I	Differential Equations Problem Solving Sessions	100	25	75	6	5
6.	Statistics-I	Paper - I Descriptive Statistics and Probability	100	25	75	3	3
		Practical	50	0	50	2	2
7.	Computer Science-I	Computer Fundamentals & Photoshop	100	25	75	4	3
		Practical	50		50	2	2
Total			**700**	**125**	**575**	**27**	**25**

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Course Structure

BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –II

BSC(MSCS) **Semester –I**

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam	Sem. End Exam	Teaching Hours**	Credits
1.	First Language	English	100	25	75	4	3
2.	Second Language	(Tel/Hindi/Urdu/Sans)	100	25	75	4	3
3.	Foundation Course -3	ICT-1 (Information & communication Technology)	50	---	50	2	2
4.	Foundation Course-4	Communication & Soft Skills-1	50	---	50	2	2
5.	Mathematics-II	Solid Geometry Problem Solving Sessions	100	25	75	6	5
6.	Statistics-II	**Paper II - Mathematical Expectation and Probability Distributions**	100	25	75	3	3
		Practical	50	0	50	2	2
7.	Computer Science-II	Programming in C	100	25	75	4	3
		Practical	50		50	2	2
Total			**700**	**125**	**575**	**27**	**25**

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Course Structure

BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –III

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam	Sem. End Exam	Teaching Hours**	Credits
1.	First Language	English	100	25	75	4	3
2.	Second Language	(Tel/Hindi/Urdu/Sans)	100	25	75	4	3
3.	Foundation Course- 5	ICT-2 (Information & communication Technology)	50	---	50	2	2
4.	Foundation Course- 6	Communication & Soft Skills-2	50	---	50	2	2
5.	Mathematics-III	Abstract Algebra Problem Solving Sessions	100	25	75	6	5
6.	Statistics-III	Paper - III Statistical Methods	100	25	75	3	3
		Practical	50		50	2	2
7.	Computer Science-II	Object oriented programming using java	100	25	75	4	3
		Practicals	50		50	2	2
Total			**700**	**125**	**575**	27	25

VIKRAMA SIMHAPURI UNIVERSITY

Course Structure

BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –IV

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam	Sem. End Exam	Teaching Hours**	Credits
1.	Foundation Course- 7	Communication & Soft Skills-3	50	---	50	2	2
2.	Foundation Course- 8	Analytical Skills*	50	---	50	2	2
3.	Foundation Course- 9	Entrepreneurship	50	---	50	2	2
4.	Foundation Course- 10	Leadership Education**	50	---	50	2	2
5.	Mathematics-IV	Real Analysis Problem Solving Sessions	100	25	75	6	5
6.	Statistics-IV	**Paper IV Statistical Inference**	100	25	75	3	3
		practical	50	0	50	2	2
7.	Computer Science-IV	Data structures	100	25	75	4	3
		Data structures using Java lab	50		50	2	2
Total			**600**	**75**	**525**	**25**	**23**

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BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –V

S.no	Course	Name of the subject	Total marks	Mid Sem Marks	Sem End Exam	Teaching Hours	Credits
1.	**Mathematics**	Ring Theory & Matrices Problem Solving Sessions	100	25	75	5	5
2.		Linear Algebra Problem Solving Sessions	100	25	75	5	5
3.	**Statistics**	Paper - V Sampling Techniques and Design of Experiments	100	25	75	3	3
		Practical	50	0	50	2	2
4.		Paper - VI - Quality, Reliability	100	25	75	3	3
		Practical	50	0	50	2	2
5.	**Computer Science**	DBMS	100	25	75	3	3
		DBMS Lab	50	0	50	2	2
6.		Software Engineering	100	25	75	3	3
		Software Engineering Lab	50	0	50	2	2
	Total		**800**	**150**	**650**	**30**	**30**

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BSC(MATHEMATICS,STATISTICS, COMPUTER SCIENCE)

w.e.f.2017-2018

Semester –VI

S.no	Semester	paper	Name of the subject	Total marks	Mid Sem Marks	Sem End Exam	Teaching Hours	Credits
1.	VI	**Mathematics VII**	**Electives: (any one)**					
			VII-(A) Vector Calculus	100	25	75	5	5
			VII-(B) Operations Research					
			VII-(C) Number Theory Problem solving sessions					
2.		**Mathematics VIII**	**Cluster Electives:**					
			VIII-A-1: Laplace Transforms	100	25	75	5	5
			VIII-A-2: Integral Transforms	100	25	75	5	5
			VIII-A-3: *Project work*	100	0	100	5	5
			OR					
			VIII-B-1: Principles of Mechanics	100	25	75	5	5
			VIII-B-2: Fluid Mechanics	100	25	75	5	5
			VIII-B-3: *Project work*	100	0	100	5	5
			OR					
			VIII-C-1: Graph Theory	100	25	75	5	5
			VIII-C-2: Applied Graph	100	25	75	5	5
			VIII-C-3: *Project work*	100	0	100	5	5
			OR					
			VIII-D-1: Numerical Analysis	100	25	75	5	5
			VIII-D-2: Advanced Numerical Analysis	100	25	75	5	5
			VIII-D-3: *Project work*	100	0	100	5	5

S.no	Semester	paper	Name of the subject	Total marks	Mid Sem Marks	Sem End Exam	Teaching Hours	Credits
3.	VI	Statistics VII	**Choose any one of the following Electives A or B**					
			VII(A): Applied Statistics	100	25	75	3	3
			VII(A): Practical	50	0	50	2	2
			OR					
			VII(B): Demography & Vital Statistics	100	25	75	3	3
			VII(B): Practical	50	0	50	2	2
4.			CLUSTER					
		Statistics VIII	**VIII(A1): Optimization Techniques**	100	25	75	3	3
			VIII(A1): Practical	50	0	50	2	2
			VIII(A2): Numerical Analysis	100	25	75	3	3
			VIII(A2): Practical	50	0	50	2	2
			VIII(A3): Project Work	100	0	100	5	5
5.		COMPUTER SCIENCE VII	**Elective -I**					
			A. Operating systems	100	25	75	3	3
			B. Distributed Systems					
			C. Web Technologies					
			Lab for Elective -I(A OR B OR C)	50	0	50	2	2
6.		Computer science VIII Cluster-A 1,2,3 or Cluster-B 1,2,3 or Cluster-c 1,2,3	**Elective -II (CLUSTER -A)**					
			1. Visual Basic programming	100	25	75	3	3
			Visual Basic programming Lab	50	0	50	2	2
			2. PHP(Personal Home page)	100	25	75	3	3
			PHP Lab	50	0	50	2	2
			3. Project work	150	50	100	5	5
			Elective -II (CLUSTER -B)					
			1. Foundation of Data Science	100	25	75	3	3
			Data Science Lab	50	0	50	2	2
			2. Big Data Technology	100	25	75	3	3
			Big Data Technology Lab	50	0	50	2	2
			3. Project work	150	50	100	5	5
			Elective -II (CLUSTER -C)					
			1. computer Networks	100	25	75	3	3
			computer Networks Lab	50	0	50	2	2
			2. Cloud Computing	100	25	75	3	3
			Cloud Computing Lab	50	0	50	2	2
			3. Project work	150	50	100	5	5
	TOTAL (MATHEMATICS CLUSTER)			**700**	**125**	**575**	**30**	**30**
	TOTAL (STATISTICS CLUSTER)			**800**	**125**	**675**	**30**	**30**
	TOTAL (COMPUTER SCIENCE CLUSTER)			**850**	**175**	**675**	**30**	**30**

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

General English Syllabus for B.A/ B.A. (OL)/B.Com/B.Sc/BBA/BCA Courses under CBCS w.e.f. 2015-16 (Revised in April-2016)

SEMESTER – I

1. Every unit shall state the objectives and expected deliverables.
2. Every lesson shall have
   i) Questions on subject comprehension, paragraph, short note, single sentence answer types
   ii) Exercises on vocabulary, syntax, and pronunciation
   iii) Language exercises shall include exercises in paraphrasing, note-making and report writing wherever possible
   iv) Pre -reading and post- reading activities.

Unit – I

PROSE

1. A.P. J. Abdul Kalam: The Knowledge Society (from *Ignited Minds*)
2. NgugiWaThiong'o: The Language of African Literature (from *Decolonizing the Mind*)

Unit – II

POETRY

1. Robert Frost: The Road Not Taken
2. Nissim Ezekiel: Night of the Scorpion

Unit – III

SHORT STORY

1. Mulk Raj Anand : The Lost Child
2. Henry Lawson: The Loaded Dog

Unit – IV

ONE - ACT PLAY

William Shakespeare: The Merchant of Venice (Court Scene – Act IV Scene -1)

Unit – V

LANGUAGE ACTIVITY

1. Classroom and Laboratory Activities
   i. Single Sentence Answer Questions on Vocabulary (spelling), sound(pronunciation), sense (meaning), and syntax (usage)
2. Classroom Activity
   i. Exercises in Articles and Prepositions
   ii. Exercises in Tenses, Interrogatives and Question tags

Note: In classroom instruction it may be ensured that the theoretical and practical components of CSS-I complement the language activity in this semester.

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VIKRAMA SIMHAPURI UNIVERSITY :: KAKUTUR

General English

(Common to FIRST YEAR – FIRST SEMESTER B.A., B.A. (OL), B.Com., B.Sc., BBA, BCA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in April, 2016)

Model Question Paper (2017-18)

Time: 3 Hours Max. Marks: 75

1. Answer any TWO of the following questions. 2x5 = 10
   a. What are the problems India would face in making Abdul Kalam's dream into a reality?
   b. Describe the author's experiences about language and literature in "The Language of African Literature".
   c. Describe how changes in society through technology can lead to wealth generation in a country like India according to Kalam.
2. Answer any TWO of the following questions. 2x5 = 10
   a. 'And that has made all the difference.' Explain it with reference to the poem 'The Road Not Taken'.
   b. Narrate all the activities presented in the poem 'Night of the Scorpion'.
   c. Pick out the comparisons in the poem 'Night of the Scorpion' and explain how they enhance the beauty of the poem.
3. Answer any TWO of the following questions. 2x5 = 10
   a. Describe the different feelings of the child in the story 'The Lost Child'.
   b. Bring out the humorous elements described in 'The Loaded Dog'.
   c. Do you think that all parents behave the same way as the child's parents in the story 'The Lost Child'? Discuss.
4. Answer any ONE of the following questions. 1x5 = 5
   a. Describe the role of Portia in deciding the case of Antonio in the court of justice.
   b. How does Portia turn the tables on Shylock?
5. Read the following passage and answer the questions that follow. (From Prose) 5x1 = 5

   Knowledge has many forms and it is available at many places. It is acquired through education, information, intelligence and experience. It is available in academic institutions with teachers, in libraries, in research papers, seminar proceedings and in various organizations and workplaces with workers, managers, in drawings, in process sheets and on the shop floors. Knowledge, though closely linked to education, comes equally from learning skills such as those possessed by our artists, craftsmen, hakims, vaidyas, philosophers and saints, as also our housewives. Knowledge plays a very important role in their performance and output too. Our heritage and history, the rituals, epics and traditions that form part of our consciousness are also vast resources of knowledge as are our libraries and universities. There is an abundance of unorthodox, earthy wisdom in our villages.

   a. How is knowledge acquired?
   b. Where is knowledge available?
   c. In whose performance and output does knowledge play a very important role?
   d. Where is an abundance of wisdom?
   e. What is the antonym of 'unorthodox'?
6. Identify the Correct spelling in each group. 5x1 = 5

a.	i. Hight	ii. Height	iii. Hieght
b.	i. Awailable	ii. Available	iii. Avialable
c.	i. Incomplete	ii. Incompleate	iii. Incomplet
d.	i. Acheivement	ii. Achievment	iii. Achievement
e.	i. Campain	ii. Campaign	iii. Campain

7. Write the English spelling of the words given in phonemic transcription. 5x1 = 5

   a. /fɑːst/ b. / meɪk/ c. /mʌndeɪ / d. /zu:/ e. / mæn

8. Fill in the blanks with suitable Articles. 5x1 = 5

   a. The Nile is ___ longest river. b. My friend came late by ___hour.
   c. Honesty is _____ best policy. d. I saw ____ one-eyed man.
   e. My friend is _____ honest man.

9. Fill in the blanks with suitable Prepositions. 5x1 = 5
   a. I prefer milk ___coffee.
   b. He has been staying here ____ 2 pm.
   c. My brother is suffering _____ fever.
   d. There is an exception _____ every rule.
   e. He is senior ____ me.
10. Fill in the blanks with the correct forms of the verbs given in brackets. 5x1 = 5
   a. I _____ (buy) a house last year.
   b. She _____(read) a book at 2 pm yesterday.
   c. It _____ (rain) for the last two hours.
   d. They _____ (work) in that office from 2010 to 2015.
   e. The thief _____ (escape) before I opened the door.
11. Convert the following sentences into questions. 5x1 = 5
   a. They are students. b. She is writing a letter.
   c. You know him. d. It is a book.
   e. He met her last week.
12. Add a question tag to each of the following sentences. 5x1 = 5
   a. I am a student. b. He doesn't drink liquor.
   c. They won't come. d. The film is not good.
   e. You are impatient.

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VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

Part I (B) SANSKRIT
CBCS SEMESTER WISE SYLLABUS
COMMON TO B.A./B.SC./B.Com./BBA
I SEMESTER
PAPER – I POETRY, PROSE AND GRAMMAR - I

Unit – I Old poetry 1. ABHIJNAANAM

Ramayanam – Kishkindhaa Kaanda – 6th Canto 1- 27 Slokas

2. AATITHYAM

Bhaagavatam – IX Skandha - 21st Adhyaaya – 1 – 36 Slokas

Unit – II Modern Poetry 1. UNNATIHI

From Bharatee Bhushanam by Dr D.N.Deekshit –Pp No. 66 – 68

2. VIVIKTA PUSHPA KARANDAHA

By Dr Rani Sadasiva Murthy, Selected Stanzas – 14

UNIT – III PROSE MOORKHATAA

PAREEKSHITAKAARAKAM OF PANCHARANTRAM – 3rd & 4th Stories- Murkha Brahmana Katha & Murkha Pandita Katha – Page 734 – 743 , Pub. Krishnadas Academy, Varanasi

UNIT IV GRAMMAR 1. DECLENSIONS

Nouns ending in vowels, Deva, Kavi, Bhanu, Dhatru, Pitru, Go, Ramaa, Mati

2. CONJUGATIONS

1st Conjugation – Bhoo, Gam, Shtha, Drusir, Labh, Mud

2nd Conjugation – AS

10th Conjugation – Bhaash

UNIT – V GRAMMAR - 1. SANDHI

Swara Sandhi : Sarvarnadeergha, Ayovayava, Guna, Vruddhi, Yana desa.

Halsandhi : Scutva, Stutva, Anunasika

2. SAMASA –

Dwandwa, Tatpurusha, Karmadharaya, Dwigu.

VIKRAMA SIMHAPURI UNIVERSITY
NELLORE - 524 001
SANSKRIT
CBCS SEMESTER WISE SYLLABUS
PATRON OF THE QUESTION PAPER

SEMESTER-I **Max Marks : 75**
Time : 3hrs

I.	Essay One from each lesson - Abhignanam and Antharyam	1 out of2	1x 10	10M
II.	Essay One from each Lesson : Unnati and Viviktapushpa Karandah.	1 out of 2	1 x 8	08M
III.	Essay One from each Lesson : Murkhabrahmana Katha and Murkha Pandita Katha	1 out of 2	1 x 10	10M
IV.	Short Answers Three from, Abhignanam and Athityam Two from Murkha Brahmana Katha	4 out of 8	4 x 2	08M
V.	Annotations Two from each lesson Abhignanam, Athidhyam, Murkhabrahmana Katha, Murkha Pandita Katha	4 out of 8	4 x 3	12 M
VI.	Full form of Sabda Three from Pullinga and one from Srilinga	2 out of 4	2 x 4	08M
VII.	Full form of a Lakara of a given Dhatu Two from each Parshmaipada and Athmanepada		2 out of 4	2x3 = 6
VIII.	Combine any SIX and mention the name of the sandhi		6 out of 10	6x1=6
IX.	Simple Writing of Vigrahavakya One from Each Samasa		3 out of 6	3x1=3
X.	Filling the Sloka and Writing the Meaning Two from Abhignanam and two from Adityam		2 out of 4	2x2=4

Note : Question Paper should be Sanskrit Only. English Translation should not be there.

Foundation Course - 1

I. HUMAN VALUES AND PROFESSIONAL ETHICS

Common for BA/BCom/BSc/BBA/BCA Programmes

I Semester (Total 30 Hrs)

Unit-I : Introduction to Value Education

1. Value Education, Definition, Concept and Need for Value Education
2. The Content and Process of Value Education
3. Self-Exploration as a means of Value Education
4. Happiness and Prosperity as parts of Value Education

Unit-II : Harmony in the Human Being

1. Human Being is more than just the Body
2. Harmony of the Self ('I') with the Body
3. Understanding Myself as Co-existence of the Self and the Body
4. Understanding Needs of the Self and the Needs of the Body

Unit-III : Harmony in the Family and Society and Harmony in the Nature

1. Family as a basic unit of Human Interaction and Values in Relationships
2. The Basics for respect and today's Crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive Human Goal : The Five dimensions of Human Endeavour

Unit-IV : Social Ethics

1. The Basics for Ethical Human conduct
2. Defects in Ethical Human Conduct
3. Holistic Alternative and Universal order
4. Universal Human Order and Ethical Conduct

Unit-V : Professional Ethics

1. Value Based Life and Profession
2. Professional Ethics and Right Understanding
3. Competence in Professional Ethics
4. Issues in Professional Ethics - The Current scenario
5. Vision for Holistic Technologies, Production System and Management Models

Reference Books :

1. A.N.Tripaty, Human Values, New Age International Publishers, 2003
2. Bajpai.B.L., Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted, 2004
3. Bertrand Russell, Human Society in Ethics and Politics
4. Corliss Lamont, Philosophy of Humanism
5. Gaur.R.R., Sangal.R, Bagaria.G.P., A Foundation Course in Value Education, Excel Books, 2009
6. Gaur.R.R., Sangal.R, Bagaria.G.P., Teacher's Manual, Excel Books, 2009
7. I.C.Sharma, Ethical Philosophy of India, Nagin & Co., Julundhar
8. Mortimer.J.Adler, What Man has Made of Man
9. R.Subramanian, Professional Ethics, Oxford University Press
10. Text Book for Intermediate Ethics and Human Values, Board of Intermediate Education & Telugu Academy, Hyderabad
11. William Lilly, Introduction to Ethics, Allied Publishers

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

THREE YEAR DEGREE EXAMINATION
FIRST YEAR EXAMINATION
SEMESTER-I
HUMAN VALUES AND PROFESSIONAL ETHICS
Common for BA/BCom/BSc/BBA/BCA Programmes
MODEL PAPER

TIME: 2 Hrs **Max Marks: 50**

Answer any FIVE of the following questions 5 X 10 =50

1. నేటి వృత్తిపరమైన విద్యావ్యవస్థలో విలువల విద్య ఆవశ్యకత ఎట్టిది?
   What is the need for value education in the present day professional oriented education?
2. స్వీయ పరిశోధన అనగానేమి? అది ఎలా సాధ్యం?
   What is meant by self-exploration? How it can be achieved?
3. నేను, శరీరం యొక్క కార్యకలాపాలను ఎలా అర్థం చేసుకుంటావు?
   What do you mean by understanding the activities of the self and body?
4. "సంయమ" "స్వస్థ్య" అనగా నేమి? అవి ఒకదానికొకటి ఎట్టి సంబంధం కల్గియున్నాయి?
   Define sanyama and svasthya and explain how they are related?
5. మానవ సంబంధాలను అర్థం చేసుకోవటానికి కుటుంబం ఒక ప్రయోగశాల? వివరింపుము?
   "Family is a natural laboratory to understand human relationship" – Explain.
6. సంపూర్ణమైన మానవ లక్ష్యానికి అవసరమైన ప్రణాళిక ఎట్టిది?
   What is the programme needed to achieve the comprehensive human goal?
7. సరైన అవగాహన నీతివంతమైన జీవనానికి ఎలా దోహదం చేస్తుంది?
   How does right understanding provide the basis for ethical human conduct?
8. సంపూర్ణ ప్రత్యామ్నాయ పయనంలోని వివిధ దశలను పేర్కొనుము?
   What are the various stages of journey towards the destination of holistic alternatives?
9. నేడు వృత్తిధర్మములో నెలకొన్న సమస్యలను విశ్లేషించి వాని పరిష్కారమార్గములను సూచింపుము?
   Critically examine the issues in professional ethics?
10. సంపూర్ణ ప్రత్యామ్నాయం లేక సంపూర్ణ మానవ లక్ష్యాన్ని సాధించటంలో సాంకేతిక, ఉత్పాదన, యాజమాన్యాల పాత్రను వివరించండి?
    What is the vision for holistic alternative? Mention the broad holistic criteria for evaluation of technologies production systems and management models?

Instruction to Paper Setter :
Two questions must be given from each unit.

Foundation Course – 2

ENVIRONMENTAL STUDIES

Common for BA/BCom/BSc/BBA/BCA Programmes

Semester – I (Total 30 Hours)

Unit-I : Natural Resources: **6 Hrs**

Definition, scope and importance. Need for public awareness.

Brief description of;

- Forest recourses: Use and over-exploitation. Deforestation; timber extraction, mining, dams. Effect of deforestation environment and tribal people
- Water resources: Use and over–utilization. Effects of over utilisation of surface and ground water. Floods, drought.
- Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- Food resources: World food problems, Effects of modern agriculture; fertilizer-pesticide, salinity problems.
- Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification

Unit-II : Ecosystems, Biodiversity and its conservation **6 Hrs**

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers

- Food chains, food webs and ecological pyramids
- Characteristic features of the following ecosystems:-

Forest ecosystem, Desert ecosystem, Aquatic ecosystem.

- Value of biodiversity: Consumptive use, productive use. Biodiversity in India.
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity

Unit-III : Environmental Pollution **6 Hrs**

- Definition
- Causes, effects and control measures of :-
  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Noise pollution
- Solid waste management; Measures for safe urban and industrial waste disposal
- Role of individual in prevention of pollution
- Disaster management: Drought, floods and cyclones

Unit-IV : Social Issues and the Environment **6 Hrs**

- From Unsustainable to Sustainable development
- Water conservation, rain water harvesting, watershed management.
- Climate change, global warming, ozone layer depletion,
- Environment protection Act
- Wildlife Protection Act, Forest Conservation Act

Unit-V : Human Population and the Environment **6 Hrs**

- Population explosion, impact on environment.
- Family welfare Programme
- Environment and human health
- Role of Information Technology in Environment and humanhealth.

Reference Books :

1. Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu and Dr.V.VivekaVardhani, Published by Telugu Academy, Hyderabad.
2. Environmental Studies by R.C.Sharma, Gurbir Sangha, published by Kalyani Publishers.
3. Environmental Studies by Purnima Smarath, published by Kalyani Publishers.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

FIRST YEAR : SEMESTER – I

SUBJECT : (FOUNDATION COURSE–2)

Common for BA/BCom/BSc/BBA/BCA Programmes

ENVIRONMENTAL STUDIES

Time : 2hours *Max marks : 50*

Answer any FIVE of the following questions. *5 X 5 = 25M*

1. Define Environment and Explain Multidisciplinary Nature of the environmental science?
   పర్యావరణాన్ని నిర్వచించి, పర్యావరణశాస్త్రం యొక్క బహుముఖపార్శ్వాలను వివరించండి?

2. Write about Renewable and Non-Renewable Energy Resources?
   పునరుద్ధరింపగల పునరుద్ధరించలేనిశక్తి వనరులను వివరించండి?

3. Explain the structure and Functions of Ecosystem?
   ఆవరణవ్యవస్థ యొక్క నిర్మాణము మరియు విధులను తెల్పండి?

4. Define Biodiversity and Explain India as a mega – Biodiversity Nation?
   జీవవైవిధ్యాన్ని నిర్వచించి, భారతదేశాన్ని జీవవైవిధ్య ప్రాంతంగా వివరింపుము?

5. Write about Air pollution?
   గాలి కాలుష్యాన్ని వివరించండి?

6. Describe the solid waste Management Methods?
   వ్యర్థపదార్థాల తరలింపు విధానాలను తెల్పండి?

7. Explain the global warming and Acid rains?
   గ్లోబల్ వార్మింగ్ మరియు ఆమ్లవర్షాలను వివరించండి?

8. Describe about rain water harvesting and watershed Management?
   వర్షపునీరు ప్రోధి, నిలుపుదల మరియు నీటిగట్ల యాజమాన్యపద్ధతులు వివరించండి?

9. Write about women & Child welfare programme?
   స్త్రీ, శిశుసంక్షేమంను వివరించండి?

10. Explain population-unemployment?
    జనాభాపెరుగుదల, నిరుద్యోగులను తెల్పండి?

Instruction to Paper Setter :

Two questions must be given from each unit.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

w.e.f. 2015-16 (Revised in April, 2016)

B.A./B.Sc. FIRST YEAR MATHEMATICS SYLLABUS

SEMESTER –I, PAPER - 1

DIFFERENTIAL EQUATIONS

60 Hrs

UNIT – I (12 Hours), Differential Equations of first order and first degree :

Linear Differential Equations; Differential Equations Reducible to Linear Form; Exact Differential Equations; Integrating Factors Excluding Change of Variables.

***UNIT – II (12 Hours),* Orthogonal Trajectories.**

Cartesian co-ordinates self orthogonal Family of curves. Orthogonal trajectories : polar co-ordinates.

Differential Equations of first order but not of the first degree :

Equations solvable for p; Equations solvable for y; Equations solvable for x; Equations that do not contain. x (or y); Equations of the first degree in x and y – Clairaut"s Equation.

UNIT – III (12 Hours), Higher order linear differential equations-I :

Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.

General Solution of f(D)y=0

General Solution of f(D)y=Q when Q is a function of x.

$\frac{1}{f(D)}$ is Expressed as partial fractions.

P.I. of f(D)y = Q when Q= be^{ax}

P.I. of f(D)y = Q when Q is b sin ax or b cos ax.

UNIT – IV (12 Hours), Higher order linear differential equations-II :

Solution of the non-homogeneous linear differential equations with constant coefficients.

P.I. of f(D)y = Q when Q= bx^{k}

P.I. of f(D)y = Q when Q= e^{ax}

V P.I. of f(D)y = Q when Q= xV

P.I. of f(D)y = Q when Q= x^{m} V

UNIT –V (12 Hours), Higher order linear differential equations-III :

Method of variation of parameters (without non constant coefficient equations) ; The Cauchy-Euler Equation ; Legender's Equations.

Prescribed Text Book :

1. A text book of mathematics for BA/BSc Vol 1 by N. Krishna Murthy & others, published by S. Chand & Company, New Delhi.

Reference Books :

1. Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Learning Pvt. Ltd. New Delhi-Second edition.

2. Ordinary and Partial Differential Equations Raisinghania, published by S. Chand & Company, New Delhi.

3. Differential Equations with applications and programs – S. Balachandra Rao & HR Anuradha-universities press.

4. Telugu Academy Text Book for Differential Equations.

5. I-B.Sc A text Book of a Mathematics Deepthi Publications.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Application of Differential Equations in Real life

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-I
(DIFFERENTIAL EQUATIONS)

NOTE :- Paper Setter Must select TWO Short Questions and TWO Easy Questions from Each Unit as Follows :-

UNIT	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT - I	Linear Equations	1	-
	Bernoulli's Equations	-	1
	Integrating Factor	1	-
	Exact Equations	-	1
UNIT - II	Orthogonal Trajectories	1	1
	Solvable for x, y, p.	1	1
UNIT - III	General Solution of f(D)y=0	1	-
	f(D)y = Q when Q= be^{ax}	1	1
	f(D)y = Q when Q is b sin ax or b cos ax	-	1
UNIT - IV	f(D)y = Q when Q= bx^{k}	1	-
	f(D)y = Q when Q= $e^{ax}V$	1	1
	f(D)y = Q when Q= xV	-	1
UNIT - V	Variation of Parameters (without non constant coefficient equations)	-	1
	Cauchy-Euler Equations	2	-
	Legender's Equations	-	1

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VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

(w.e.f. 2016-17)

B.A./B.Sc. FIRST YEAR MATHEMATICS

SEMESTER-I MODEL QUESTION PAPER-1

(DIFFERENTIAL EQUATIONS)

TIME : 3 Hours *Max.Marks : 75*

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Solve $\frac{dy}{dx}+2xy=e^{-x^2}$.

2. Find Integrating factor of $\left(xy^3+y\right)dx+2\left(x^2y^2+x+y^4\right)dy=0$.

3. Find the Orthogonal trajectories of the family of curves $x^{\frac{2}{3}}\ x^{\frac{2}{3}}+y^{\frac{2}{3}}=a^{\frac{2}{3}}$ where 'a' is a parameter.

4. Solve $y=2xP+x^2P^4$.

5. Solve $\left(D^4+8D^2+16\right)y=0$.

6. Solve $\left(D^2-5D+6\right)y=e^{4x}$.

7. Solve $\left(D^2+4\right)y=x\sin x$.

8. Solve $\left(D^2-4D+4\right)y=x^3$.

9. Solve $\left(x^2D^2-xD+1\right)y=\log x$.

10. Find the complementary function $\left(y_c\right)$ of $\left(x^2D^2-3xD+5\right)y=x^2\sin(\log x)$.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Solve $\frac{dy}{dx}\left(x^2y^3+x^4\right)=1$.

12. Solve $x^2ydx-\left(x^3+y^3\right)dy=0$.

UNIT - II

13. Find the orthogonal Trajectories of the families of Curves $r=\frac{2a}{1+\cos\theta}$ when "a" is Parameter.

14. $P^2+2Py\cot x=y^2$.

UNIT - III

15. Solve $\left(D^3+1\right)y=\left(e^x+1\right)^2$.

16. Solve $\left(D^2-3D+2\right)y=\cos 3x.\cos 2x$.

SECTION - B

UNIT - IV

17. Solve $\frac{d^2y}{dx^2}-6\frac{dy}{dx}+13y=8e^{3x}\sin 2x$.

18. Solve $\left(D^2+1\right)y=x^2e^{2x}+x\cos x$.

UNIT - V

19. Solve by the method of variation of parameters $\left(D^2+1\right)y=\cos ecx$.

20. Solve $\left[(1+x)^2D^2+(1+x)D+1\right]y=4\cos\log(1+x)$.

BA/BSC I YEAR : STATISTICS SYLLABUS

(With Mathematics Combination)

Semester - I CBCS

Paper - I Descriptive Statistics and Probability

Unit-I

Introduction to Statistics: Concepts of Primary and Secondary data. Methods of collection and editing of primary data, Secondary data. Designing a questionnaire and a schedule. Measures of Central Tendency - Mean, Median, Mode,Geometric Mean and Harmonic Mean.

Unit-II

Measures of dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation. Descriptive Statistics -Central and Non-Central moments and their interrelationship. Sheppard's correction for moments. Skewness and kurtosis.

Unit-III

Introduction to Probability: Basic Concepts of Probability, random experiments, trial, outcome, sample space, event, mutually exclusive and exhaustive events, equally likely and favourable outcomes. Mathematical, Statistical, axiomatic definitions of probability. Conditional Probability and independence of events,

Unit-IV

Probability theorems:Addition and multiplication theorems of probability for 2 and for n events. Boole's inequality and Baye's theorems and problems based on Baye's theorem.

Unit-V

Random variable: Definition of random variable, discrete and continuous random variables, functions of random variable. Probability mass function. Probability density function, Distribution function and its properties. Bivariate random variable - meaning, joint, marginal and conditional Distributions, independence of random variables.

Text Books :

1. V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. BA/BSc I year statistics - descriptive statistics, probability distribution - Telugu Academy - Dr M.Jaganmohan Rao,Dr N.Srinivasa Rao, Dr P.Tirupathi Rao, Smt.D.Vijayalakshmi.
3. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI

Reference books :

1. Willam Feller: Introduction to Probability theory and its applications. Volume –I, Wiley
2. Goon AM, Gupta MK, Das Gupta B : Fundamentals of Statistics , Vol-I, the World Press Pvt.Ltd., Kolakota.
3. Hoel P.G: Introduction to mathematical statistics, Asia Publishing house.
4. M. JaganMohan Rao and Papa Rao: A Text book of Statistics Paper-I.
5. Sanjay Arora and Bansi Lal: New Mathematical Statistics: Satya Prakashan , New Delhi
6. Hogg Tanis Rao: Probability and Statistical Inference. 7th edition. Pearson.
7. KVS Sarma: Statistics Made simple, Do it yourself on PC PH

THREE YEAR B.A. / B.Sc DEGREE EXAMINATION
I-B.Sc STATISTICS
SEMESTER – I
(With Mathematics Combination)
DESCRIPTIVE STATISTICS AND PROBABILITY

Time: 3 Hours *Max. Marks : 75*

SECTION – A

Answer any FIVE Questions :- ***5 X 5 = 25M***

1. Explain various sources of secondary data. Give various methods collecting secondary data.
2. Define mean and explain merits and demerits
3. Explain sheppard correction for moments what is the need of it.
4. Define Skewness? Explain various measures of Skewness?
5. What are the various definitions of probability.
6. Explain the following:
   i) Random experiment ii) Sample space iii) Mutually exclusive events
7. State and prove multiplication theorem on probability.
8. State and prove Boole's inequality.
9. Explain Bivariate Random Variable.
10. Explain random variable and write its properties.

SECTION - B

Answer any TWO questions :- ***2 X 10 = 20M***

11. What is primary data. State various methods of collecting primary data and discuss their relative merits.
12. Explain various measures of Central tendency.
13. Explain clearly the various measures of dispersion. State their merits and demerits.
14. Define central and non-central moments. Derive central moments in terms of raw moments.

SECTION - C

Answer any THREE questions :- ***3 X 10 = 30M***

15. Explain the following :
    (a) Sample (b) Event (c) Exhaustive events (d) Equally likely events
    (e) Mutually exclusive events (f) Impossible event (g) Independent events.
16. If A and B are independent events. Then show that (a) $\bar{A},B$ (b) $A,\bar{B}$
    (c) $\bar{A},\bar{B}$ are independent events.
17. State and prove addition theorem on probability for n events.
18. State and prove Baye's theorem.
19. Explain distribution function and its properties.
20. Explain the following concepts (a) Joint probability distribution
    (b) Marginal probability distribution (c) Probability mass function
    (d) Probability density function.

Instruction to Paper Setter :
Two short answer questions (5 Marks) and two essay questions (10 Marks) must be given from each unit.

Structure of Computer Science/Information Technology (IT) Syllabus I YEAR 1 SEMESTER

Computer Fundamentals & Photoshop

Course Outcome

To explore basic knowledge on computers and Photoshop's beauty from the practical to the painterly artistic and to understand how Photoshop will help you create your own successful images

UNIT-I:

Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems :binary, hexa and octal numbering system

UNIT-II:

Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory.

Unit –III

Introduction to Adobe photoshop, Getting started with photoshop, creating and saving a document in photoshop, page layout and back ground, photoshop program window-title bar,menu bar,option bar,image window,image title bar,status bar,ruler,paletts,tool box,screen modes,saving files,reverting files,closing files.

Unit –IV

Images: working with images, image size and resolution ,image editing,colour modes and adjustments , Zooming & Panning an Image,, , Rulers, Guides & Grids- Cropping & Straightening an Image,image backgrounds ,making selections.

Working with tool box: working with pen tool, save and load selection-working with erasers-working with text and brushes-Colour manipulations: colour modes- Levels – Curves - Seeing Colour accurately - Patch tool – Cropping-Reading your palettes - Dust and scratches- Advanced Retouching- smoothing skin

Unit-V

Layers: Working with layers- layer styles- opacity-adjustment layers

Filters: The filter menu, Working with filters- Editing your photo shoot, presentation –how to create adds ,artstic filter,blur filter,brush store filter,distort filters,noice filters,pixelate filters,light effects,difference clouds,sharpen filters,printing.

Structure of Computer Science/Information Technology (IT) Syllabus

Reference Books:

1. Fundamentals of Computers by Reema Thareja from Oxford University Press
2. Adobe Photoshop Class Room in a Book by Adobe Creative Team.
3. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Color Grading & Graphic...19 February 2016 by David Maxwell

Student Activity:

1. **Design a poster for technical paper presentation.**
2. **Create a digital scrap book.**

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

CBCS – BSc(COMPUTER SCIENCE) - I YEAR - SEMESTER-I
COMPUTER FUNDAMENTALS & PHOTOSHOP
MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Write various limitations of computers.
2. Briefly explain binary number system
3. Explain keyboard and mouse
4. Write about commercial software
5. How do you set page layout in Photoshop?
6. Write and explain how to create a document in Photoshop
7. How rulers and guides are useful in Photoshop window?
8. Explain how will you zoom an image in Photoshop.
9. Define Layer
10. Define Filter

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Draw block diagram of a computer and explain
12. Explain various types of computers.
13. What is primary memory? Explain its types
14. Define software. Explain different types of software
15. Explain various components of Photoshop program window
16. Write about reverting files
17. Explain how you change image size and resolution in Photoshop
18. Write about various colour modes.
19. Explain in detail about layers.
20. Explain the working of filers in Photoshop

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Photo Shop Lab

1. Create your Visiting card
2. Create Cover page for any text book
3. Create a Paper add for advertising of any commercial agency
4. Design a Passport photo
5. Create a Pamphlet for any program to be conducted by an organixation
6. Create Broacher for you college
7. Create Titles for any forthcoming film
8. Custom shapes creation
9. Create a Web template for your college
10. Convert color photo to black and white photo
11. Enhance and reduce the given Image size
12. Background changes
13. Design Box package cover
14. Design Texture and patterns
15. Filter effects & Eraser effects

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

GENERAL ENGLISH SYLLABUS

FIRST YEAR - SEMESTER – II

Unit – I

PROSE

1. J. B.S Haldane: The Scientific Point of View
2. A.G. Gardiner : On Shaking Hands

Unit - II

POETRY

1. John Keats: Ode to Autumn
2. KishwarNaheed : I am not that Woman

(from *An Anthology of Commonwealth Poetry* edited by C.D. Narasimhaiah)

Unit –III

SHORT STORY

1. Ruskin Bond : The Boy Who Broke the Bank
2. R. K. Narayan : Half a Rupee Worth

Unit – IV

ONE ACT PLAY

Anton Chekhov: The Proposal

Unit – V

LANGUAGE ACTIVITY

1. Transformation of Sentences: (a) Voice and (b) Speech
2. Degrees of Comparison
3. Paragraph writing using the Hints.
4. Dialogue writing in a given situation.
5. Dialogue writing using the Hints.
6. Reading Comprehension (a) From Prose and (b) Unknown

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VIKRAMA SIMHAPURI UNIVERSITY :: KAKUTUR

General English

(Common to FIRST YEAR – SECOND SEMESTER B.A., B.A. (OL), B.Com., B.Sc., BCA, BBA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in April, 2016)

Model Question Paper (2017-18)

Time: 3 Hours Max. Marks: 75

1. Answer any TWO of the following questions. 2x5 = 10
   a. 'Scientific point of view is morally equivalent of war.' Do you agree? Give Reasons.
   b. What are the modes of greetings of different countries mentioned by A.G. Gardiner?
   c. 'It is the happy mean between the Oriental's formal salaam and the Russian's enormous hug.' Elaborate this statement with reference to "On Shaking Hands".
2. Answer any TWO of the following questions. 2x5 = 10
   a. 'Season of mists and mellow fruitfulness.' Why does Keats feel about autumn like that? Describe?
   b. Why does the poet compare herself with a commodity in the poem 'I am not that Woman'?
   c. How does Keats describe the autumn season in the poem 'Ode to Autumn'?
3. Answer any TWO of the following questions. 2x5 = 10
   a. How did Subbaiah meet his tragic end in 'Half a Rupee Worth'?
   b. Sketch the character of Nathu in 'The Boy who Broke the Bank'.
   c. Give a brief description of the story 'Half a Rupee Worth'.
4. Answer any ONE of the following questions. 1x5 = 5
   a. Why did Lomov want to marry his neighbour, Natalya?
   b. What are the causes of the arguments in the play 'The Proposal'?
5. Rewrite the following sentences as directed. 5x1 = 5
   a. He reads a story. (into Passive Voice)
   b. The letters have been posted by him. (into Active Voice)
   c. She invited him to the party. (into Passive Voice)
   d. Nothing can be gained by us without effort. (into Active Voice)
   e. We posted most of the invitation cards. (into Passive Voice)
6. Rewrite the following sentences as directed. 5x1 = 5
   a. He said, "I have posted the letter." (into Indirect Speech)
   b. She said to me, "Are you a student?" (into Indirect Speech)
   c. Savitha said, "I sang a song." (into Indirect Speech)
   d. My father said to me, "I am happy because you have got good marks." (into Indirect Speech)
   e. "Don't make a noise" said the mother to her son. (into Indirect Speech)
7. Rewrite the following sentences as directed. 5x1 = 5
   a. He is taller than any other boy in the class. (into Superlative Degree)
   b. Akbar was greater than most other rulers. (into Positive Degree)
   c. His brother is at least as tall as he. (into Comparative Degree)
   d. A foolish friend can be more dangerous than a wise enemy. (into Positive Degree)
   e. My pen is not so good as yours. (into Comparative Degree)

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

Foundation Course

INFORMATION & COMMUNICATION TECHNOLOGY –1 (ICT-1)

Computer Fundamentals and Office Tools

Common for BA/BCOM/BSC/BBA

FIRST YEAR SEMESTER - II

Unit-I:

Basics of Computers :Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

Unit-II:

Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Pane.

Unit-III:

MS-Word

Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge

Unit-IV: MS-
PowerPoint

Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation

Unit-V: MS-
Excel

Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns – Changing column widths and row heights, auto format, changing font sizes, colors, shading.

Reference Books:

1. Fundamentals of Computers by ReemaThareja, Publishers : Oxford University Press, India
2. Fundamentals of Computers by V.Raja Raman, Publishers : PHI
3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and FaitheWempen, Publishers : Wiley

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

Foundation Course

INFORMATION & COMMUNICATION TECHNOLOGY –1 (ICT-1)

Computer Fundamentals and Office Tools

Common for BA/BCOM/BSC/BBA

FIRST YEAR – SEMESTER-II

MODEL QUESTION PAPER

Time: 2 Hours **Max. Marks : 50**

Answer any FIVE questions from the following **5x10=50**

1. Explain Block diagram of a digital Computer.
2. Explain about Input devices
3. Write about primary memory in detail.
4. Define operating system. Explain about functions of operating system.
5. Explain about features of MS-Word.
6. Write about Mail Merge Concept in MS-Word
7. How to create a presentation in MS-Power point?
8. How to add animation affects to a slide in MS-Power point?
9. What is worksheet? Explain features of MS-Excel.
10. Explain editing and formatting a Work Sheet

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

Foundation Course - 4

COMMUNICATION SKILLS AND SOFT SKILLS-1 (CSS -1)

(FOR ALL DEGREE PROGRAMMES)

I YEAR - II Semester

COURSE CONTENT (30 hours)

UNIT-1

VOCABULARY

(a) Analogy
(b) One-Word Substitutes
(c) Words often confused
(d) (I) Synonyms and (II) Antonyms

UNIT-2

GRAMMAR

(a) Correction of sentences
(b) Tenses

UNIT-3

GRAMMAR

(a) Articles
(b) Prepositions

UNIT-4

LISTENING SKILLS

(a) The Importance of listening
(b) Barriers / Obstacles of Effective Listening
(c) Strategies of effective listening.

UNIT-5

READING SKILLS

(a) Skimming
(b) Scanning
(c) Intensive and Extensive Reading
(d) Reading Comprehension

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Vikrama Simhapuri University :: Kakutur

Communication and Soft Skills (CSS) - 1

(Common to FIRST YEAR - SECOND SEMESTER B.A., B.A (O.L) B. Com., B.Sc.,BCA,BBA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in May 2016)

Model Question Paper (2017-18)

Time: 2 Hours Max. Marks: 50

I. Answer any TWO of the following questions. 2x5=10

1. Choose the right word that has the same relationship as the original pair of words.
   a. Honesty: Deception:: Kindness:_____. (Compassion, Cruelty, Pity)
   b. Fox: Cunning :: Ant: _____. (Lazy / Industrious/Playful).
   c. Player: Team :: Judge:_____. (Justice/ Jury/ Committee)
   d. Hill: Mountain :: Sea: _____. (River/ Ocean/ Bay)
   e. Poet: Poetess:: Lord :_____. (Lady / Count/ Gentleman)

2. Replace the underlined part of the sentence with one of the options given below the sentence.
   a. The police arrested him for trying to kill himself.
      i) death ii) suicide iii) murder
   b. The library has undertaken a project to digitalize all the hand written matter.
      i) tape-scripts ii) manuscripts iii) palm leaf scripts
   c. She is planning to write her own life history.
      i) biography ii) biodata iii) autobiography
   d. The guest is presented with a bunch of flowers.
      i) bouquet ii) branch iii) garland
   e. It is very difficult to get water that is fit to drink in this area.
      i) usable ii) potable iii) bottled

3. Fill in the blanks with either of the two words with the help of the context in each sentence.
   a. I'm sorry I can't _____(accept / except) your proposal.
   b. The extreme weather conditions have _____ (affected/ effected) the food grain production.
   c. The contestants in the run are allowed to use only _____ (canvas/ canvass) shoes.
   d. Most of the special festival meals are concluded with a _____ (desert /dessert).
   e. The _____ (poles/ polls) are scheduled for a week by the election commission.

4. Answer the following.
   a. Write the Synonyms of the following words.
      i) Handsome ii) Polite
   b. Write the Antonyms of the following words.
      iii) Friend iv) Ancient v) Crazy

II. Answer the following Questions 2x5=10

1. Correct the following sentences and rewrite them.
   a. I am going to college every day.
   b. They have waited for the mail since four weeks.
   c. Look! The two boys quarrel.
   d. The movie started before I went into the theatre.
   e. When I saw, they are all in a group.

2. Fill in the blanks by choosing the suitable verb forms.
   a. I _____ (go/goes) to Hyderabad every week.
   b. His family_____(is/are) at Hyderabad.
   c. One of the best students_____(is/are) selected for the position of president of the Club.
   d. My friends and I_____(am/are) going to the party.
   e. Last night a group of youngsters _____(was/were) addressed by the Minister.

III. Answer the Following Questions. 2x5=10

1. Fill in the blanks with suitable Articles.
   a. I talked to ____ European.
   b. My brother came early by ___hour.
   c. Honesty is _____ best policy.
   d. I met ____ one-legged man.
   e. My teacher is _____ honest man.
2. Fill in the blanks with suitable Prepositions.
   a. Secret of success lies ___hard work.
   b. She has been sleeping ____ 9 pm.
   c. My father is suffering _____ severe fever.
   d. There is an exception _____ every rule.
   e. I congratulated him ____ his success.

IV. Answer any TWO of the following in 75 words each. 2x5=10

1. Describe a few barriers to listening.
2. Give some strategies for effective listening.
3. Why is listening Important?
4. What are the types of listening?

V. Answer any TWO of the following questions. 2x5=10

1. How can we become good readers? What are the qualities of good readers?
2. Write about skimming.
3. What do you know about Intensive reading and extensive reading?
4. Read the following passage and answer the questions that follow.

Beware of those who use the truth to deceive. When someone tells you something that is true, but leaves out important information that should be included, he can create a false impression. For example, someone might say, "I just won one lakh rupees on the lottery. It was great. I took that one thousand rupee ticket back to the store and turned it in for one lakh rupees!" This guy's a winner, right? Maybe, maybe not. We then discover that he bought two hundred tickets, and only one was a winner. He's really a big loser! He deliberately omitted important information. That's called a half-truth. Half-truths are just dishonest. Untrustworthy candidates in political campaigns often use this tactic. Let's say that during the last term of a Chief Minister of one of the states, that state lost one lakh jobs and gained three lakh jobs. Then he/she contests election for another term. One of his/her opponents canvasses in the public saying, "During his/ her term as the C.M, the state lost one lakh jobs!" That's true. However an honest statement would have been, "During his/her term, the state had a net gain of two lakh jobs." Advertisers will sometimes use half-truths. An ad might boast, "Nine out of ten doctors recommend 'Danta' toothpaste to cure bleeding gums." It fails to mention that they only asked ten doctors and nine of them work for the 'Danta' Corporation.

   a. As per the writer of the passage how do people create false impression?
   b. Pick out the word from the passage that means to fool or cheat people.
   c. How can you say that the person who won the lottery ticket is actually hiding full truth?
   d. Is the C.M mentioned in the passage actually responsible for a fall or growth in the number of jobs? Support your answer.
   e. As per the passage, name the two fields where people use half truths.

* * *

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

w.e.f. 2015-16 (Revised in April, 2016)

B.A./B.Sc. FIRST YEAR MATHEMATICS SYLLABUS

SEMESTER – II, PAPER - 2

SOLID GEOMETRY

60 Hrs

UNIT – I (12 hrs) : The Plane :

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Distance between parallel planes, System of Planes.

Planes bisecting the angles between two Planes. Pair of Planes.

UNIT – II (12 hrs) : The Line :

Equation of a line; Angle between a line and a plane; The condition for a line to lie in a plane, Image of a point in a plane, Image of point in a line coplanar Lines

Shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line.

UNIT – III (10 hrs) : Sphere :

Definition and equation of the sphere; the sphere through four given points; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; great circle, small circle; Intersection of a sphere and a line.

UNIT – IV (10 hrs) : Sphere :

Equation of Tangent plane; Angle of intersection of two spheres; Orthogonal spheres; Coaxial system of spheres; Limiting Points.

UNIT – V (16 hrs) : Cones :

Definitions of a cone; Equation of the cone with a given vertex and guiding curve; Enveloping cone, to Find Vertex of a cone, Reciprocal Cone, Right circular cone, Equation of the Right Circular cone one with a given vertex axis and semi vertical angle the cylinder.

Cylinder :

Definition of a cylinder, Equation to the cylinder, Enveloping cylinder, right circular cylinders equation of the right circular cylinder.

Note : **Concentrate on Problematic parts in all above units.**

Prescribed Text Book :

1. V. Krishna Murthy & Others "A text book of Mathematics for BA/B.Sc Vol 1, Published by S. Chand & Company, New Delhi.

Reference Books : **1.** Scope as in Analytical Solid Geometry by Shanti Narayan and P.K. Mittal Published by S. Chand & Company Ltd. Seventeenth Edition.

Sections :- 2.4, 2.5, 2.6, 2.7, 2.8, 3.1 to 3.7, 6.1 to 6.9, 7.1 to 7.4, 7.6 to 7.8.

2. P.K. Jain and Khaleel Ahmed, "A text Book of Analytical Geometry of Three Dimensions", Wiley Eastern Ltd., 1999.

3. Co-ordinate Geometry of two and three dimensions by P. Balasubrahmanyam, K.Y. Subrahmanyam, G.R. Venkataraman published by Tata-MC Gran-Hill Publishers Company Ltd., New Delhi.

4. Telugu Academy Text Book for Solid Geometry.

5. I-B.Sc A text Book of a Mathematics Deepthi Publications

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-II
(SOLID GEOMETRY)

NOTE :- Paper Setter Must select TWO Short Questions and TWO Easy Questions from Each Unit as Follows :-

UNIT	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT - I	Planes Introductions	2 (Prb)	-
	System of Planes & Bisecting Planes	-	1(Prb)
	Pair of Planes	-	1(Prb)
UNIT - II	Straight Lines First Part	2 (Prb)	-
	Image & coplaner Lines	-	1(Prb)
	Shortest Distance	-	1(Prb)
UNIT - III	Sphere Introduction	1(Prb)	-
	Plane Section of a Sphere	1(Prb)	1(Prb)
	Great Circle & Small Circle	-	1(Prb)
UNIT - IV	Tangent Plane	1(Prb)	-
	Angle of Intersection of Two Spheres & Orthogonal Spheres	1(Prb)	1(Prb)
	Limiting Points	-	1(Prb)
UNIT - V	Cone	1(Prb)	1(Prb)
	Cylinder	1(Prb)	1(Prb)

1.
2.
3.
4.
5-

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

B.A./B.Sc. FIRST YEAR MATHEMATICS

MODEL QUESTION PAPER

SEMESTER-II

SOLID GEOMETRY

Time: 3 Hours Max. Marks : 75

PART-A

Answer any <u>FIVE</u> of the following Questions : ***(5 x 5= 25 Marks)***

1. Find the Equation of the plane through the point (-1,3,2) and perpendicular to the planes $x+2y+2z=5$ and $3x+3y+2z=8$.

2. Find the angles between the planes $x+2y+3z=5,\ 3x+3y+z=9$.

3. Show that the line $\frac{x+1}{-1}=\frac{y+2}{3}=\frac{z+5}{5}$ lies in the plane x+2y-z=0.

4. Find the point of intersection with the plane $3x+4y+5z=5$ and the line $\frac{x+1}{1}=\frac{y+3}{3}=\frac{z-2}{2}$.

5. Find the centre and radius of the sphere $2x^2+2y^2+2z^2-2x+4y+2z+1=0$.

6. Find the equation of the sphere through the circle $x^2+y^2+z^2=9,\ 2x+3y+4z=5$ and the point (1,2,3)

7. Find the equation of the tangent plane to the sphere $3x^2+3y^2+3z^2-2x-3y-4z=22=0$ at the point (1,2,3)

8. Show that the spheres are orthogonal $x^2+y^2+z^2+6y+2z+8=0$; $x^2+y^2+z^2+6x+8y+4z+20=0$.

9. Find the equation of the cone which passes through the three co-ordinate axis and the lines $\frac{x}{1}=\frac{y}{-2}=\frac{z}{3}$ and $\frac{x}{2}=\frac{y}{1}=\frac{z}{1}$.

10. Find the equation of the cylinder whose generators are parallel to $\frac{x}{1}=\frac{y}{2}=\frac{z}{3}$ and which Passes through the curve $x^2+y^2=16, z=0$.

PART - B

II. ***Answer any FIVE of the following Questions.***
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION – A

UNIT - I

11. Find the equation of the plane passing through the intersection of the planes $x+2y+3z=4, 2x+y-z+5=0$ and perpendicular to the plane $6z+5x+3y+8=0$.

12. Prove that Equation $2x^2-6y^2-12z^2+18yz+2zx+xy=0$ represents a pair of planes and find the angle between them.

UNIT - II

13. Find the image of the point (2,-1,3) in the plane 3x-2y+z=9.

14. Find the length and equation to the line of shortest distance between the lines $\frac{x-2}{3}=\frac{y-3}{4}=\frac{z-1}{2}, \frac{x-4}{4}=\frac{y-3}{5}=\frac{z-2}{3}$

UNIT - III

15. Find the equation of the sphere through the circle $x^2+y^2+z^2+2x+3y+6=0$, $x-2y+4z-9=0$ and the centre of the sphere $x^2+y^2+z^2-2x+4y-6z+5=0$.

16. Find whether the following circle is a great circle or small circle $x^2+y^2+z^2-4x+6y-8z+4=0, x+y+z=3$.

SECTION – B

UNIT - IV

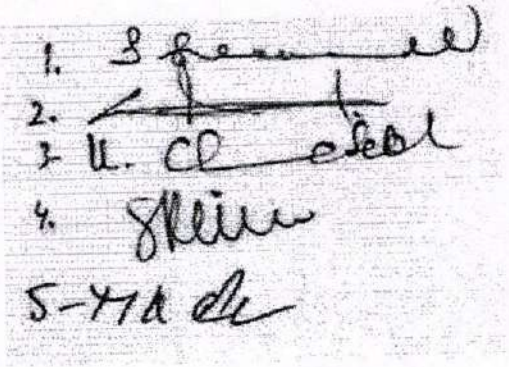
17. Find the equation of the sphere which touches the plane 3x+2y-z+2=0 at (1,-2,1) and cuts orthogonally the sphere $x^2+y^2+z^2-4x+6y+4=0$.

18. Find limiting points of the co axial system of spheres $\left(x^2+y^2+z^2-20x+30y+40z+29\right)+\lambda\left(2x-3y-4z\right)=0$

UNIT - V

19. Find the vertex of the cone $7x^2+2y^2+2z^2-10zx+10xy+26x-2y+2z-17=0$.

20. Find the equation to the right circular cylinder whose guiding circle $x^2+y^2+z^2-9, x-y+z=3$.



VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

BA/BSC I YEAR : STATISTICS SYLLABUS

(With Mathematics Combination)

Semester - II CBCS (I Year)

Paper - II Mathematical Expectation and Probability Distributions

Unit-I

Mathematical expectation : Mathematical expectation(ME) of a random variable and function of a random variable. Moments and covariance using mathematical expectation with examples. Addition and Multiplication theorems on expectation. Definitions of M.G.F, C.G.F, P.G.F, C.F its properties. Chebyshev and cauchy - Schwartz inequalities.

Unit-II

Discrete Distributions : Binomial and Poisson distributions, their definitions, 1^{st} to 4 central moments, M.G.F, C.F, C.G.F, mean, variance, additive property if exists. Possion approximation to Binomial distribution.

Unit-III

Negative Binomial, geometric, hyper geometric distributions - Definitions, means, variances, M.G.F, C.F, C.G.F, reproductive property if exists. Binomial approximation to Hyper Geometric Distribution, Poisson approximation to Negative binomial distribution.

Unit-IV

Continuous Distributions : Rectangular, Exponential, Gamma, Beta Distributions of two kinds. Other properties such as mean , variance,M.G.F, C.G.F, C.F, reproductive property.

Unit - V

Normal Distribution: Definition, Importance, Properties, M.G.F, additive properties, Interrelation between Normal and Binomial, Normal &Poisson distribution. Cauchy Distribution .

Text Books:

1. V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. BA/BSc I year statistics - descriptive statistics, probability distribution - Telugu Academy - Dr M.Jaganmohan Rao,Dr N.Srinivasa Rao, Dr P.Tirupathi Rao, Smt.D.Vijayalakshmi
3. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.

Reference books:

1. Willam Feller : Introduction to Probability theory and its applications. Volume –I, Wiley
2. Goon AM, Gupta MK, Das Gupta B : Fundamentals of Statistics , Vol-I, the World Press Pvt.Ltd., Kolakota.
3. Hoel P.G: Introduction to mathematical statistics, Asia Publishing house.
4. M. JaganMohan Rao and Papa Rao: A Text book of Statistics Paper-I.
5. Sanjay Arora and Bansi Lal: New Mathematical Statistics: Satya Prakashan , New Delhi
6. Hogg Tanis Rao: Probability and Statistical Inference. 7^{th} edition Pearson.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR B.SC.(CBCS) DEGREE EXAMINATION

FIRST YEAR - SEMESTER – II

SUB : STATISTICS

(With Mathematics Combination)

Common to B.A / B.Sc

MODEL PAPER

Time : 3hours *Max marks : 75*

SECTION - A

Answer any FIVE questions. Each question carries 5 Marks. *5 X 5 = 25M*

1. Define the mathematical expectation of a random variance.
2. Define moment generating function. What is the effect of change of origin and scale on m.g.f.
3. Define Binomial distribution. Find its mean.
4. Define Poisson distribution obtain its m.g.f.
5. State and prove memoryless property of geometric distribution.
6. Obtain the mean of Hypergeometric Distribution.
7. Define gamma distribution and show that Mean = variance.
8. Define Beta distribution of first kind, and derive its mean.
9. Define Cauchy Distribution. State the properties of Cauchy Distribution.
10. Explain the Area-properties of normal Distribution.

SECTION - B

Answer any TWO Questions. *2 X 10 = 20M*

11. State and prove chebyshev's inequality.
12. State and prove addition theorem of mathematical Expenctation.
13. Derive Poisson distribution as a limiting form of Binomial Distribution.
14. Derive the recurrence relation of central moments of Poisson Distribution.

SECTION - C

Answer any THREE Questions. *3 X 10 = 30M*

15. Obtain m.g.f. of negative binomial distribution. Hence obtain mean and variance of it.
16. Show that Poisson distribution as a limiting case of Negative binomial Distribution.
17. Define uniform distribution and derive its mean and variance.
18. Define exponential distribution and derive its mean and variance.
19. In normal distribution show that QD:MD:SD: :10:12:15.
20. In normal distribution show that Mean = Median = Mode.

Structure of Computer Science/Information Technology (IT) Syllabus I YEAR II SEMESTER

Paper-II : PROGRAMMING IN C

Course Objectives

1. Learn how to solve common types of computing problems.
2. Learn data types and control structures of C
3. Learn to map problems to programming features of C.
4. Learn to write good portable C programs.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Appreciate and understand the working of a digital computer
2. Analyze a given problem and develop an algorithm to solve the problem
3. Improve upon a solution to a problem
4. Use the 'C' language constructs in the right way
5. Design, develop and test programs written in 'C'

UNIT I

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms – examples of Algorithms – Flow Charts – Programming Languages – Generation of Programming Languages – Structured Programming Language.

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting

UNIT II

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

UNIT III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays -

Strings: Introduction – String Operations –String and Character functions

Structure of Computer Science/Information Technology (IT) Syllabus

UNIT IV

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function – Array 0f Function Pointer – Pointers to Pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Self referential Structures – Union – Enumerated Data Types

UNIT V

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations.

TEXT BOOKS

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: —COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

REFERENCE BOOKS

1. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
2. Henry Mullish & Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.

Student Activity:

1. **Write a program for preparing the attendance particulars of students of your college at the end of semester according to following guidelines**
   a. **Above 75 % promoted**
   b. **Above 65% condoned**
   c. **Below 65% detained**
2. **Write a program for creating timetable or your class taking work load of faculty into consideration.**

Structure of Computer Science/Information Technology (IT) Syllabus

PROGRAMMING IN C LAB

1. Find out the given number is perfect number or not using c program.
2. Write a C program to check whether the given number is Armstrong or not.
3. Write a C program to find the sum of individual digits of a positive integer.
4. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to print the Fibonacci series
5. Write a C program to generate the first n terms of the Fibonacci sequence.
6. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a C program to find both the largest and smallest number in a list of integers.
8. Write a C program that uses functions to perform the following:
    a. Addition of Two Matrices
    b. Multiplication of Two Matrices
9. Write a program to perform various string operations
10. Write C program that implements searching of given item in a given list
11. Write a C program to sort a given list of integers in ascending order

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE
CBCS - BSc(Computer Science) - I YEAR - SEMESTER-II (w.e.f. 2016-'17)
PROGRAMMING IN C
MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. What is constant? Explain various constants used in C language
2. Define flowchart. Write various symbols used in flow chart.
3. Explain about switch statement with an example
4. Write a C program to find sum of first 'n' natural numbers
5. Differentiate one-dimensional and two-dimensional arrays
6. Write about various character functions
7. Define pointer. Explain declaration of a pointer variable in C
8. Write differences between structure and union
9. Explain the use of files in C language
10. Explain how to detect end of file thru a program

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Explain about structure of a C program with an example
12. Write about basic data types used in C language
13. Explain various decision control statements used in C language
14. What is function? Explain how a function is declared in C
15. What is an array? Explain how one-dimensional arrays are used in a C program
16. Define string. Explain various string operations
17. Explain dynamic memory allocation in C
18. What is a structure? Explain with an example
19. Explain how to read data from files in a C program
20. Write about error handling in file operations

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

General English Syllabus for B.A/ B.A. (OL)/B.Com/B.Sc/BBA/BCA Courses under CBCS w.e.f. 2015-16 (Revised in April-2016)

SEMESTER –III

Unit – I

PROSE

1. M.K. Gandhi: Shyness My Shield (from *The Story of My Experiments with Truth)*
2. Alexis C. Madrigal: Why People Really Love Technology: An Interview with Genevieve Bell

Unit – II

POETRY

1. Gabriel Okara: Once upon a Time
2. Seamus Heaney: Digging

Unit – III

SHORT STORY

1. JhumpaLahiri: The Interpreter of Maladies
2. Shashi Deshpande: The Beloved Charioteer

Unit – IV

ONE ACT PLAY

GurajadaAppa Rao: *Kanyasulkam,* translated by C. Vijayasree& T. VijayaKumar (Acts I & II)

Unit – V

LANGUAGE ACTIVITY

1. Classroom and Laboratory Activities
   i. JAM Session
   ii. Expansion of an idea
2. Classroom Activity
   i. Transformation of sentences (Simple-Complex-Compound Sentences)
   ii. Note Making
   iii. Report Writing (Letter Format and paragraph Format)
   iv. Reading Comprehension (From Prose)

Note: ***In classroom instruction it may be ensured that the theoretical and practical components of CSS-II complement the language activity in this semester.***

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VIKRAMA SIMHAPURI UNIVERSITY :: KAKUTUR

General English

(Common to SECOND YEAR – THIRD SEMESTER B.A., B.A. (OL), B.Com., B.Sc.,BBA,BCA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in April, 2016)

Model Question Paper (2017-18)

Time: 3 Hours Max. Marks: 75

1. Answer any TWO of the following questions. 2X5 = 10
   a. Summarize the main ideas of the essay 'Shyness, My Shield'.
   b. What are the ideas of Genevieve Bell about gadget adoption and ubiquitous computing?
   c. Describe the instances of Gandhi's shyness during his stay in England.
2. Answer any TWO of the following questions. 2X5 = 10
   a. What does the father tell his son in the poem 'Once upon a Time'?
   b. 'Between my finger and my thumb the squat pen rests. I'll dig with it'. Explain it with reference to the poem 'Digging'.
   c. What assumptions can you make about the kind of life that the poet of the poem 'Once upon a Time' has lived? How is it different now?
3. Answer any TWO of the following questions. 2X5 = 10
   a. Discuss the title of the story 'The Interpreter of Maladies'.
   b. What feelings does the child have towards her mother in 'The Beloved Charioteer'?
   c. What cultural differences do you notice among the characters in 'The Interpreter of Maladies'?
4. Answer any ONE of the following questions. 1X5 = 5
   a. How is 'Kanyasulkam' a critique of society?
   b. Write a note on the comic elements in the play 'Kanyasulkam'.
5. Prepare notes for JAM on ONE of the following. 1X5 = 5
   a. My Career Choice b. My Childhood c. Smart Phone
6. Write a report to the news paper on your college day celebrations highlighting the important events. 1X5=5
7. Write about any TWO of the following. 2X5 = 10
   a. Prevention is better than cure.
   b. Where there is a will, there is a way.
   c. Necessity is the mother of invention.
   d. My Hobbies
   e. The uses of Internet
8. Rewrite the following sentences as directed: 5x1 = 5
   a. He is poor but he is honest. (into Simple Sentence)
   b. As he was ill, he was absent. (into Compound Sentence)
   c. The thief saw the police and he ran away. (into Simple Sentence)
   d. He ran away in order to escape arrest. (into Compound Sentence)
   e. You must work hard, and then you will pass. (into Complex Sentence)

9. Read the following passage and make notes of it. 1x5 = 5

There are different forms of environmental pollution. Air pollution is caused by the burning of coal and oil. It can damage the earth's vegetation and cause respiratory problems in humans. A second type of pollution is noise pollution. It is the result of the noise of aircraft and heavy traffic. Further, loud music is also a cause of noise pollution, which has been seen to affect people's hearing and give them severe headaches and high blood pressure. Another source of pollution is radioactivity, which occurs when there is a leak from a nuclear power station. Radioactivity is a deadly pollutant, which kills and causes irreparable harm to those exposed to it. Land and water pollution is caused by the careless disposal of huge quantities of rubbish, sewage and chemical wastes. Pollution of river and seas kills fishes and other marine life and also becomes the cause of water-borne diseases. Land pollution, on the other hand, poisons the soil, making the food grown in it unfit for consumption.

10. Write a Report on ragging in the educational institutions. (Paragraph Format). 1x5 = 5

11. Read the following passage and answer the questions that follow. (From Prose) 5x1 = 5

There were in the Committee others also who shared my view, but I felt myself personally called upon to express my own. How to do it was the question. I had not the courage to speak and I therefore decided to set down my thoughts in writing. I went to the meeting with the document in my pocket. So far I recollect, I did not find myself equal even to reading it, and the President had it read by someone else. Dr. Allinson lost the day. Thus in the very first battle of the kind I found myself siding with the losing party. But I had comfort in the thought that cause was right. I have a faint recollection that, after this incident, I resigned from the Committee.

a. Who is 'I' in the given passage?
b. What did the author do as he had not the courage to speak?
c. How did he go to the meeting?
d. When the author failed to read the document, what did the President do?
e. When did the author resign from the Committee?

* * *

VIKRAMA SIMHAPURI UNIVERSITY
NELLORE - 524 001
PART-II SANSKRIT
CBCS SEMESTER WISE SYLLABUS
II-YEAR – SEMESTER-III
PAPER - III DRAMA, UPANISHAD, ALANKARAS, PARTICIPLES & SABDAS
(B.A., B.SC., B.COM)

Unit-I	Old Drama	Dootavakyam One act play by Bhasa
Unit-II	Modern Drama	Asani Niraasam By Kavisamrat Viswanatha Satyanarayana, Pub. in 1954
Unit-III	Upanishad	Sishyaanusaasanam - Sikshavalli of Taittireeyupanishat
Unit-IV	Alankaras	1) Upama, 2) Ananvaya, 3) Utpreksha, 4) Deepakam, 5) Aprastuta Prasamsa, 6) Drushtanta.
Unit-V	Participles Krtpratyayas	1) Ktvaa, 2) Lyap, 3) Tuman, 4) Tavya.
	Sabdas : 1) Halanta	1) Vach, 2) Marut, 3) Bhavat, 4) Rajan, 5) Vidwas, 6) Manas
	2) Sarvanama	1) Asmad, 2) Yushmad

History of Sanskrit Literature :

1) पाणिनिः, 2) कौटिल्यः. 3) भरतमुनिः, 4) भारविः, 5) माघः, 6) भवभूतिः.

VIKRAMA SIMHAPURI UNIVERSITY
NELLORE - 524 001
SANSKRIT
CBCS SEMESTER WISE SYLLABUS

3RD SEMESTER **PATRON OF THE QUESTION PAPER**

Time : 3hrs **Max Marks : 75**

I.	Essay from the Lesson : Dutavakyam of Bhasa	1 out of 2	1x 10	10M
II.	Essay from the Lesson : Asaninirasam	1 out of 2	1 x 10	10M
III.	Essay One from each Lesson : 1) Shisyanusasanam	1 out of 2	1 x 8	08M
IV.	Short Answers Two from Each Lesson :	4 out of 6	4 x 2	08M
V.	Annotations Two from each lesson	4 out of 6	4 x 3	12 M
VI.	Full form of Sabdas One from each Gender and one from Sarvanama.	2 out of 4	2 x 3	06M
VII.	Participles Two from each Participle	3 out of 6		3x1 = 3
VIII.	Alankaras Eleborate explanation should be given.	2 out of 4		2x5=10
IX.	History of Sanskrit Literature A Brief explanation of a Poet should be given.		2 out of 4	2x4=8

Note : Question Paper should be Sanskrit Only. English Translation should not be there.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

Foundation Course - 5

INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

Internet Fundamentals and Web Tools

Common for BA / BCom / B Sc / BBA Programmes

III Semester

(30 Hours of Teaching Learning including Lab)

Unit-I :

Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.

Unit-II:

Internet applications: Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking: twitter, tumblr, Linkedin, facebook, flickr, skype, yelp, vimeo, yahoo!, google+, youtube, WhatsApp, etc.

Unit-III :

E-mail : Definition of E-mail - Advantages and Disadvantages – UserIds, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management, Email Inner Workings.

Unit IV:

WWW- Web Applications, Web Terminologies, Web Browsers, URL – Components of URL, Searching WWW – Search Engines and Examples

Unit-III :

Basic HTML: Basic HTML – Web Terminology – Structure of a HTML Document – HTML, Head and Body tags – Semantic and Syntactic Tags – HR, Heading, Font, Image and Anchor Tags – Different types of Lists using tags – Table Tags, Image formats – Creation of simple HTML Documents.

Reference Books :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers : TMH

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

FOUNDATION COURSE

INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

Internet Fundamentals and Web Tools

Common for BA / BCom / B Sc / BBA Programmes

SEMESTER-III (MODEL QUESTION PAPER)

Time: 2 Hours **Max. Marks : 50**

Answer any FIVE of the following Questions: (5 x 10 = 50 Marks)

1. What is Network? Explain types of networks
2. Write about Internet applications.
3. Briefly explain features of Internet Explorer
4. Explain about any two Social networking sites
5. What is E-mail? Write advantages of E-mail.
6. Write about message components.
7. Define WWW. Write about web browsers.
8. What is Search engine? Explain search engines used on Internet.
9. Explain the structure of HTML document.
10. Explain list tags used in HTML

Instruction to Paper Setter:

TWO questions must be given from each unit

Foundation Course - 6

COMMUNICATION SKILLS AND SOFT SKILLS-2 (CSS -2)

Common for BA/BCom/BSc/BBA/BCA Programmes

III Semester

COURSE CONTENT (30 hours)

Unit I: Pronunciation - 1

The Sounds of English

Unit II: Pronunciation – 2

1. Word Accent
2. Intonation

Unit III: Speaking Skills -1

1. Conversation Skills
2. Interview Skills
3. Presentation Skills
4. Public Speaking

Unit IV: Speaking Skills -2

1. Role Play
2. Debate
3. Group Discussion

Unit V: Writing Skills

1. Spelling
2. Punctuation
3. Information Transfer
4. Tables
5. Bar Diagrams
6. Line Graphs
7. Pie Diagrams
8. Flow Charts
9. Tree Diagrams
10. Pictures

* * *

VIKRAMA SIMHAPURI UNIVERSITY :: KAKUTUR

Communication and Soft Skills (CSS) - 2

(Common to SECOND YEAR - THIRD SEMESTER B.A., B.A (O.L) B.Com., B.Sc.,BBA,BCA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in May 2016)

Model Question Paper (2017-18)

Time: 2 Hours Max. Marks: 50

I. Answer the following questions. 2X5=10

1. Write English spelling for the words given in phonemic transcription.

   i) /a:tist/ ii) /kaindnəs/ iii) /pəziʃən/ iv) / θɔ:n/ v) ba:bə/

2. Choose correct transcription for each word.

i) Apple	a) /a: pl/	b) /a:pil/	c) /æpl/
ii) Album	a) / ʌlbəm/	b) /a:lbəm/	c) /ælbəm/
iii) College	a) /ka:le:dʒ /	b) / ca:lidʒ /	c) /kɒlidʒ /
iv) Museum	a)/mjuzi:əm/	b)/ mju:siəm/	c) /mu:sium/
v) Summer	a)/ samə/	b) / sʌmə/	c) / sʌmmə/

II. Answer the following questions. 2X5=10

1. Mark the stress on the appropriate syllable in the following words.

   a) Particular b) Canteen c) Police d) Traditional e) Propriety

2. Choose correct tone (Falling/ Rising) for each of the following sentences.
   a. Ravi Kumar is a good doctor.
   b. Have you taken breakfast?
   c. Where are you going?
   d. What's your name? (Warmth and affection).
   e. Shut the door, please.

III. Answer any TWO of the following questions. 2X5=10

1. What are the dos and don'ts during an interview?
2. How do you develop your presentation skills?
3. When you are asked to address a gathering, what are the tips to be followed?

IV. Answer any TWO of the following questions. 2X5=10

1. Write a dialogue between two friends about an accident that took place in their town.
2. 'Using social media is a waste of time.' Prepare five debate points.
3. What are the dos and don'ts in a group discussion?

V. Answer the following questions. 2X5=10

1. Present the given information in the form of a tree diagram.

   There are three main types of geometrical figures. They are circle, triangle and quadrilateral. Equilateral, isosceles and scalene are the triangle forms that are used. The circle has no such sub forms. Quadrilateral can be represented by square, rectangle, rhombus and Parallelogram.

2. Identify the Correct spelling in each group.

a. i. Monotonos	ii. Monotonus	iii. Monotonous
b. i. Syllable	ii. Syllabel	iii. Syllabul
c. i. Vocabolary	ii. Vocablary	iii. Vocabulary
d. i. Grammer	ii. Grammar	iii. Grammor
e. i. Receive	ii. Recieve	iii. Receave

* * *

8. Write a paragraph using the hints given below. 1x5 = 5

Reading hobby – good and bad books – of the hour and forever – books as best companions – they entertain, educate and enlighten – make one forget one's loneliness – guide and make one's life richer – good book, a life blood of master's spirit – Carlyle's concept of true university, a collection of books.

9. Write a dialogue between Venu and Rajesh about their college anniversary. 1x5 = 5

10. Fill in the blanks in the following Dialogue writing. 1x5 = 5

A: Hello, who _____?
B: This is Ram.
A: Oh, hello, Ram. How _____?
B: Fine, not so bad.
A: Is Mohan at home?
B: No, he has _____ out.
A: When is he expected?
B: In about an hour, I guess.
A: Could you _____ a message to him? Ask him to call me back.
B: Sure. I'll do that.
A: _____, Ram.

11. Reading Comprehension.

a) Read the following passage and answer the questions that follow. (From Prose) 5x1 = 5

If there is one custom that might be assumed to be beyond criticism it is the custom of shaking hands; but it seems that even this innocent and amiable practice is upon its trial. A heavy indictment has been directed against it in the Press on hygienic grounds, and we are urged to adopt some healthier mode of expressing our mutual emotion when we meet or part. I think it would need a pretty stiff Act of Parliament and a heavy code of penalties to break us of so ingrained a habit. Of course, there are many people in the world who go through life without ever shaking hands. Probably, most people in the world manage to do so. The Japanese bows, and the Indian salaams, and the Chinese makes a grave motion of the hand, and the Arab touches the breast of his friend at parting with the tips of his fingers.

a. Which custom might be assumed to be beyond criticism?
b. Why has a heavy indictment been directed against shaking hands in the press?
c. What is needed to control the custom of shaking hands?
d. What is meant by 'ingrained'?
e. How does the Arab greet?

b) Read the following passage and answer the questions that follow. (Unknown) 5x1 = 5

Just as Mrs. Richards was entering the dining-room, there was a knock on the front door. She knew that it must be the baker. She had told him to come straight in if ever she failed to open the door and to leave the bred on the kitchen table. Not wanting to frighten the poor man, Mrs. Richards quickly hid in the small store-room under the stairs. She heard the front door open and heavy footsteps in the hall. Suddenly the door of the store-room was opened and a man entered. Mrs. Richards realized that it must be the man from the Electricity Board who had come to read the meter. She tried to explain the situation, saying 'It's only me', but it was too late. The man let out a cry and jumped back several paces.

a. Where did Mrs. Richards hide when she heard a knock on the door?
b. What does it mean by 'realize' in the above paragraph?
c. In the sentence 'It's only me,' whom does the word 'me' refer to?
d. When did Mrs. Richards hear a knock on the front door?
e. Who did enter when the door of the store-room was opened suddenly?

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

(w.e.f. 2016-17)

B.A./B.Sc. SECOND YEAR MATHEMATICS SYLLABUS

SEMESTER – III, PAPER - 3

ABSTRACT ALGEBRA

60 Hrs

UNIT – 1 : (10 Hrs) GROUPS : -

Binary Operation – Algebraic structure – semi group-monoid – Group definition and elementary properties Finite and Infinite groups – examples – order of a group. Composition tables with examples.

UNIT – 2 : (14 Hrs) SUBGROUPS : -

Complex Definition – Multiplication of two complexes Inverse of a complex-Subgroup definition – examples-criterion for a complex to be a subgroups.

Criterion for the product of two subgroups to be a subgroup-union and Intersection of subgroups. Co-sets and Lagrange"s Theorem :-

Cosets Definition – properties of Cosets – Index of a subgroups of a finite groups– Lagrange's Theorem Statement and Proof.

UNIT –3 : (12 Hrs) NORMAL SUBGROUPS : -

Definition of normal subgroup – proper and improper normal subgroup–Hamilton group – criterion for a subgroup to be a normal subgroup – intersection of two normal subgroups – Sub group of index 2 is a normal sub group – simple group – quotient group – criteria for the existence of a quotient group.

UNIT – 4 : (10 Hrs) HOMOMORPHISM : -

Definition of homomorphism – Image of homomorphism elementary properties of homomorphism – Isomorphism – aultomorphism definitions and elementary properties–kernel of a homomorphism – fundamental theorem on Homomorphism and applications.

UNIT – 5 : (14 Hrs) PERMUTATIONS AND CYCLIC GROUPS : -

Definition of permutation – permutation multiplication – Inverse of a permutation – cyclic permutations – transposition – even and odd permutations.

Cayley's Theorem and Cyclic Groups :-

Definition of cyclic group – elementary properties.

Prescribed Text Book :

1. A text book of Mathematics for B.A. / B.Sc. by B.V.S.S. SARMA and others, Published by S.Chand & Company, New Delhi.

Reference Books :

1. Abstract Algebra, by J.B. Fraleigh, Published by Narosa Publishing house.

2. Modern Algebra by M.L. Khanna.

3. Telugu Academy Text Book for Abstract Algebra.

4. I-B.Sc A text Book of a Mathematics Deepthi Publications.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Group theory and its applications in Graphics and Medical image Analysis

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B.

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-III
(ABSTRACT ALGEBRA)

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

UNIT	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT - I	Group Definition and Elementary Properties	1 (Theorem)	-
	Composition Tables	1(Problem)	-
	Problems	-	2 (Problems)
UNIT - II	Subgroups	1 (Theorem)	2 (Theorems)
	Cosets & Lagrange's Theorem	1 (Theorem)	-
UNIT - III	Normal Subgroups	2 (Theorems)	2 (Theorems)
UNIT - IV	Homomorphism	1(Problem) + 1 (Theorem)	2 (Theorems)
UNIT - V	Permutations	2 (Problems)	1 (Problem)
	Cayley's Theorem & Cyclic Groups	-	1 (Theorem)

1.
2.
3.
4.
5-

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

(w.e.f. 2016-17)

B.A./B.Sc. SECOND YEAR MATHEMATICS

MODEL QUESTION PAPER

SEMESTER – III

(ABSTRACT ALGEBRA)

Time: 3 Hours *Max. Marks : 75*

PART - A

I. Answer any FIVE of the following Questions : ***(5 X 5= 25 Marks)***

1. Prove that in a group G Inverse of any Element is unique.

2. $G=\{1,2,3,4,5,6\}$ Prepare composition table and prove that G is a finite abelian group of order 6 with respect to X_7.

3. If H is any subgroups of G then prove that $H^{-1}=H$.

4. Prove that any two left cosets of a subgroups are either disjoint or identical.

5. Prove that intersection of any two normal subgroup is again a normal subgroup.

6. Define the following :

(a) Normal subgroups (b) Simple Groups.

7. Prove that the homomorphic image of a group is a group.

8. If for a group G, $F:G\to G$ is given by $f(x)=x^2, x\in G$ is a homomorphism then prove that G is abelian.

9. If $A=\begin{pmatrix}1&2&3\\2&3&1\end{pmatrix}, B=\begin{pmatrix}1&2&3\\3&1&2\end{pmatrix}$ find AB and BA.

10. Find the inverse of the permutation: $\begin{pmatrix}1&2&3&4&5&6\\3&4&5&6&1&2\end{pmatrix}$

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Define abelian group. Prove that the set of n^{th} roots of unity under multiplication form a finite abelian group.

12. Show that the set of all positive rational numbers form on abelian group under the composition '0' defined by $aob = \frac{ab}{2}$.

UNIT - II

13. Prove that a non-empty finite subset of a group which is closed under multiplication is a subgroup of G.

14. Prove that the union of two subgroups of a group is a subgroup if f one is contained in the other.

UNIT - III

15. Prove that a subgroup H of a group G is a normal subgroup of G if f each left coset of H in G is a right coset of H in G.

16. If G is a group and H is a subgroup of index 2 in G then prove that H is a normal subgroup of G.

SECTION - B

UNIT - IV

17. $(G,\cdot)$ and $\left(G^1,\cdot\right)$ be two groups $f: G \to G^1$ is an into homomorphism then prove

(i) $f(e) = e^1$ (ii) $f\left(a^{-1}\right) = \left[f(a)\right]^{-1}$

Where e , e^1 are then identity elements in G and G^1 respectively.

18. State and prove fundamental theorem on Homomorphism of Groups.

UNIT - V

19. Examine the following permutation are even (or) odd

(i) $f = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 3 & 2 & 4 & 5 & 6 & 7 & 1 \end{pmatrix}$ (ii) $g = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 7 & 3 & 1 & 8 & 5 & 6 & 2 & 4 \end{pmatrix}$

20. Define cyclic group. Prove that every cyclic group is an abelian group.

BA/BSC II YEAR : STATISTICS SYLLABUS
(With Mathematics Combination)
Semester - III CBCS

Paper - III Statistical Methods

Unit-I

Correlation: Def.,scatter diagram ,its coefficient and its properties. , scatter diagram, computation of correlation coefficient for grouped and ungrouped data. spearman's rank correlation coefficient, properties of spearrman's correlation coefficients and problems.

Unit-II

Regression: simple linear regression, properties of regression coefficients. Regression lines, Concept of Correlation ratio, partial and multiple correlation coefficients, correlation verses regression and their problems.

Unit – III

Curve fitting: Method of least square - Fitting of linear, quadratic, Exponential and power curves and their problems.

Unit-IV

Attributes : Introduction, of attributes consistency, Consistency of data and its conditions. Independence and association of attributes, co-efficient of association, coefficients of contingency and their problems.

Unit –V

Exact sampling distributions: Concept of population, Parameter, random sample, statistic, sampling distribution, standard error. Statement and Properties of $\chi 2$, t, F distributions and statements of their inter relationships.

Text books

1. BA/BSc II year statistics - statistical methods and inference - Telugu Academy by A. Mohanrao, N.Srinivasa Rao, Dr R.Sudhakar Reddy, Dr T.C. Ravichandra Kum.
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.
3. Fundamentals of Mathematics statistics: VK Kapoor and SC Guptha.

Reference Books:

1. Outlines of statistics, Vol II : Goon Guptha, M.K.Guptha, Das Guptha B.
2. Introduction to Mathematical Statistics : Hoel P.G.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR B.A. / B.Sc DEGREE EXAMINATION

II-B.Sc STATISTICS
SEMESTER – III
(With Mathematics Combination)
STATISTICAL METHODS

Time: 3 Hours *Max. Marks : 75*

SECTION – A

Answer any FIVE Questions :- ***5 X 5 = 25M***

1. Define the properties of multiple correlation coefficient.
2. Derive the formula for rank correlation coefficient.
3. Derive the formula for angle between two regression lines.
4. Define regression and distinguish between correlation and regression.
5. Derive the normal equation for fitting exponential curve of second kind.
6. Explain fitting of quadratic equation by the method of Least squares.
7. Explain independent of Attributes.
8. Show that for n attributes and Association of Attributes
   $A_1, A_2 --- A_n; (A_1, A_2 --- A_n) \geq (A_1)+(A_2)+---+(A_n)-(n-1)N$.
9. Define F-distribution write its properties.
10. Define (a) Population (b) Sample (c) Statistic (d) Parameter.

SECTION - B

Answer any TWO questions :- ***2 X 10 = 20M***

11. Define correlation coefficient. State and prove the properties of Correlation coefficient.
12. Derive the limits for rank correlation coefficient.
13. Derive the regression line of Y on X and state the properties of regression coefficient.
14. The equations of the two regression lines are $8x-10y+66=0;\ 40x-18y+214=0$ and $v(x)=9$ then find (a) correlation coefficient (b) the S.D. (y).

SECTION - C

Answer any THREE questions :- ***3 X 10 = 30M***

15. Define curve fitting Explain the method of least squares in curve fitting.
16. Fit a curve of the form $y = ax^b$ to the following data :

x	:	1	2	3	4	5	6
y	:	1200	900	600	200	110	50

17. Explain yules coefficient of association and colligation show that $Q=\frac{2Y}{1+Y^2}$.18.

    (a) Define ultimate order class frequencies.
    (b) Define consistency of data. If three attributes A,B,C are given write the conditions for consistency
19. Define t-distribution. State its properties and uses.
20. Define χ^2-distribution. State its properties and uses.

Instruction to Paper Setter :
Two short answer questions (5 Marks) and two essay questions (10 Marks) must be given from each unit.

Andhra Pradesh State Council of Higher Education

B.Sc. Computer Science/Information Technology (IT) Syllabus Under CBCS

w.e.f.2015-2016 (Modified in April 2016)

Structure of Computer Science/Information Technology (IT) Syllabus II YEAR III SEMESTER

Paper-III : OBJECT ORIENTED PROGRAMMING USING JAVA

Course Objectives

As the business environment becomes more sophisticated, the software development (software engineering is about managing complexity) is becoming increasingly complex. As of the best programming paradigm which helps to eliminate complexity of large projects, Object Oriented Programming (OOP) has become the predominant technique for writing software in the past decade. Many other important software development techniques are based upon the fundamental ideas captured by object-oriented programming.

Course Outcomes

At the end of this course student will:

1. Understand the concept and underlying principles of Object-Oriented Programming
2. Understand how object-oriented concepts are incorporated into the Java programming language
3. Develop problem-solving and programming skills using OOP concept
4. Understand the benefits of a well structured program
5. Develop the ability to solve real-world problems through software development in high-level programming language like Java
6. Develop efficient Java applets and applications using OOP concept
7. Become familiar with the fundamentals and acquire programming skills in the Java language.

UNIT-1

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING :Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features: **OVERVIEW OF JAVA LANGUAGE**: Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **CONSTANTS, VARIABLES & DATA TYPES:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values; **OPERATORS & EXPRESSIONS**.

UNIT-II

DECISION MAKING & BRANCHING: Introduction, Decision making with if statement, Simple if statement, if. Else statement, Nesting of if. else statements, the else if ladder, the switch statement, the conditional operator. **LOOPING**: Introduction, The While statement, the do-while statement, the for statement, Jumps in loops.

Structure of Computer Science/Information Technology (IT) Syllabus

CLASSES, OBJECTS & METHODS: Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods;

UNIT-III

INHERITANCE: Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes;

ARRAYS, STRINGS AND VECTORS: Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Vectors, Wrapper classes;

INTERFACES: MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables;

UNIT-IV

MULTITHREADED PROGRAMMING: Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface. **MANAGING ERRORS AND EXCEPTIONS:** Types of errors : Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement,

UNIT-V

APPLET PROGRAMMING: local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, Running state, Idle or stopped state, Dead state, Display state.

PACKAGES: Introduction, Java API Packages, Using System Packages, Naming conventions, Creating Packages, Accessing a Package, using a Package.

Reference Books:

1. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.
2. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TATA McGraw-Hill Company.
3. Deitel &Deitel. Java TM: How to Program, PHI (2007)
4. Java Programming: From Problem Analysis to Program Design- D.S Mallik
5. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

Student Activity:

1. Create a front end using JAVA for the student database created

2. Learn the difference between ODBC and JDBC

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

CBCS – BSc(COMPUTER SCIENCE) - II YEAR - SEMESTER-III

OBJECT ORIENTED PROGRAMMING USING JAVA

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Explain about command line arguments.
2. Discuss about JVM.
3. Write about conditional operator
4. Define a class. How to define a class in Java.
5. Explain abstract methods.
6. What is an array? Discuss creating a one dimensional array in Java.
7. Write short notes on Thread
8. Discuss how to implement the Runnable Interface.
9. Differentiate local and remote applets.
10. Write about different Java API packages.

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Explain basic concepts of OOP.
12. Write about the structure of Java Program with an example.
13. Write in detail about looping structures in Java
14. Explain about constructors in Java.
15. Explain about Inheritance with an example.
16. Write about Interfaces used in Java
17. How to handle exceptions in Java with an example.
18. What is Thread? Explain thread life cycle.
19. Explain how to create user defined package.
20. Explain Applet life cycle in detail.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus OBJECT ORIENTED PROGRAMMING USING JAVA LAB

1. Write a program to perform various String Operations
2. Write a program on class and object in java
3. Write a program to illustrate Function Overloading & Function Overriding methods in Java
4. Write a program to illustrate the implementation of abstract class
5. Write a program to implement Exception handling
6. Write a program to create packages in Java
7. Write a program on interface in java
8. Write a program to Create Multiple Threads in Java
9. Write a program to Write Applets to draw the various polygons
10. Write a program which illustrates the implementation of multiple Inheritance using interfaces in Java
11. Write a program to assign priorities to threads in java

VIKRAMA SIMHAPURI UNIVERSITY :: KAKUTUR

COMMUNICATION AND SOFT SKILLS (CSS) - 3

(Common to SECOND YEAR - **FOURTH SEMESTER** B.A., B.A (O.L) B.Com., B.Sc.,BCA,BBA)

(A. P. Common Core Syllabus (CBCS) for I year Effective from 2015-16) (Revised in May 2016)

Model Question Paper (2017-18)

Time: 2 Hours Max. Marks: 50

1. Answer any ***TWO*** of the following questions. 2 X 5 = 10
   1. Write a few suggestions for building positive attitude.
   2. Mention a few tips for improving one's good body language.
   3. What is SWOT/ SWOC analysis? Why is it useful for students?
   4. What is emotional intelligence? What is its importance?
   5. What do you know about Netiquette? Write a few general netiquettes.

2. Answer any ***TWO*** of the following questions. 2 X 5 = 10
   1. What is a paragraph? Write about the types of paragraphs.
   2. What are the general rules for writing a good paragraph?
   3. Write a paragraph on a Rainy Day.
   4. Write a paragraph on Death Penalty for Criminals
   5. Write about the parts of a good paragraph.

3. Answer any ***TWO*** of the following questions. 2 X 5 = 10
   1. What is paraphrasing? What are features of a paraphrase?
   2. Write a few guidelines for paraphrasing.
   3. Write about good summary.
   4. Write a short note on stages of summarizing.
   5. Write a summary of the story given below.

      There was a villager. He was illiterate. He did not know how to read and write. He often saw people wearing spectacles for reading books or papers. He thought, "If I have spectacles, I can also read like these people. I must go to town and buy a pair of spectacles for myself." So one day he went to a town. He entered a spectacles shop He asked the shopkeeper for a pair of spectacles for reading. The shopkeeper gave him various pairs of spectacles and a book. The villager tried all the spectacles one by one. But he could not read anything. He told the shopkeeper that all those spectacles were useless for him. The shopkeeper gave him a doubtful look. Then he looked at the book. It was upside down! The shopkeeper said, "Perhaps you don't know how to read." The villager said, "No, I don't. I want to buy spectacles so that I can read like others. But I can't read with any of these spectacles." The shopkeeper controlled his laughter with great difficulty when he learnt the real problem of his illiterate customer. He explained to the villager, "My dear friend, you are very ignorant. Spectacles don't help to read or write. They only help you to see better. First of all you must learn to read and write."

4. Answer any ***TWO*** of the following questions. 2 X 5 = 10
   1. Write a letter to the MRO requesting him/her for the issue of Income Certificate.
   2. Write a letter to your father asking him to send you money for paying your hostel fee.
   3. Write a letter to a bookshop ordering the books you want.
   4. One of your friends has recently left for the USA for doing MS. You miss him very much.
   5. Write an e-mail to your friend Ravi.
   6.

5. Answer any ***TWO*** of the following questions. 2 X 5 = 10
   1. Prepare Resume of your own for the post of accountant in a reputed company.
   2. Prepare a resume for the post of computer operator in a Public School.
   3. Write a covering letter to accompany your Resume for the post of accountant.
   4. Write a covering letter to accompany your Resume for the post of computer operator.

* * *

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

Foundation Course -7 SEMESTER-IV

COMMUNICATION SKILLS AND SOFT SKILLS-3 (CSS -3)

Common for BA/BCom/BSc/BBA/BCA Programmes

COURSE CONTENT (30 hours)

Unit – I

SOFT SKILLS

I. Positive Attitude
II. Body language
III. SWOT / SWOC Analysis
IV. Emotional Intelligence
V. Netiquette

Unit - II

PARAGRAPH WRITING

1. Paragraph Structure
2. Development of Ideas

Unit –III

PARAPHRASING AND SUMMARISING

1. Elements of Effective Paraphrasing
2. Techniques of Paraphrasing
3. What makes a Good Summary
4. Stages of Summarising

Unit – IV

LETTER WRITING

1. Letter Writing (Formal and Informal)
2. E-Correspondence

Unit – V

RESUME AND CV

1. Resume and Curriculum Vitae
2. Cover Letters

* * *

Reference Books:

Commissionerate of Collegiate Education, Government of Andhra Pradesh (2015) *JKC -Communication Skills and Soft Skills: Student's Book*

Sethi, J., and P.V. Dhamija (1999) *A Course in Phonetics and Spoken English* New Delhi: Prentice-Hall of India

Daniel Jones (2011)*English Pronouncing Dictionary* (18th Edition) Ed. Peter Roach, Jane Setter, and John Esling

Quirk, Randolph and Sydney Greenbaum (1973) *A University Grammar of English*. Harlow: Longman. Chapters 2, 3, and 7

White, Goodith (2010) *Listening (Resource Book for Teachers)*. Oxford University Press Nageshwar Rao and Rajendra P. Das (2009) *Communication Skills*. Mumbai: Himalaya Publishing House

Burton, S.H. (1983) *Mastering English Language*. The Macmillan Press Limited Chapter 3: Comprehension

Grellet, Francoise (2007) *Developing Reading Skills*. Cambridge University Press

Roberts, Rachael, Joanne Gakonga, and Andrew Preshous (2004) *IELTS Foundation: Student's Book*. Oxford: Macmillan Education

Roberts, Rachael, Joanne Gakonga, and Andrew Preshous (2004) *IELTS Foundation: Study Skills*. Oxford: Macmillan Education.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

Foundation Course - 8

ANALYTICAL SKILLS

Syllabus, For all Degree Programmes.

w.e.f. 2015-16 (Revised in April, 2016)

Semester – IV (Total 30 Hrs)

UNIT – 1

Data Analysis:-The data given in a Table, Graph, Bar Diagram, Pie Chart.

UNIT – 2

Sequence and Series:- Analogies of numbers and alphabets completion of blank spaces following the pattern in A:b::C: d relationship odd thing out; Missing number in a sequence or a series.

UNIT - 3

Arithmetic ability:-Algebraic operations BODMAS, Fractions, Divisibility rules, LCM&GCD (HCF).

UNIT - 4

Quantitative aptitude:- Calendar Problems, Clock Problems, Ratios and proportion.

UNIT – 5

Business computations:- Averages, Percentages, Profit & Loss.

Reference Books:

1. Quantitative Aptitude for Competitive Examination by R S Agrawal, S.Chand publications.
2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.
3. Quantitative Aptitude : Numerical Ability (Fully Solved) Objective Questions, Kiran Prakashan, Pratogitaprakasan, Kic X, Kiran Prakasan publishers
4. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw hill publications.
5. Old question Paper of the exams conducted by (Wipro, TCS, Infosys, Etc) at their recruitment process, source-Internet.

Note : The teachers/students are expected to teach /learn the contents by not converting them to the problems of algebra at the maximum possible extent, but to use analytical thinking to solve the exercises related to those topics. This is the main aim of the course.

1.
2.
3.
4.
5-

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.
FOUNDATION COURSE-8
SEMESTER-IV
ANALYTICAL SKILLS
Model Question Paper

Time : 2 Hours **Max. Marks : 50**

Answer any 25 Questions. All question carry equal marks. *25 X 2 = 50M*

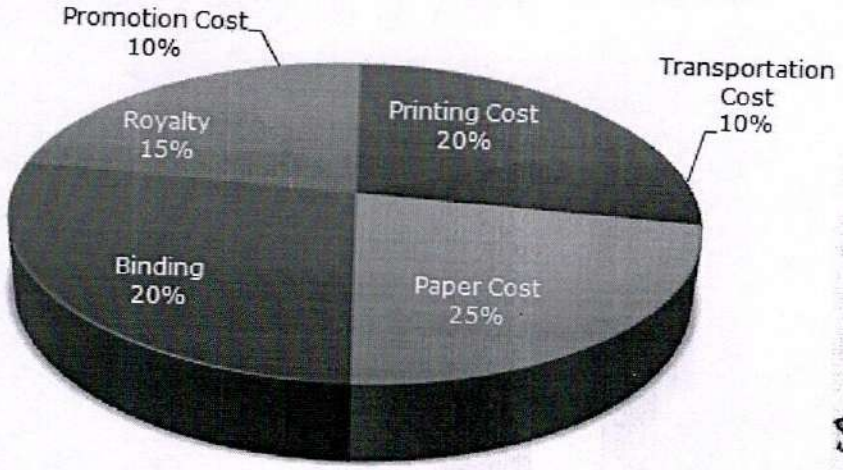
UNIT-I

Study the following table and answer the question based on it.
Expenditures of company (in Lakh Rupees) per annum over the given year.

Year	Item of Expenditure				
	Salary	Fuel	Bonus	Interest	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

1. What is the average amount of interest per year company had to pay?
   A) 32.43 Lakhs B) 33.72 Lakhs
   C) 34.18 Lakhs D) 36.66 Laksh
2. The total amount of bonus during these period is approximately what percent of the total salary during the period
   A) 0.1% B) 0.5% C) 1% D) 1.25%
3. Total expenditure on all these items in 1998 was approximately what percent of total expenditure in 2002
   A) 62% B) 66% C)69% D) 71%
4. Total expenditure of the company over these items during 2000 is?
   A) 544.44 Lakhs B) 501.11 Lakshs C) 446.46 Lakhs D) 478.87 Lakhs
5. The ratio between total expenditure on taxes of all years and total expenditure on fuel respectively?
   A) 4:7 B) 10:13 C) 15:18 D) 5:8

Study the following Pi-Chart and answer the following questions
Various expenditures (in percentage) incurred in publishing a book



6. If for a certain quantity of books the publisher has to pay Rs 30600 as printing cost then what will be the amount of royalty?
A) Rs19,450 B) Rs21,200 C) Rs22,950 D) Rs26,150

7. What is the central angle of the section corresponding to the expenditure of Royalty?
A) 150^o B) 24^o C) 54^o D) 48^o

8. What is difference of cost for paper and binding in percentages?
A 5% B) 10% C) 15% D) 20%

9. If 5500 copies are published and the transportation cost on them is 82500, then what should be the selling price of book so that publisher earn 25% profit
A) Rs 187.50 B) Rs 191.50 C) Rs175 D) Rs180

10. Royalty on the book is less than the printing cost by
A) 5% B) 331% C) 20% D) 25%

UNIT-II

Complete the following Series

11. 125,80,45,20,_____
A) 5 B) 15 C) 25 D) 35

12. 6,12,18,24_____
A) 30 B) 26 C) 28 D) 29

13. 20,40,60,80_____
A) 90 B) 85 C) 100 D) 110

14. T,R,P,N_____
A) M B) L C) O D) S

15. GH, JK, MN, PQ_____
A) MP B) ST C) TR D) RT

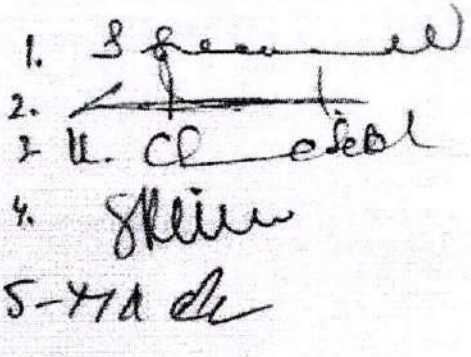
16. 2B, 4C, 6E, 8H_____
A) 10 L B) 9 P C) 8 F D) 13M

17. D-4,F-6, H-8, J-10_____
A) Z-1 B) N-10 C) M-16 D) L-12

18. Find the odd one 3,5,7,9,11,13
A) 3 B) 9 C) 7 D) 13

19. Girl : Beatiful :: Boy :?
A) Samart B) Handsome C) Heroic D) Pretty

20. Victory: Encouragement : : failure?
A) Sadness B) Defeat C) Anger D) Frustration



UNIT-III

21. $15 \div 3 \times 1 \div 5 =$ _____
A) 1 B) 2 C) 3 D)4

22. ¾ OF 12+9= _____
A) 21 B) 22 C) 18 D) 20

23. (6+4)X5+14= _____
A)50 B) 64 C) 30 D) 56

24. What is the value of $\frac{3}{4}$ in 1600?
A) 1000 B)1100 C) 1200 D) 1300

25. What is the result of $\frac{\frac{2}{3} \times \frac{3}{4}}{\frac{2}{4} \times \frac{8}{2}}$?
A) 1 B) 2 C) 3 D) 1/4

26. 4082A0 is divisible by 4 then A is ?
A) 1 B) 2 C) 3 D) 5

27. Sum Of 10 Natural Numbers Is
A. 65 B. 35 C. 45 D. 55

28. Find The Hcf Of 3556 And 3444 Is?
A.23 B. 25 C.26 D. 28

29. Find The L.C.M Of 16,24,36,54?
A.432 B. 324 C. 243 D.24

30. Find the Highest Common Faction Of 36 & 84
A.8 B. 12 C. 14 D.24

UNIT-IV

31. What Was the Day India Attained Independence (1947-Aug-15)
A. Friday B. Saturday C. Monday D.Sunday

32. 1869-Oct-2 Was What Day?
A. Friday B. Saturday C. Monday D. Sunday

33. ---------- Is Leap Year?
A. 1996 B. 1997 C. 1998 D.1999

34. How Many Times the Two Hands Co-Inside in A Day
A.21 B. 22 C. 23 D. 24

35. When Do the Two Hands of a Click Co-Inside between 9 and And10'clock
A.8.45 B. 9.50 C. $9.49.\frac{1}{11}$ D. $9.59.\frac{1}{11}$

36. Between 5 P.M And 6 P.M When Will the Two Hands Of The Clock Be At Night Angle?
A. $5: 10.\frac{10}{11}$ B. $5: 43.\frac{7}{11}$ C. 5: 10 D.5: 42

37. A Particular Sum Was Divided Among A, B and C in the Ratio 2: 6: 7 Respectively. If The Amount Received By A Was 4000 Then Total Amount

A.30000 B.20000 C.25000 D.29000

38. Divided 672 In The Ratio 5: 3 Then The First Part (5) Value?

A. 420 B.252 C. 410 D. 240

39. If 0.75 : X : : 5 :8 Then : X Is ----------

A. $\frac{6}{5}$ B. $\frac{5}{6}$ C. $\frac{7}{5}$ D. $\frac{5}{7}$

40. 4 : 9 : 12 : X ? ----------

A. 27 B. 27 C. 29 D. 30

UNIT-V

41. Find the Average Of All Prime Numbers Between 30 And 50?

A. 35 B.39.8 C.40.2 D .41.4

42. Find the Average Of First Five Natural Numbers

A. 15 B.20 C. 16 D.18

43. Average Of 76, 65, 82, 67, 85 Is

A. 65 B.69 C.75 D. 76

44. X And Y Are Two Values Then Is The Percentage Of X In Y

A. $\frac{x}{y}\times 100$ B. $\frac{y}{x}\times 100$ C. $x\times 100$ D. $y\times 100$

45. What Is The Value (80% Of 400)+ (30% Of 200)

A. 380 B.390 C.4850 D.4880

46. 4598 Is 95% Of ----------?

A. 4800 B.4840 C.4850 D.4880

47. Cost Prize Is X, Selling Prize Is Y(Y>X) Then What Is the Profit Percentage

A $\frac{y-x}{x}\times 100$ B. $\frac{x-y}{y}\times 100$ C. $\frac{x}{y}\times 100$ D. $\frac{y}{x}\times 100$

48. Find The Cost Prize When Selling Prize Is 40 And Gain Percentage 33.33

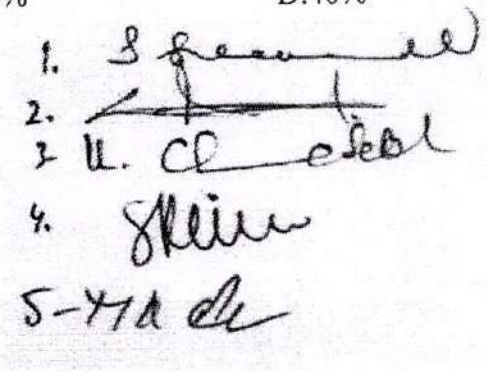
A.30 B.35 C.40 D.45

49. If the Cost Price of 12 Pend Equal To The Selling Price Of 8 Pens The Gain Percentage Is?

A.50% B.70% C.60% D.80%

50. Some Articles Were Bought For 5000 And Sell for 4500 Then Loss Percentage

A.10% B.20% C.30% D.40%



VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR (CBCS) DEGREE EXAMINATION

(FOR BA/BSC/BCOM/BBA COURSES)

FOUNDATION COURSE - 9

ENTREPRENEURSHIP

SYLLABUS

SEMESTER – IV (Total 30 Hrs)

Unit-I: Entrepreneurship: Entrepreneur characteristics – Classification of Entrepreneurships – Incorporation of Business – Forms of Business organizations –Role of Entrepreneurship in economic development –Start-ups.

Unit-II: Idea Generation and Opportunity Assessment: Ideas in Entrepreneurships – Sources of New Ideas – Techniques for generating ideas – Opportunity Recognition – Steps in tapping opportunities.

Unit-III: Project Formulation and Appraisal : Preparation of Project Report –Content; Guidelines for Report preparation – Project Appraisal techniques –economic – Steps Analysis; Financial Analysis; Market Analysis; Technical Feasibility.

UNIT-IV: Institutions Supporting Small Business Enterprises: Central level Institutions: NABARD; SIDBI, NIC, KVIC; SIDIO; NSIC Ltd; etc. – state level Institutions –DICs-SFC- SSIDC- Other financial assistance.

Unit-V: Government Policy and Taxation Benefits: Government Policy for SSIs- tax Incentives and Concessions –Non-tax Concessions –Rehabilitation and Investment Allowances.

Reference Books:

1. Arya Kumar, Entrepreneurship, Pearson, Delhi, 2012.
2. Poornima M.CH., Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi,2009
3. Michael H. Morris, ET. al., Entrepreneurship and Innovation, Cen gage Learning, New Delhi, 2011
4. KanishkaBedi, Management and Entrepreneurship, Oxford University Press, Delhi, 2009
5. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi, 2011
6. Khanka, SS, Entrepreneurship Development, S. Chand, New Delhi.
7. Peter F. Drucker,Innovation and Entrepreneurship.
8. A.Sahay, M. S. Chhikara, New Vistas of Entrepreneurship: Challenges &Opportunities.

Instruction to Paper Setter :

TWO Questions must be given from each Unit.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR (CBCS) DEGREE EXAMINATION
(FOUNDATION COURSE)
SECOND YEAR EXAMINATION
SEMESTER – IV
ENTREPRENEURSHIP
MODEL PAPER

Time: 2 Hours ***Max. Marks : 50***

I. Answer Any <u>FIVE</u> of the Following: - ***5 X 10 = 50***

1. Explain the characteristics of Entrepreneur?
   ఎంట్రప్రెన్యూర్ యొక్క లక్షణాలను వివరించండి?

2. Explain forms of business organizations?
   వ్యాపార సంస్థలలో రకాలను గురించి వ్రాయండి?

3. Explain Sources of new ideas?
   క్రొత్త ఆలోచనలకు మూలాలను వివరించండి?

4. Selecting the techniques for generating Ideas?
   క్రొత్త ఆలోచనలను ఎంచుకొనే పద్ధతులను గురించి వ్రాయండి?

5. Explain Elements of Project Report?
   ప్రాజెక్టు నివేదిక అంశాలను వ్రాయండి?

6. Write about Project appraisal Techniques?
   ప్రాజెక్టు సమీక్ష విధానాలను వివరించండి?

7. Write about NABARD?
   నాబార్డ్‌ను వివరించండి?

8. Explain SFC's?
   రాష్ట్రస్థాయి విత్తసంస్థలు గురించి వ్రాయండి?

9. Explain Role of SSIs?
   చిన్నతరహాపరిశ్రమలు ప్రాముఖ్యతను వ్రాయండి?

10. Explain Tax incentives and concessions?
    చిన్నతరహాపరిశ్రమకు పన్నులపాలసీలు మరియు ప్రయోజనాలు గురించి వివరించండి?

<u>Instruction to Paper Setter :</u>
<u>TWO</u> Questions must be given from each Unit.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

Foundation Course - 10

SECOND YEAR – SEMESTER - IV

LEADERSHIP EDUCATION

(Common for BA/BCOM/BSC/BBA)

SYLLABUS

(Total 30 Hrs)

1. Organisation – Management – Leadership –Meaning and Significance – Different theories – Trait Theory, Blake &Mountan Theory – Other functions of Management.

2. Behavioral Concepts – Individual Behaviour – Perception – Learning – Attitude Formation and Change – Motivation – Theories of Motivation – Personality Development.

3. Interpersonal Behaviour – Communication – Leadership – Influencing Relations – Transactional Analysis.

4. Team Building and Management – Developing team resources – Designing team – Participation and Repercussion – Team building activities.

Reference Books :

1. Fred Luthans, "Organizational Behaviour", Tata McGraw Hill Publishing Co., New Delhi.

2. Robins, Stephen P, "OrganisationalBehaviour", 9th Edition, Prentice Hall of India, New Delhi.

3. Koontz and O "Donnell", Essentials of Management,Tata McGraw Hill Publishing Co., New Delhi, 2000.

4. Keith Davis, "Human Behaviour at Work", Tata McGraw Hill Publishing Co., New Delhi.

5. Aswathappa,"OrgnizationalBehaviour", Himalaya Publishing House, Mumbai

6. Stoner Freeman, "Management", Prentice Hall of India, New Delhi.

Instruction to Paper Setter :

TWO Questions must be given from each concepts.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR (CBCS) DEGREE EXAMINATION
(FOUNDATION COURSE)
SECOND YEAR EXAMINATION
SEMESTER – IV
LEADERSHIP EDUCATION
MODEL PAPER

Time: 2 Hours *Max. Marks : 50*

I. ***Answer Any <u>FIVE</u> of the Following: -*** ***5 X 10 = 50***

1. Explain the functions of Management.
   నిర్వహన విధులను వివరింపుము?

2. Explain the theory's of Leadership.
   నాయకత్వ సిద్ధాంతాలు గూర్చి వివరింపుము?

3. Write the process of Perception.
   గ్రహణశక్తి ప్రక్రియను వివరింపుము?

4. Explain the concept of Attitude.
   విలువలు మరియు వైఖరులను వివరించండి?

5. Explain the theories of Motivation.
   ప్రేరణసిద్ధాంతాలు గూర్చి వివరింపుము?

6. Explain the process of communication.
   కమ్యూనికేషన్ విధానమును వివరింపుము?

7. Explain Transactional Analysis.
   సమర్థవంతమైన నాయకత్వాన్ని వివరించండి?

8. Explain the Team Building Activities.
   వివిధ రకాల జట్టు నిర్మాణ కార్యకలాపాలను వివరించండి?

9. Explain the Concept of team Building.
   జట్టు నిర్మాణం గూర్చి వివరింపుము?

10. Explain the importance of leadership.
    నాయకత్వము యొక్క ప్రాముఖ్యతను వివరింపుము?

<u>Instruction to Paper Setter :</u>
Minimum *<u>TWO</u>* Questions must be given from each concepts.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

(w.e.f. 2016-17)

B.A./B.Sc. (CBCS) MATHEMATICS SYLLABUS

SECOND YEAR SEMESTER – IV

REAL ANALYSIS

60 Hrs

UNIT – I (12 hrs) : REAL NUMBERS :

The algebraic and order properties of R, Absolute value and Real line, Completeness property of R, Applications of supreme property; intervals. No. Question is to be set from this portion.

Real Sequences: Sequences and their limits, Range and Boundedness of Sequences, Limit of a sequence and Convergent sequence, Monotone sequences, Necessary and Sufficient condition for Convergence of Monotone Sequence, Limit and the Bolzano-weierstrass theorem – (Cauchy Sequences – Cauchey's general principle of convergence theorem) No. Question is to be set from this portion.

Series : Introduction to series, convergence of series of Non-Negative Terms.

1. P-test
2. Cauchey's n^{th} root test or Root Test.
3. D'-Alemberts' Test or Ratio Test.

UNIT – II (12 hrs) : CONTINUITY :

Limits : Real valued Functions, Boundedness of a function, Limits of functions. Some extensions of the limit concept, Infinite Limits. Limits at infinity. No. Question is to be set from this portion.

Continuous functions : Continuous functions, Combinations of continuous functions, Continuous Functions on intervals.

UNIT – III (12 hrs) : DIFFERENTIATION :

The derivability of a function, on an interval, at a point, Derivability and continuity of a function, Graphical meaning of the Derivative, Problems on Differentiation.

UNIT – IV (12 hrs) : MEAN VALUE THEORMS :

Mean value Theorems; Rolle's Theorem, Lagrange's Theorem, Cauchhy's Mean value Theorem Statement and their Applications.

UNIT – V (12 hrs) : RIEMANN INTEGRATION :

Riemann Integral, Riemann integral functions. Necessary and sufficient condition for R–integrability, Properties of Integrable functions, Continuous Functions R-Integral, Monotonic Function R-Intigrable constant function R-Intergrable - Fundamental theorem of integral calculus.

Prescribed Text Book :

1. A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, Published by S. Chand & Company Pvt. Ltd., New Delhi.

Reference Books :

1. Real Analysis by Rabert & Bartely and .D.R. Sherbart, Published by John Wiley.

2. Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisingkania Published by S. Chand & Company Pvt. Ltd., New Delhi.

3. Telugu Academy Text Book for Real Analysis.

4. I-B.Sc A text Book of a Mathematics Deepthi Publications.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Real Analysis and its applications

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-IV
(REAL ANALYSIS)

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

PAPER	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT – I	Sequence	1 (Prb)	1 (Th)
	Series	1 (Prb)	1 (Th)
UNIT - II	Continuity	2 (Prb)	1(Prb) + 1 (Th)
UNIT - III	Differentiation	2 (Prb)	2 (Prb)
UNIT - IV	Mean Value Theorems	1(Prb) + 1 (Th)	1(Prb) + 1 (Th)
UNIT - V	Riemann Integration	1(Prb) + 1 (Th)	2(Th)

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

(w.e.f. 2016-17)

B.A./B.Sc. SECOND YEAR MATHEMATICS

SEMESTER – IV

MODEL QUESTION PAPER

(REAL ANALYSIS)

Time: 3 Hours Max. Marks : 75

PART - A

I. Answer any FIVE of the following Questions : ***(5 X 5= 25 Marks)***

1. Test for convergence $\sum \frac{1}{n^2+1}$.

2. Prove that the sequence $\{s_n\}$ where $s_n = \frac{1}{n+1} + \frac{1}{n+2} + \ldots + \frac{1}{n+n}$ is convergent.

3. Discuss various types of discontinuity.

4. Examine for continuity of a function $f(x) = |x| + |x-1|$ at x=0.

5. If $f(x) = \frac{x}{1+e^{\frac{1}{x}}}$ if $x \neq 0$ and $f(x) = 0$ if x=0 show that f is not derivable at x = 0.

6. Prove that $f(x) = x^2 \sin\left(\frac{1}{x}\right), x \neq 0$ and $f(0) = 0$ is derivable at the origin.

7. State cauchy's Mean value theorem.

8. Find 'C' of the Lagrange's mean value theorem for $f(x) = (x-1)(x-2)(x-3)$ on $[0,4]$.

9. If $f(x) = x^2$ on $[0,1]$ and $P = \left\{0, \frac{1}{4}, \frac{2}{4}, \frac{3}{4}, 1\right\}$ compute $L(P,f)$ and $U(P,f)$.

10. Prove that a constant function is Reiman integrable on $[a,b]$.

PART - B

II. ***Answer any FIVE of the following Questions. Choosing at least ONE Question from Each Section.*** ***(5 × 10 =50 Marks)***

SECTION – A

UNIT - I

11. State and prove Bolzano-weierstrass theorem on sequence.

12. State and prove P-test.

UNIT - II

13. Discuss the continuity of $f(x)=\dfrac{x\left(e^{\frac{1}{x}}-e^{-\frac{1}{x}}\right)}{e^{\frac{1}{x}}+e^{-\frac{1}{x}}}$ for $x\neq 0$ and $f(0)=0$ at x = 0.

14. If f is continuous on $[a,b]$ and $f(a), f(b)$ having opposite signs then prove that there exist $C\in(a,b)\ni f(c)=0$.

UNIT - III

15. Show that $f(x)=x\sin\left(\dfrac{1}{x}\right), x\neq 0, f(x)=0$ when x=0 is continuous but not derivable at x=0.

16. Show that $f(x)=\dfrac{x\left(e^{\frac{1}{x}}-1\right)}{e^{\frac{1}{x}}+1}$ if $x\neq 0$ and $f(0)=0$ is continuous at x=0 but not derivable at x=0.

SECTION – B

UNIT - IV

17. State and prove Rolle's theorem.

18. Using Lagrange's theorem show that $x>\log(1+x)>\dfrac{x}{1+x}$ if $f(x)=\log(1+x)$.

UNIT - V

19. If $f:[a,b]\to R$ is monotonic on $[a,b]$ then f is integrable on $[a,b]$.

20. If $f\in R[a,b]$ and m, M are the infimum and supremum of f on $[a,b]$, then $m(b-a)\le\int_a^b f(x)dx\le M(b-a)$.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

BA/BSC II YEAR : STATISTICS SYLLABUS

(With Mathematics Combination)

SEMESTER - IV CBCS.

Paper - IV : Statistical Inference

UNIT-I

Theory of estimation: Estimation of a parameter, criteria of a good estimator – unbiasedness, consistency, efficiency, &sufficiency and. Statement of Neyman's factorization theorem. Estimation of parameters by the methods of moments and maximum likelihood (M.L), properties of MLE's. Binomial, Poisson &Normal Population parameters estimate by ML method. Confidence intervals of the parameters of normal population.

UNIT II

Concepts of Statistical hypothesis: Null and alternative hypothesis, critical region, two types of errors, level of significance, power of a test. 1 tailed and 2 tailed tests, Neyman - Pearson's lemma. Examples in of Binomial. Poisson and Normal distributions.

Unit-III

Large Sample Tests : Large sample tests for single mean, two means, Single proportion, Two proportions, Standard Deviation of single and double samples and Fisher's Z transformation .

Unit-IV

Small sample tests: Tests of significance based on $\chi 2$, t and F. $\chi 2$-test for test for independence of attributes, t-test for single, double and paired tests, Variance Ratio Test(F-test).

Unit-V

Non-parametric tests - Advantages and Disadvantages one and Two sample run test, Two sample Median test and one and Two sample sign test.

TEXT BOOKS

1. B.A./B.Sc II year statistics - statistical methods and inference - Telugu Academy by A.Mohanrao, N.Srinivasa Rao, Dr R.Sudhakar Reddy, Dr T.C. Ravichandra Kumar.
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.

REFERENCE BOOKS:

1. Fundamentals of Mathematics statistics : VK Kapoor and SC Guptha.
2. Outlines of statistics, Vol II : Goon Guptha, M.K.Guptha, Das Guptha B.
3. Introduction to Mathematical Statistics : Hoel P.G.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR B.SC.(CBCS) DEGREE EXAMINATION

SECOND YEAR - SEMESTER – IV

SUB : STATISTICS

(With Mathematics Combination)

Common to B.A / B.Sc

MODEL PAPER

Time : 3hours *Max marks : 75*

SECTION - A

Answer any FIVE questions. Each question carries 5 Marks. ***5 X 5 = 25M***

1. Explain the concept of estimation of a parameter.
2. Discuss the method of moments and its merits & de-merits.
3. Explain the following concepts (i) Null hypothesis. (ii) Alternative hypothesis
4. Explain the following concepts (i) Two types of errors (ii) Critical Region
5. Discuss the test of significance for sample mean.
6. Explain the method of testing the significance of difference between sample standard deviation and population standard deviation.
7. Explain paired t-test.
8. Explain F-test.
9. Discuss the advantages and Dis-advantages of Np-test.
10. Describe the sign test.

SECTION - B

Answer any TWO Questions. ***2 X 10 = 20M***

11. Discuss the properties of a good estimator.
12. Explain maximum likelyhood estimation method with properties.
13. State and prove Neymann – Pearson lemma.
14. Find the B.C.R. for testing Ho : $\lambda = \lambda 0$ against $H_1 : \lambda = \lambda_1$ taking a sample of size n from Poisson population.

SECTION - C

Answer any THREE Questions. ***3 X 10 = 30M***

15. Large sample test for difference of standard deviations.
16. Explain fisher's Z-transformation.
17. Describe chi-square test for independence of attributes.
18. Explain small sample 't' for 2 means.
19. Difference b/w parametric and non parametric tests.
20. Explain run test for randomness.

Andhra Pradesh State Council of Higher Education

B.Sc. Computer Science/Information Technology (IT) Syllabus Under CBCS

w.e.f.2015-2016 (Modified in April 2016)

Structure of Computer Science/Information Technology (IT) Syllabus II YEAR IV SEMESTER

Paper-IV: DATA STRUCTURES

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms..

Course Outcomes

After completing this course satisfactorily, a student will be able to:

1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms
2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
4. Demonstrate different methods for traversing trees
5. Compare alternative implementations of data structures with respect to performance
6. Compare and contrast the benefits of dynamic and static data structures implementations
7. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack .
8. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

UNIT I

Concept of Abstract Data Types (ADTs)- Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Data Structures.

Linear Lists – ADT, Array and Linked representations, Pointers.

Arrays – ADT, Mappings, Representations, Sparse Matrices Linked Lists: Single Linked List, Double Linked List, Circular Linked List , applications

UNIT II

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues, Implementations and Applications.

UNIT III

Trees: Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications. Binary Search Trees (BST) – Definition, ADT, Operations and Implementations,

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UNIT IV

Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees

UNIT- V

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, sort, Sequential and Binary Searching.

REFERENCE BOOKS

1. D S Malik, Data Structures Using C++, Thomson, India Edition 2006.
2. Sahni S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002.
3. SamantaD, Classic Data Structures, Prentice-Hall of India, 2001.
4. Heilman G I,. Data Structures and Algorithms with Object-Oriented Programming, Tata McGraw-l lill. 2002. (Chapters I and 14).
5. Tremblay P, and Sorenson P G, Introduction to Data Structures with Applications, Tata McGraw-Hill,

Student activity:

1. **Create a visible stack using C-graphics**
2. **Create a visible Queue using C-graphics**

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE
CBCS - BSc(Computer Science) - II YEAR - SEMESTER-IV (w.e.f. 2016-'17)
DATA STRUCTURES
MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Explain about ADT.
2. Write about storage structures
3. What are the applications of stack? Explain
4. Write the differences between stack and queue
5. Write about fully and complete binary Tree
6. Write about tree terminologies
7. What is Graph? Write the representation of adjacency matrix
8. Write short notes on BFS.
9. What is sorting? Write an algorithm for Bubble sort
10. What is searching? Explain about sequential search.

SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Write the classification of Data structures with diagram?
12. Explain about primitive data structures.
13. What are the operations performed on stacks with neat diagram?
14. Write the algorithm for Queue insert and Queue Delete
15. What is Binary tree? Write the Tree traversal techniques in Binary tree.
16. What is Binary search tree Give an example?
17. Write about Minimum Spanning tree?
18. Explain BFS and DFS
19. What is insertion sort? Explain the procedure with an Example?
20. Explain about Binary search.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

DATA STRUCTURES USING JAVA LAB

1. Write a Program to implement the Linked List operations
2. Write a Program to implement the Stack operations using an array.
3. Write Programs to implement the Queue operations using an array.
4. Write Programs to implement the Stack operations using a singly linked list.
5. Write Programs to implement the Queue operations using a singly linked list.
6. Write a program for arithmetic expression evaluation
7. Write a program to implement Double Ended Queue using a doubly linked list.
8. Write a program to search an item in a given list using Linear Search and Binary Search
9. Write a program for Quick Sort
10. Write a program for Merge Sort
11. Write a program on Binary Search Tree operations(insertion, deletion and traversals)
12. Write a program for Graph traversals.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – V, PAPER- 5

RING THEORY & MATRICES

60 Hrs

UNIT – I (12 hrs) : Rings-I :-

Definition of Ring and basic properties, Boolean Rings, Zero Divisors of Ring - Cancellation laws in a Rings - Integral Domain Division Ring – Fields Examples.

UNIT –II (12 hrs) : Rings-II :-

Characteristic of Ring – Characteristic of an Integral Domain – Characteristic of Field Characteristic of Boo Loan Ring.

Sub Ring Definition – Sub ring test – Union and Intersection of sub rings – Ideal Right and left Ideals – Union and Intersection of Ideals. Excluding Principal prime and maximal Ideals.

UNIT –III (12 hrs) : Rings-III :-

Definition of Homomorphism – Homorphic Image – Elementary Properties of Homomorphism –Kernel of a Homomorphism – Fundamental theorem of Homomorhphism.

UNIT – IV (12 hrs) Matrix-I :-

Rank of a Matrix – Elementary operations – Normal form of a matrix Echecon from of a Matrix - Solutions of Linear Equations System of homogenous Linear equations – System of non Homogenous Linear Equations method of consistency.

UNIT – V (12 hrs) Matrix-II :-

Characteristic Roots, Characteristic Values & Vectors of square Matrix, Cayley – Hamilton Theorem.

Prescribed Text books:

1. Abstract Algebra by J. Fralieh, Published by Narosa Publishing house.
2. A text Book of B.Sc., Mathematics by B.V.S.S.Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.

Reference Books :-

1. Rings and Linear Algebra by Pundir & Pundir, Published by Pragathi Prakashan.
2. Matrices by Shanti Narayana, published by S.Chand Publications.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Ring theory and its applications

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-V (PAPER–5)
(RING THEORY AND MATRICES)

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

PAPER	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT – I	Boolean Rings	1 (Theorem)	
	Special Types of Rings	1 (Theorem)	2 (Theorems)
UNIT - II	Characteristic of a Ring	1 (Theorem)	1 (Theorem)
	Subrings and Ideals	1 (Theorem)	1 (Theorem)
UNIT - III	Homomorphism	2 (Theorems)	2 (Theorems)
UNIT - IV	Rank of a Matrix	1 (Problem)	1 (Problem)
	AX = 0 or AX = B	1 (Problem)	1 (Problem)
UNIT - V	Characteristic Equation	1 (Problem)	
	Eigen Values, Cayley Hamilton Theorem and Characteristic Vectors	1 (Problem)	2 (Problems)

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VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – V, PAPER - 5

MODEL QUESTION PAPER

RING THEORY & MATRICES

Time: 3 Hours ***Max. Marks : 75***

PART - A

I. Answer any FIVE of the following Questions : ***(5 X 5= 25 Marks)***

1. Define Types of rings and give one example for each.

2. If R is a Boolean ring then prove that $a+a=0 \forall a \in R$.

3. If the characteristic of a ring is 2 and $ab=ba$ then prove that $(a+b)^2=a^2+b^2=(a-b)^2 \forall a,b \in R$.

4. State and prove "Sub ring test".

5. If $f:R \to R^1$ be a homomorphism of a ring R into a ring R^1 and $0 \in R$, $0^1 \in R^1$ be the zero elements then prove (1) $f(0)=0^1$ (2) $f(-a)=-f(a) \forall a \in R$.

6. Prove that the Homorphic image of a Commutative ring is Commutative.

7. Obtain the rank of the matrix $A=\begin{bmatrix} -1 & 2 & 0 \\ 3 & 7 & 1 \\ 5 & 9 & 3 \end{bmatrix}$.

8. Show that the system $x+2y+3z=0$, $7x+13y+9z=0$, $2x+3y+4z=0$ has trial solution only.

9. Find the characteristic equation of the matrix $A=\begin{bmatrix} 0 & 1 & 2 \\ 1 & 0 & -1 \\ 2 & -1 & 0 \end{bmatrix}$.

10. Find the Eigen values of $A=\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Prove that A division ring has no zero divisors.

12. Prove that A finite integral domain is a field.

UNIT - II

13. Prove that characteristic of Booliean Ring is 2.

14. Prove that A field has no proper ideals.

UNIT - III

15. If 'f' is a homomorphism of a ring 'R' in to the ring R^1 then prove that 'f' is an into isomorphism iff test = $\{0\}$.

16. Prove that every quotient ring of a ring is a homomorphic image of the ring.

SECTION - B

UNIT - IV

17. Reduce the Matrix $A=\begin{bmatrix}1 & 2 & 3 & 0\\ 2 & 4 & 3 & 2\\ 3 & 2 & 1 & 3\\ 6 & 8 & 7 & 5\end{bmatrix}$ into echelon form and hence find its rank.

18. Show that the equations $x+y+z-3=0,\ 3x-5y+2z-8=0,\ 5x-3y+4z-14=0$ are consistent and solve them.

UNIT - V

19. If $A=\begin{bmatrix}2 & 1 & 2\\ 5 & 3 & 3\\ -1 & 0 & -2\end{bmatrix}$ verfy cayley – Hamilton theorem. Hence find A^{-1}.

20. Find the characteristic roots and vectors to the matrix $A=\begin{bmatrix}2 & 1 & 0\\ 0 & 2 & 1\\ 0 & 0 & 2\end{bmatrix}$.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – V, PAPER -6

LINEAR ALGEBRA

60 Hrs

UNIT – I (12 hrs) : Vector Spaces-I :

Vector Spaces, General properties of vector spaces, n-dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT –II (12 hrs) : Vector Spaces-II :

Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotientspace.

UNIT –III (12 hrs) : Linear Transformations :

Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Algebra of Linear Operators, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem.

UNIT –IV (12 hrs) : (Inner product space-I) :

Inner product spaces, Euclidean and unitary spaces, Norm or length of a Vector, Schwartz inequality, Triangle in Inequality, Parallelogram law.

UNIT –V (12 hrs) : (Inner product space-II) :

Orthogonal and Orthonormal Vectors, Orthogonal and Orthonormal Sets of Inner product Space, Phythagoras theorem, The Diagonals are perpendicular in a rhombus, orthogonal set of non-zero vectos is linearly independent, orthonormal set of vectors is liner independent, Gram-schmidt Orthogonalisation process, Bessel's Inequality and parseval's Identity.

Reference Books :

1. Linear Algebra by J.N. Sharma and A.R. Vasista, published by Krishna Prakashan Mandir, Meerut-250002.
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, published by Pearson Education (low priced edition), New Delhi.
3. Linear Algebra by Stephen H. Friedberg et al published by Prentice Hall of India Pvt. Ltd. 4th Edition 2007.

Suggested Activities :

Seminar/ Quiz/ Assignments/ Project on "Applications of Linear algebra Through Computer Sciences"

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B.

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS SEMESTER-V (PAPER–6)
(LINEAR ALGEBRA)

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

PAPER	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT – I	Subspace	1 (Theorem)	1 (Theorem)
	Linear Combination, Linear dependent and Independent	1 (Problem)	1 (Theorem)
UNIT - II	Basis of a vector Space	1 (Problem) 1 (Theorem)	1 (Theorem) 1 (Problem)
UNIT - III	Linear Transformation	2 (Problems)	
	Range, Null Space, Rank		1 (Theorem) 1 (Problem)
UNIT - IV	Inner Product Space	1 (Problem) 1 (Theorem)	2 (Theorems)
UNIT - V	Orthogonal and Orthonormal Vectors	1 (Problem) 1 (Theorem)	2 (Theorems)

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VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – V, PAPER - 6

MODEL QUESTION PAPER

LINEAR ALGEBRA

Time: 3 Hours ***Max. Marks : 75***

PART - A

I. Answer any FIVE of the following Questions : ***(5 X 5= 25 Marks)***

1. Prove that intersection of two subspaces is again a subspace.

2. Show that the system of vector $(1,3,2),(1,-7,-8),(2,1,-1)$ of $V_3(R)$ is Linearly dependent.

3. State and prove "Invariance theorem".

4. Show that the vectors $(1,1,2),(1,2,5),(5,3,4)$ of $R^3(R)$ do not form a basis set of $R^3(R)$.

5. Show that the mapping $T:V_3(R)\to V_2(R)$ is defined by $T:(x,y,z)=(x-y,x-z)$ is a Linear Transformation.

6. $T:V_3(R)\to V_2(R)$ and $H:V_3(R)\to V_2(R)$ be two Linear Transformations $T(x,y,z)=(x-y,y+z)$ and $H(x,y,z)=(2x,y-3)$ Find (i) H+T (ii) aH.

7. State and prove Triangle Inequality.

8. If α,β are two vectors in Euclidean space $V(R)$ such that $\|\alpha\|=\|\beta\|$ prove that $(\alpha+\beta,\alpha-\beta)=0$.

9. In an inner product space prove that $u-v_1$, $u+v$ are orthogonal if $\|u\|=\|v\|$.

10. State and prove Pythagoras Theorem.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. If $V(F)$ be a vector space. $\omega \subseteq V$. Prove that the necessary and sufficient conditions for ω to be a subspace of V are

(i) $\alpha \in \omega, \beta \in \omega \Rightarrow \alpha - \beta \in \omega$

(ii) $a \in F, \alpha \in \omega \Rightarrow a\alpha \in \omega$.

12. If show that are the sub sets of a vector space $v(F)$ then prove that $L(S \cup T) = L(S) + L(T)$.

UNIT - II

13. State and prove Basis Existence theorem.

14. ω_1 and ω_2 be two subspaces of R^4.

$\omega_1 = \{(a,b,c,d) : b - 2c + d = 0\}$

$\omega_2 = \{(a,b,c,d) : a = d, b = 2c\}$

Find dim $(\omega_1 + \omega_3)$

UNIT - III

15. Find $T(x,y,z)$ where $T : R^3 \to R$ is defined by $T(1,1,1) = 3$,

$T(0,1,-2) = 1$, $T(0,0,1) = -2$.

16. Define Null space. Prove that Null space $N(T)$ is subspace of $U(F)$ where $T : U \to V$ is a Linear Transformation.

SECTION - B

UNIT - IV

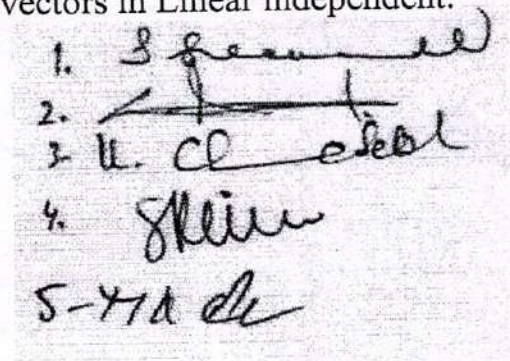
17. State and prove parallelogram Law.

18. If α, β and two vectors in an I.P.S. then prove that α, β are Linear Independent iff $|(\alpha, \beta)| = \|\alpha\| \|\beta\|$.

UNIT - V

19. Prove that in an I.P.S. any orthonormal set of vectors in Linear independent.

20. State and prove Bessel's inequality.



BA/BSC III YEAR : STATISTICS SYLLABUS
(With Mathematics Combination)
Semester-V CBCS.
Paper - V Sampling Techniques and Design of Experiments

Unit-I

Sampling Theory: Principle steps in a sample survey, Censes versus sample survey, sampling and
Non-sampling errors. Types of sampling - subjective, probability and mixed sampling methods.

Unit-II

Simple Random Sampling:Meaning of Samples and methods to draw, estimation of population mean,
variances in SRSWR& SRSWOR.

Unit-III
Stratified random sampling: Proportional and optimum allocation of sample sizes in stratification.
Variances in these methods. Systematic sampling : Systematic sampling when N = nk comparison of
their relative efficiencies. Advantages and Disadvantages of above methods of sampling.

Unit-IV
Analysis of Variance: One way with equal and unequal classifications and two way classifications.

Unit - V
Design of Experiments: Principles of experimentation in Designs, analysis of completely randomised
design (CRD), Randomised block design (RBD) and Latin square design (LSD) including one
missing observation . efficiency of these designs and concept of factorial Experiment.

Text Books:

1.Telugu Academy BA/B.Sc III year paper - III Statistics - applied statistics - Telugu academy by
prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry.

2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.

Reference Books:

1.Fundamentals of applied statistics : VK Kapoor and
SC Gupta. 2.Indian Official statistics - MR Saluja.

3.Anuvarthita Sankyaka Sastram - Telugu Academy.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR B.A. / B.Sc DEGREE EXAMINATION
III-B.Sc STATISTICS
SEMESTER – V (PAPER-V)
(With Mathematics Combination)
SAMPLING TECHNIQUES AND DESIGN OF EXPERIMENTS

Time: 3 Hours ***Max. Marks : 75***

SECTION – A

Answer any FIVE Questions :- ***5 X 5 = 25M***

1. Define sampling write its uses.
2. Define Mixed sampling method.
3. Explain random numbers method.
4. In SRSWOR; Show that $E(\bar{y}) = \bar{Y}$.
5. Define stratified random sampling write its uses.
6. Explain proportional and optimum Allocation.
7. Explain one way classification.
8. Derive expectation of various sum of squares in two way classification.
9. Explain the Description and lay out of C.R.D.
10. Define Replication and Randomization.

SECTION - B

Answer any TWO questions :- ***2 X 10 = 20M***

11. Explain the difference between sampling and census.
12. Explain Sampling errors and non-sampling errors.
13. Define simple random sampling Explain lottery method.
14. In SRSWOR; Show that $V(\bar{y}) = \frac{N-n}{Nn} S^2$.

SECTION - C

Answer any THREE questions :- ***3 X 10 = 30M***

15. If F.P.C. is neglected, with usual notations show that $Vran(\bar{y}) \geq Vprop(\bar{y}st) \geq Vopt(\bar{y}st)$.
16. Explain Systematic random Sampling. Discuss its advantages and Disadvantages.
17. Explain the necessity of ANOVA. Write its assumptions.
18. Explain Two way classification.
19. Derive an expression to estimate missing plot in R.B.D. Also write its statistical analysis.
20. Explain the statistical analysis of L.S.D.

Instruction to Paper Setter :
Two short answer questions (5 Marks) and two essay questions (10 Marks) must be given from each unit.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR B.A. / B.Sc DEGREE EXAMINATION

III-B.Sc STATISTICS

SEMESTER–V (PAPER-VI)

(With Mathematics Combination)

QUALITY AND RELIABILITY

Time: 3 Hours ***Max. Marks : 75***

SECTION – A

Answer any FIVE Questions :- ***5 X 5 = 25M***

1. Explain (a) Assignable causes (b) Chance causes.
2. Explain control Limits.
3. Explain the construction and applications of C-Chart.
4. Explain the difference between variable control charts and attribute control charts.
5. Explain the objective of acceptance sampling.
6. Explain 100% Inspection.
7. Explain single sampling plan.
8. Explain the comparison between Single and Double Sampling plans.
9. Explain the meaning and concept of reliability.
10. Explain various failure models.

SECTION - B

Answer any TWO questions :- ***2 X 10 = 20M***

11. Define the necessity of S.Q.C. in industry. Also write its uses.
12. Define (a) Specification limits (b) Tolerance Limits.
13. Explain the construction of $\bar{x}-R$ Charts.
14. Define Attribute control charts. Explain the construction of P and nP Charts.

SECTION - C

Answer any THREE questions : ***3 X 10 = 30M***

15. Define sampling Inspection. Also write its uses.
16. Define the following (a) AQL (b) LTPD (c) Producer's Risk (d) Consumer's risk (e) ATI.
17. Explain the Double sampling plan.
18. Explain O.C. curve in detail.
19. Describe exponential distribution as life model.
20. Explain the lack of memory property of exponential in light of reliability theory.

Instruction to Paper Setter :

Two short answer questions (5 Marks) and two essay questions (10 Marks) must be given from each unit.

BA/BSC III YEAR : STATISTICS SYLLABUS

(With Mathematics Combination)

Semester-V CBCS.

Paper - VI Quality and Reliability

Unit-I

Importance of SQC in industry, statistical basis of shewart control charts, uses of control charts. Interpretation of control charts, control limits, Natural tolerance limits and specification limits.

Unit – II

Variable Control Chart: Construction of $\bar{X}$, R charts for variables, Attribute control charts- NP, P charts, C chart.

Unit-III

Acceptance sampling plans: Scope, Producer's risk and consumer's risk . Concepts of AQL and LTPD.

Unit-IV

Sampling Plans: Single and double sampling plans, OC and ASN functions, Double and single Sampling plans for attributes using Binomial.

Unit-V

Reliability: Introduction, failure rates, Hazard function, estimation of reliability, exponential distribution as life model, its memoryless property.

Text Books:

1.BA/BSc III year paper - IV Statistics - applied statistics - Telugu academy by Prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry.

2. Fundamentals of applied statistics : VK Kapoor and SC Gupta

3. S.K Sinha: Reliability and life testing. Wiley Eastern.

Reference Books :

1.. R.C.Gupta: Statistical Quality Control

Structure of Computer Science/Information Technology (IT) Syllabus
III YEAR V SEMESTER

Paper-V: Data Base Management System

Course Objective:

Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes

On completing the subject, students will be able to:
1. Design and model of data in database.
2. Store, Retrieve data in database.

Unit-I: Overview of Database Management System: Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management Systems, Classification of Database Management System.

Unit-II: File-Based System, Drawbacks of File-Based System, Advantages of DBMS, Services of DBMS, Components of Database System, CODD'S Rules
The Relational Database Model: Integrity Rules, Relational Set Operators, Relationships within the Relational Database,

Unit-III: Entity–Relationship Model: Introduction, The components of an Entity–Relationship model, entities, attributes, relationships, Classification of Entity Sets, Attribute Classification, Relationship Degree, Relationship Classification. Normalization, Normal forms (1NF,2NF,3NF,BCNF)

Unit-IV: Structured Query Language: Introduction, Commands in SQL, SQL literals, Data types in SQL, SQL operators, Data Definition Language (DDL) commands, Data Manipulation Language commands, Table Modification, Table Truncation, Queries, Sub queries, Aggregate Functions, Set Operators

Unit-V: PL/SQL: Introduction, Structure of PL/SQL program, PL/SQL Data Types, PL/SQL operators, Steps to Create a PL/SQL Program, Control Structures: conditional control statements, Iterative Control statements, Cursors, Steps to create a Cursor

Structure of Computer Science/Information Technology (IT) Syllabus

TEXT BOOKS:

1. Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007)
2. SQL, PL/SQL the Programming Language of Oracle, Ivan Bayross, BPB publications

Reference Books

1. Paneerselvam: Database Management Systems, PHI.
2. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010, 9780073523323
3. "Database Management Systems" by Raghu Ramakrishnan, McGrawhill, 2002,
4. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications
5. "Fundamentals of Database Systems" by R. Elmasri and S. Navathe

Student Activity:

1. Create your college database for placement purpose.

Create faculty database of your college with their academic performance scores

III YEAR V SEMESTER

DATABASE MANAGEMENT SYSTEMS LAB

1. Draw ER diagrams for train services in a railway station
2. Draw ER diagram for hospital administration
3. Creation of college database and establish relationships between tables
4. Creation of reports based on queries
5. Creation of a table with constraints
6. Write a program to find factorial of a number
7. Write a program to find sum of digits of an integer
8. Write a program to demonstrate a function
9. Write a program to demonstrate cursors
10. Write a program to demonstrate Aggregate functions

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

CBCS – BSc(COMPUTER SCIENCE) - III YEAR - SEMESTER-V

DATABASE MANAGEMENT SYSTEM

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Describe the following
   a) Data b) information c) DBMS
2. Write the objectives of DBMS
3. Explain the Services of DBMS
4. What are the Components of DBMS? Explain
5. What is an entity and explain their types.
6. Explain the relationship degree with an example
7. Define literal. Write about various literals used in SQL
8. Explain aggregate functions
9. Briefly explain the block structure of PL/SQL suitable example
10. Write steps to create a PL/SQL program

Section-B

Answer any FIVE of the following Questions: **(5 x 10= 50 Marks)**

11. Explain evolution of database management system
12. Classification of data base management system
13. Explain advantages of DBMS
14. Write a short note on ER model
15. What is normalization? Explain normal forms with an example
16. Explain relationship within the relational database
17. Explain about data manipulation command s
18. Explain about relational set operators with examples
19. Write about iterative control structures
20. Explain cursors and their types

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR V SEMESTER
Paper VI : Software Engineering

Course Objectives

The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

Course outcomes

1. Ability to gather and specify requirements of the software projects.
2. Ability to analyze software requirements with existing tools
3. Able to differentiate different testing methodologies
4. Able to understand and apply the basic project management practices in real life projects
5. Ability to work in a team as well as independently on software projects

UNIT I

INTRODUCTION: The Evolving Role of Software – Software and its characteristics – Software Myths – Software Engineering – Components of Software Engineering – Software Engineering – A Layered Technology. Reactive Vs Proactive Risk Strategies – types of Software Risks – Risk Management process

UNIT II

SOFTWARE PROCESS MODELS: Prescriptive Models – The waterfall Model – Incremental Process Models: The Incremental Model, The RAD Model, Evolutionary Process Model: Prototyping Model, The spiral Model

UNIT III

REQUIREMENTS ENGINEERING: Requirements Engineering Tasks, Initiating the Requirement Engineering Process.

BUILDING THE ANALYSIS MODEL: Requirements Analysis, Analysis Modeling Approaches, Data Modeling Concepts, Flow – oriented Modeling: Creating a Data Flow Model.

UNIT IV

SOFTWARE DESIGN: Design Process & Design Quality – Design concepts – Architectural styles & Patterns. Quality Management: Quality Concepts – Software Quality Assurance

UNIT V

SOFTWARE QUALITY AND TESTING : Functional Testing – System Testing – User satisfaction Testing – Test Cases – Test plans.

SOFTWARE PROJECT MANAGEMENT (SPM): Introduction – SPM basics – Project Management –Project Integration Management – Project Life Cycle.

TEXT BOOKS:

1. Roger Pressman S., "Software Engineering: A Practitioner's Approach", McGraw Hill, 2010.

REFERENCE BOOKS:

1. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007
3. Pfleeger, "Software Engineering: Theory & Practice", 3rd Edition, Pearson Education, 2009
4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals of Software Engineering", Pearson Education, 2003

Student Activity:

1. **Visit any financial organization nearby and prepare requirement analysis report**
2. **Visit any industrial organization and prepare risk chart.**

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CBCS – BSc(COMPUTER SCIENCE) - III YEAR - SEMESTER-V
SOFTWARE ENGINEERING
MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Define software and explain its characteristics.
2. List and Explain software myths.
3. Write advantages & disadvantages of waterfall model.
4. Define Incremental model.
5. Write about initiating requirements engineering process.
6. Draw level 0 and level 1 DFD for ATM system.
7. Write quality concepts.
8. Define design process.
9. Discuss about Software Project Management basics.
10. Define test plans.

Section-B

Answer any FIVE of the following Questions: **(5 x 10= 50 Marks)**

11. Explain components of software engineering.
12. What is a risk? Explain its types in detail.
13. Explain about RAD model.
14. What is spiral model? Explain in detail.
15. Discuss about requirements engineering tasks.
16. Explain Analysis models.
17. Define and explain Software Quality Assurance.
18. Write about Design concepts in software design.
19. What is software testing? Explain Functional testing.
20. Explain software Project life cycle.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR V SEMESTER
Software Engineering Lab

1. Studying various phases of Water-Fall Model.
2. Prepare SRS for Banking or On line book store domain problem
3. Calculate effort using FP oriented estimation model
4. Analyze the Risk related to the project and prepare RMMM plan.
5. Develop Time-line chart and project table using PERT or CPM project scheduling methods.
6. Draw E-R diagram, DFD, CFD and STD for the project.
7. Design of the test cases.
8. Prepare FTR. Version control and change control for software configuration item

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VII-(A)

VECTOR CALCULUS

60 Hrs

UNIT – I (12 hrs) : Vector Differentiation – I :-

Vector Function of Scalar Variable continuity of a vector function partial differentiation scalar point Faction vector point faction – Gradient of a scalar point Function – Unit normal – Directional Derivative at a Point – Angle between two surfaces.

UNIT – II (12 hrs) : Vector Differentiation – II :-

Vector differential Operator – Scalar Differential Operator – Divergence of a vector – Solenoidal vector – Laplacian operator – curl of a vector – Ir rotational Vector – Vector identities.

UNIT – III (12 hrs) : Vector Integration - I :-

Definition – Integration of a vector – simple problems – smooth curve – Line integral – Tangential Integral – circulation Problems on line Integral. Surface Integral – Flux Problems on Surface Integral.

UNIT – IV(12 hrs) : Vector Integration - II :-

Volume Integrals – Gauss Divergence Theorem statement and proof – Applications of Gauss Divergence theorem.

UNIT – V (12 hrs) : Vector Integration - III :-

Green's Theorem in a plane Statement and proof – Application of Green's Theorem.

Statement and Proof of Stoke Theorem – Application of stoke Theorem.

Prescribed Text books:

A text Book of B.Sc., Mathematics by B.V.S.S.Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.

Reference Books :-

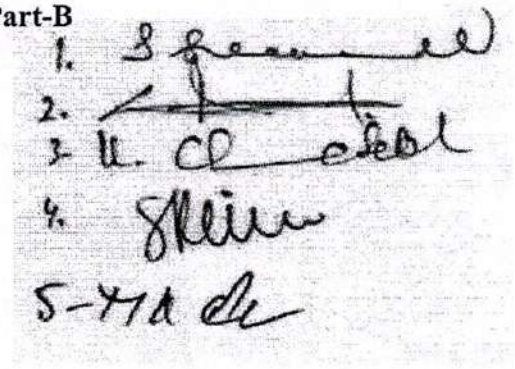
1. Vector Calculus by Santhi Narayana, Published by S. Chand & Company Pvt. Ltd., New Delhi.
2. Vector Calculus by R. Gupta, Published by Laxmi Publications.
3. Vector Calculus by P.C. Matthews, Published by Springer Verlag publicattions.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Vector Calculus and its applications

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B



BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS
(SEMESTER-VI) PAPER–VII-(A)
VECTOR CALCULUS

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

UNIT	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT - I	Introductions Gradient	2 (Problems)	-
	Unit Normal, Directional Derivates Angle Between two Surfaces	-	2 (Problems)
UNIT - II	Degree of a vector Curl, Solenoidal, Ir rotational	2 (Problems)	
	Laplace operator Vector identities	-	1(Problem)+ 1(Theorem)
UNIT - III	Integration of a Vector	2 (Problems)	
	Line Integral	-	1(Problem)
	Surface Integral	-	1(Problem)
UNIT - IV	Volume Integral Gauss Divergence	2 (Problems)	-
	Gauss Divergence Theorem	-	1 (Theorem) 1 (Problem)
UNIT - V	Green's Theorem + Stoke Theorem	1 (Theorem) 1 (Problem)	1 (Theorem) 1 (Problem)

1.
2.
3.
4.
5-

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS

SEMESTER – VI, PAPER – VII-(A)

VECTOR CALCULUS

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Prove that $\nabla\left(\frac{1}{r}\right)=\frac{-\hat{r}}{3}$.

2. Find grad f at $(1,1,-2)$ when $f=x^3+y^3+3xyz$.

3. If $\overset{u}{f}=xy^2i+2x^2yzj+3yz^2k$ find curl $\overset{u}{f}$ at (1,-1,1).

4. Define solenoidal vector show that $3y^4 3^2 i+4x^3z^3j+3x^2y^2k$ is solenoidal.

5. If $\overset{ur}{F}(t)=\left(t-t^2\right)i+2t^3j-3\bar{k}$ find $\int_1^2 \overset{ur}{F}(t)dt$.

6. If $\bar{A}=ti-t^2j+(t-1)\bar{k}$

$\bar{B}=2t^2i+6t\bar{k}$

$\int_0^2\left(\bar{A}\times\bar{B}\right)dt$.

7. By Divergence theorem evaluate $\int_s \overset{u}{F}.\hat{n}\,ds$ where $\overset{u}{F}=4xyi+y3j-xz\bar{k}$

when sin the surface x=0, x=1, y=0, y-1, z=0, z=1.

8. Applying Gauss theorem to prove $\int_s N\phi ds=\int_v \nabla\phi dr$.

9. State and prove Green's theorem.

10. Evaluate by stoke theorem $\int_s \overset{u}{F}.d\bar{r}$ when $\overset{u}{F}=yzi+3xj+xyk$ and C is the curve

$x^2+y^2=1, z=y^2$.

PART - B

Answer any <u>FIVE</u> of the following Questions.
Choosing at least <u>ONE</u> Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. If $a = x+y+z, b = x^2+y^2+z^2, c = xy+yz+3x$ prove that $[\nabla a, \nabla b, \nabla c] = 0$.

12. Find the Directional derivative of $f = xy+yz+zx$ in the direction of the vector $i+2j+2k$ at $(1,2,0)$.

UNIT - II

13. Prove that $div(\overline{A}\times\overline{B}) = \overline{B}\ curl\overline{A} - \overline{A}\ curl\overline{B}$.

14. Prove that $\nabla^2\left(\frac{x}{r^3}\right) = 0$.

UNIT - III

15. If $\overset{ur}{F} = 3xyi - y^2 j$ evaluate $\int_c \overline{F}.d\overline{r}$ when C is the curve $y = 2x^2$ in xy plane from $(0,0)$ to $(1,2)$.

16. If $\overset{ur}{F} = 2yi - 3j + x^2k$ and S is the surface $y^2 = 8x$ in the front octant bounded by the planes $y = 4$ and $z = 6$. Evaluate $\int_s \overline{F}.n\ ds$.

SECTION - B

UNIT - IV

17. State and prove Gauss's Divergence theorem.

18. If $\overline{F} = (2x^2 - 3z)i - 2xyj - 4x\overline{x}$ then evaluate $\int_v dir\,\overline{F}dr$ when V is the closed region bounded by the planer x = 0, y = 0, z = 0 and $2x+2y+z = 4$.

UNIT - V

19. Evaluate by Green's Theorem.
$\int_c (3x^2 - 8y^2)dx(4y - 6xy)dy$ when C is the boundary defiled by $x = 0, y = 0, x+y = 1$.

20. State and prove stock's Theorem.

<u>Instruction to Paper Setter:</u>
Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VII-(B)

ELECTIVE–VII-(B); OPERATIONS RESEARCH

60 Hrs

UNIT-I ***(12 hrs)*****:**

Introduction to Operations Research, Definition of OR, Applications of OR, Limitations of OR, Linear programming problem (LPP), Introduction, Mathematical formulation of the LPP, Applications and Limitation of LPP.

UNIT-II ***(12 hrs)*****:**

Linear Programming Problem – Solution of LPP Using Graphical Method and Simplex Method ($\leq$ inequality only).

UNIT-III ***(12 hrs)*****:**

Transportation problem: Mathematical formulation, IBFS of transportation problem using north-west corner rule, least-cost rule and Vogel's approximation method, Simple problems.

UNIT-IV ***(12 hrs)*****:**

Assignment problem, definition, mathematical formulation of assignment problem, solution of assignment problem using Hungarian algorithm, unbalanced assignment problem, simple problems, Difference between Assignment and transportation Problem.

UNIT-V ***(12 hrs)*****:**

Introduction – Definition – Terminology and Notations Principal Assumptions,
Problems with n Jobs through Two Machines
Problems with n Jobs through Three Machines

Prescribed Text Book:

Operations Research (2^{nd} Edition) by S.Kalavathi, Vikas Publications Towers Pvt. Ltd.

Scope:

UNIT-I: 1.1, 1.2, 1.3, 1.5, 1.6, 1.7
UNIT-II: 2.1, 2.2, 2.2.1, 2.2.2, 3.1, 3.1.1, 4.1, 4.2, 4.3
UNIT-III: 8.1, 8.2, 8.3, 8.4.1, 8.4.2, 8.4.3
UNIT-IV: 9.1, 9.2, 9.2.1, 9.2.2, 9.3, 9.4
UNIT-V: 12.1, 12.2, 12.2.1, 12.2.2, 12.3, 12.4

Reference books:

1. Operations Research by Kanthiswaroop, P.K.Gupta, Manmohan by Sultan Chand & Sons
2. Operations Research by SD. Sharma, Published by Kedhar Nath ram Nath – Meerut.

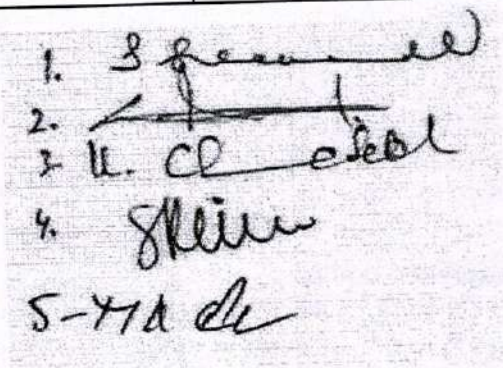
INSTRUCTIONS TO PAPER SETTER:-

1. **Two questions must be given from each unit in Part-A and Part-B**
2. Number of constraints in LPP should be less than or equal to 3.
3. The order of transportation and assignment matrix should be less than or equal to 5.

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. MATHEMATICS
SEMESTER – VI, PAPER – VII-(B)
ELECTIVE–VII-(B); OPERATIONS RESEARCH

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

UNIT	TOPICS	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT - I	Introduction of OR	1(Theory)	1(Theory)
	LPP	1(Theory)	1 (Problem)
UNIT - II	Simplex Graphical Method	1(Theory) 1(Problem)	2(Problems)
UNIT - III	Transportation	1(Theory) 1(Problem)	2(Problems)
UNIT - IV	Assignment problem	1(Theory) 1(Problem)	2(Problems)
UNIT - V	sequencing Jobs	1(Theory) 1(Problem)	2(Problems)



VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VII-(B)

ELECTIVE–VII-(B); OPERATIONS RESEARCH

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Explain the origin and development of operation research.

2. Explain the procedure to formulate a linear programming problem.

3. Explain the Simplex method to solve a linear programming problem.

4. Solve the following LPP by using graphical method

$\max z = 8x_1 + 5x_2$

Subject to : $2x_1 + x_2 \le 500$

$x_1 \le 150$

$x_2 \le 250$

$x_1, x_2 \ge 0$

5. Explain the mathematical formulation of transportation problem.

6. Determine an initial basic feasible solution to the following transportation problem using North west corner rule.

	D_1	D_2	D_3	D_4	Supply
O_1	6	4	1	5	14
O_2	8	9	2	7	16
O_3	4	3	6	2	5
Demand	6	10	15	4	

7. Explain the difference between transportation and assignment problem.

8. Solve the following Assignment problem which Minimize the Total Cost.

	A	*B*	*C*	*D*
1	10	25	15	20
2	15	30	5	15
3	35	20	12	24
4	17	25	24	20

9. Explain the assumptions involved in sequencing problem.

10. There are five jobs each of which must go through the two machines A and B in the order A,B processing times are given below.

JOB	**1**	**2**	**3**	**4**	**5**
Machine-A	5	1	9	3	10
Machine-B	2	6	7	8	4

Determine a sequence for the five jobs that will minimize the total elapsed time.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 X 10 = 50Marks)***

SECTION - A

UNIT - I

11. Explain advantages and limitations of operations research.

12. A paper mill produces two grades of paper namely x and y owing to raw material restrictions it cannot produce more than 400 tons of grade x and 300 tons of grade y in a week. There are 160 production hours in a week. It requires 0.2 and 0.4 hours to produce a ton of products x and y respectively with corresponding profits of Rs. 200/- and Rs. 500/- per ton. Formulate the above as an LPP to maximize profit.

UNIT - II

13. Solve the LPP by using graphical method

objective function : $\max z = 3x_1 + 4x_2$

Subject to : $4x_1 + 2x_2 \le 80$

$2x_1 + 5x_2 \le 180$

$x_1 \ge 0,\ x_2 \ge 0$

14. Use simplex method to solve the LPP.

objective function : $\max z = 3x_1 + 2x_2$

Subject to : $x_1 + x_2 \le 4$

$x_1 - x_2 \le 2$

$x_1, x_2 \ge 0$

UNIT - III

15. Use vogel's approximation method to obtain an initial basic feasible solution of the transportation problem.

	D	E	F	G	Available
A	11	13	17	14	250
B	16	18	14	10	300
C	21	24	13	10	400
Demand	200	225	275	250	

16. Find the initial basic feasible solution for the following data using least cost method.

	A	B	C	Available
1	2	7	4	5
2	3	3	1	8
3	5	4	7	7
4	1	6	2	14
Demand	7	9	18	

SECTION - B

UNIT - IV

17. A department head has four tasks to be performed and three subordinates, the subordinates differ in efficiency the estimates of the time, each subordinate would take to perform is given below in the matrix. How should he allocate the tasks one to each man, so as to minimize the total Men - Hours?

	MEN		
Task	**1**	**2**	**3**
I	9	26	15
II	13	27	6
III	35	20	15
IV	18	30	20

18. Solve the following assignment problem in order to minimize the total cost. The matrix given below gives the assignment cost when different operators are assigned to various machines.

	I	*II*	*III*	*IV*	*V*
A	30	25	33	35	36
B	23	29	38	23	26
C	30	27	22	22	22
D	25	31	29	27	32
E	27	29	30	24	32

UNIT - V

19. In a factory, there are Six Jobs to perform, each of which should go through two machines A and B, in the order A, B. The processing time (in hours) for the Jobs are given below. You are required to determine the sequence for performing the Jobs that would minimize the total elapsed time T, what is the value of T?

JOB	J_1	J_2	J_3	J_4	J_5	J_6
Machine-A	1	3	8	5	6	3
Machine-B	5	6	3	2	2	10

20. We have five jobs each of which must go through the machines A,B and C in the order A,B,C. Determine the sequence that will minimize the total elapsed time.

JOB	**1**	**2**	**3**	**4**	**5**
Machine-A	5	7	6	9	5
Machine-B	2	1	4	5	3
Machine-C	3	7	5	6	7

Instruction to Paper Setter :

Two questions must be given from each unit in Part-A and Part-B.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VII-(C)

ELECTIVE– VII-(C) : NUMBER THEORY

60 Hrs

UNIT-I (12 hours)

Divisibility – Greatest Common Divisor – Euclidean Algorithm – The Fundamental Theorem of Arithmetic

UNIT-II (12 hours)

Congruences – Special Divisibility Tests - Chinese Remainder Theorem- Fermat"s Little Theorem – Wilson"s Theorem – Residue Classes and Reduced Residue Classes – Solutions of Congruences

UNIT-III (12 hours)

Number Theory from an Algebraic Viewpoint – Multiplicative Groups, Rings and Fields

UNIT-IV (12 hours)

Quadratic Residues - Quadratic Reciprocity – The Jacobi Symbol

UNIT-V (12 hours)

Greatest Integer Function – Arithmetic Functions – The Moebius Inversion Formula

Reference Books:

1. "Introduction to the Theory of Numbers" by Niven, Zuckerman & Montgomery (John Wiley & Sons)
2. "Elementary Number Theory" by David M. Burton.
3. Elementary Number Theory, by David, M. Burton published by 2nd Edition (UBS Publishers).
4. Introduction to Theory of Numbers, by Davenport H., Higher Arithmetic published by 5th Edition (John Wiley & Sons) Niven,Zuckerman & Montgomery.(Camb, Univ, Press)
5. Number Theory by Hardy & Wright published by Oxford Univ, Press.
6. Elements of the Theory of Numbers by Dence, J. B & Dence T.P published by Academic Press.

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VIII-A-1

Cluster Elective –VIII-A-1; LAPLACE TRANSFORMS

60 Hrs

UNIT – 1 (12 hrs) Laplace Transform I : -

Definition of - Integral Transform – Laplace Transform Linearity, Property, Piecewise continuous Functions, Existence of Laplace Transform, Functions of Exponential order, and of Class A. Linear property, First Shifting Theorem.

UNIT – 2 (12 hrs) Laplace Transform II : -

Second Shifting Theorem, Change of Scale Property, Laplace Transform of the derivative of f(t), Initial Value theorem and Final Value theorem.

UNIT – 3 (12 hrs) Laplace Transform III : -

Laplace Transform of Integrals – Multiplication by t, Multiplication by t^n – Division by t.

UNIT –4 (12 hrs) Inverse Laplace Transform I : -

Definition of Inverse Laplace Transform. Linearity, Property, First Shifting Theorem, Second Shifting Theorem, Change of Scale property, use of partial fractions, Examples.

UNIT –5 (12 hrs) Inverse Laplace Transform II : -

Inverse Laplace transforms of Derivatives–Inverse Laplace Transforms of Integrals – Multiplication by Powers of „P'– Division by powers of „P'– Convolution Definition – Convolution Theorem – proof and Applications – Heaviside's Expansion theorem and its Applications.

Prescribed Text Books :-

Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.

Reference Books :-

1. Laplace Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Co., Pvt. Ltd., New Delhi.
3. Laplace and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
4. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S. Chand and Co., Pvt.Ltd., New Delhi.

Suggested Activities: Seminar/ Quiz/ Assignments

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS
SEMESTER – VI, PAPER – VIII-A-1
Cluster Elective –VIII-A-1; LAPLACE TRANSFORMS

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

PAPER	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT – I	2 (Problems)	1 (Theorem) & 1 (Problem)
UNIT – II	1 (Theorem) & 1 (Problem)	1 (Theorem) & 1 (Problem)
UNIT – III	2 (Problems)	1 (Theorem) & 1 (Problem)
UNIT – IV	1 (Theorem) & 1 (Problem)	1 (Theorem) & 1 (Problem)
UNIT – V	2 (Problems)	1 (Theorem) & 1 (Problem)

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS

SEMESTER – VI, PAPER – VIII-A-1

Cluster Elective –VIII-A-1; LAPLACE TRANSFORMS

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Find $L\left\{e^{-t}\left(3\sinh 2t-5\cosh 2t\right)\right\}$.

2. Find $L\{F(t)\}$ Where $F(t)=\begin{cases}0, & 0<t<1\\ t, & 1<t<2\\ 0, & t>2\end{cases}$

3. State and prove second shifting theorem in Laplace Transforms.

4. Applying change of scale property, find $L\{\cos 5t\}$.

5. Find $L\{t(3\sin 2t-2\cos 2t)\}$.

6. Show that $\int_0^{\alpha} t\, e^{-2t}\cos t\, dt=\frac{3}{25}$.

7. State and prove first shifting Theorem in Inverse Laplace Transforms.

8. $L^{-1}\left\{\frac{3P-2}{P^2-4P+20}\right\}$.

9. Find $L^{-1}\left\{\log\frac{P+3}{P+2}\right\}$.

10. Find $L^{-1}\left\{\frac{1}{P(P+1)^3}\right\}$.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Define Laplace Transforms. State and prove linear property of Laplace Transforms.

12. Find $L\{\sin at\}$ and $L\{\cos at\}$ and hence obtain $L\left\{\sin^2 at\right\}$.

UNIT - II

13. State and prove initial value theorem.

14. Find $L\{F(t)\}$ where $F(t)=\begin{cases}\cos\left(t-\frac{2}{3}\pi\right) & ,t>\frac{2\pi}{3}\\ 0 & ,t<\frac{2\pi}{3}\end{cases}$

UNIT - III

15. If $L\{F(t)\}=f(p)$ then prove that $L\left\{\int_0^t F(x)dx\right\}=\frac{1}{p}L\{F(t)\}$.

16. Prove that $L\left\{\frac{\sin t}{t}\right\}=\text{Tan}^{-1}\frac{1}{P}$ and hence find $L\left\{\frac{\sin at}{t}\right\}$.

SECTION - B

UNIT - IV

17. State and prove change of scale property in Inverse Laplace Transforms.

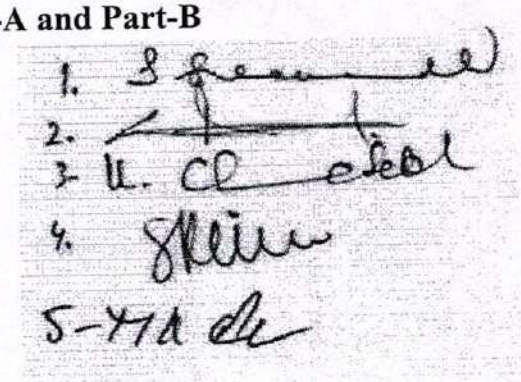
18. Prove that $L^{-1}\left\{\frac{P}{\left(P^2-2P+2\right)\left(P^2+2P+2\right)}\right\}=\frac{1}{2}\sin t\sinh t$.

UNIT - V

19. State and prove Heaviside's expansion theorem.

20. Use Convolution theorem to find $L^{-1}\left\{\frac{1}{P\sqrt{P+1}}\right\}$.

Instruction to Paper Setter:
Two questions must be given from each unit in Part-A and Part-B



VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS,

SEMESTER – VI, CLUSTER – A, PAPER – VIII-A-2

Cluster Elective- VIII-A-2: INTEGRAL TRANSFORMS

60 Hrs

UNIT – 1 (12 hrs) Application of Laplace Transform to solutions of Differential Equations : -

Solutions of ordinary Differential Equati6ons.

Solutions of Differential Equations with constants co-efficient Solutions of Differential Equations with Variable co-efficient

UNIT – 2 (12 hrs) Application of Laplace Transform : -

Solutions of partial Differential Equations.

UNIT – 3 (12 hrs) Application of Laplace Transforms to Integral Equations : -

Definitions : Integral Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integro Differential Equations. Application of L.T. to Integral Equations.

UNIT –4 (12 hrs) Fourier Transforms-I : -

Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform shifting property – modulation theorem.

UNIT – 5 (12 hrs) Fourier Transform-II : -

Convolution Definition – Convolution Theorem for Fourier transform – parseval's Indentify – Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Prescribed Text Books :-

Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.

Reference Books :-

1. Laplace Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Co., Pvt. Ltd., New Delhi.
3. Laplace and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
4. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S. Chand and Co., Pvt.Ltd., New Delhi.

Suggested Activities:

Seminar/ Quiz/ Assignments

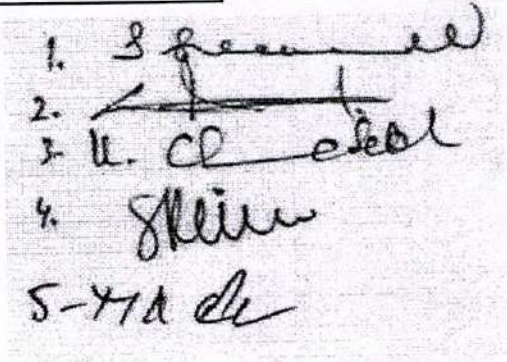
Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

BLUE PRINT OF QUESTION PAPER
(INSTRUCTIONS TO PAPER SETTER)
B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS,
SEMESTER – VI, CLUSTER – A, PAPER – VIII-A-2
Cluster Elective- VIII-A-2: INTEGRAL TRANSFORMS

NOTE *:- Paper Setter Must select* ***TWO*** *Short Questions and* ***TWO*** *Easy Questions from Each Unit as Follows :-*

PAPER	5 MARKS QUESTIONS	10 MARKS QUESTIONS
UNIT – I	2 (Problems)	2 (Problems)
UNIT – II	2 (Problems)	2 (Problems)
UNIT – III	2 (Problems)	2 (Problems)
UNIT – IV	1 (Theorem) & 1 (Problem)	1 (Theorem) & 1 (Problem)
UNIT – V	1 (Theorem) & 1 (Problem)	2 (Theorems)



VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS

SEMESTER – VI, CLUSTER – A, PAPER – VIII-A-2

Cluster Elective- VIII-A-2: INTEGRAL TRANSFORMS

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Solve $\frac{d^2y}{dx^2}+y=0$.

2. $\left(D^2+2D+1\right)y=3te^{-t}$ find $L\{y\}$.

3. If $y(x,t)$ is a function of x and t prove that $L\left\{\frac{\partial y}{\partial t}\right\}=p\bar{y}(x,p)-y(x,0)$.

4. Solve $\frac{\partial^2 y}{\partial x^2}-\frac{\partial^2 y}{\partial t^2}=xt$ when $y=0=\frac{\partial y}{\partial t}$ at $t=0$ and $y(0,t)=0$.

5. Define Abel's Integral Equation give One Example.

6. Solve $\int_0^t F(\mu)F(t-\mu)d\mu=16\sin 4t$.

7. State and prove Linear property of Fourier Transform.

8. Find Fourier sine transform of $f(x)$

$$f(x)=\begin{cases}1, & 0\le x<1\\ 0, & x>1\end{cases}.$$

9. State and prove Rayleigh's theorem.

10. Solve the Integral Equation $\int_0^{\alpha} f(x)\cos\lambda x dx=e^{-\lambda}$.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Solve $\left(D^2-D-2\right)y=20\sin 2t$ if $y=-1,\ Dy=2$ at $t=0$.

12. Solve $y^{11}-ty^{1}+y=1$ if $y(0)=1,\ y^{1}(0)=2$.

UNIT - II

13. Solve $\frac{\partial y}{\partial t}=3\frac{\partial^2 y}{\partial x^2}$ when $y\left(\frac{\pi}{2},t\right)=0,\ \left(\frac{\partial y}{\partial x}\right)_{x=0}=0$ and $y(x,0)=30\cos 5x$.

14. Solve $\frac{\partial y}{\partial x}-\frac{\partial y}{\partial t}=1-e^{-t},0<x<1,t>0$ and $y(x,0)=x$.

UNIT - III

15. Solve the integral equation $\int_0^t \frac{F(\mu)}{(t-\mu)^{\frac{1}{3}}}d\mu=t(1+t)$.

16. Solve $2F(t)=2-t+\int_0^t F(t-\mu)F(\mu)$.

SECTION - B

UNIT - IV

17. State and prove change of scale property for Fourier cosine Transform.

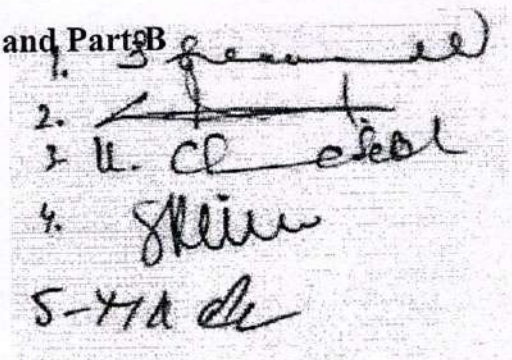
18. Find the Fourier Transform of $F(x)=\begin{cases}1-x^2, & |x|\le 1\\ 0, & |x|\ge 1\end{cases}$.

UNIT - V

19. State and prove Fatling theorem for Fourier Transform.

20. Derive the Relationship between Fourier and Laplace Transforms.

Instruction to Paper Setter:
Two questions must be given from each unit in Part-A and Part-B



VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, CLUSTER-B, PAPER – VIII-B-1

Cluster Elective – VIII-B-1 : PRINCIPLES OF MECHANICS

60 Hrs

Unit – I : (10 hours)

D' Alembert's Principle and Lagrange's Equations : some definitions – Lagrange's equations for a Holonomic system – Lagrange's Equations of motion for conservative, nonholonomic system.

Unit – II: (10 hours)

Variational Principle and Lagrange's Equations: Variatonal Principle – Hamilton's Principle – Derivation of Hamilton's Principle from Lagrange's Equations – Derivation of Lagrange's Equations from Hamilton's Principle – Extension of Hamilton's Principle – Hamilton's Principle for Non-conservative, Non-holonomic system – Generalised Force in Dynamic System – Hamilton's Principle for Conservative, Non-holonomic system – Lagrange's Equations for Non-conservative, Holonomic system - Cyclic or Ignorable Coordinates.

Unit –III: (15 hours)

Conservation Theorem, Conservation of Linear Momentum in Lagrangian Formulation – Conservation of angular Momentum – conservation of Energy in Lagrangian formulation.

Unit – IV: (15 hours)

Hamilton's Equations of Motion: Derivation of Hamilton's Equations of motion – Routh's procedure – equations of motion – Derivation of Hamilton's equations from Hamilton's Principle – Principle of Least Action – Distinction between Hamilton's Principle and Principle of Least Action.

Unit – V: (10 hours)

Canonical Transformation: Canonical coordinates and canonical transformations – The necessary and sufficient condition for a transformation to be canonical – examples of canonical transformations – properties of canonical transformation – Lagrange's bracket is canonical invariant – poisson's bracket is canonical invariant - poisson's bracket is invariant under canonical transformation – Hamilton's Equations of motion in poisson's bracket – Jacobi's identity for poisson's brackets.

Reference Text Books :

1. Classical Mechanics by C.R.Mondal Published by Prentice Hall of India, New Delhi.
2. A Text Book of Fluid Dynamics by F. Charlton Published by CBS Publications, New Delhi.
3. Classical Mechanics by Herbert Goldstein, published by Narosa Publications, New Delhi.
4. Fluid Mechanics by T. Allen and I.L. Ditsworth Published by (McGraw Hill, 1972)
5. Fundamentals of Mechanics of fluids by I.G. Currie Published by (CRC, 2002)
6. Fluid Mechanics : An Introduction to the theory, by Chia-shun Yeh Published by (McGraw Hill, 1974)
7. Introduction to Fluid Mechanics by R.W Fox, A.T Mc Donald and P.J. Pritchard Published by (John Wiley and Sons Pvt. Ltd., 2003)

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, CLUSTER-B, PAPER – VIII-B-2

Cluster Elective–VIII-B-2 : FLUID MECHANICS

60 Hrs

Unit – I : (10 hours)

Kinematics of Fluids in Motion

Real fluids and Ideal fluids – Velocity of a Fluid at a point – Streamlines and pthlines – steady and Unsteady flows – the velocity potential – The Vorticity vector – Local and Particle Rates of Change – The equation of Continuity – Acceleration of a fluid – Conditions at a rigid boundary – General Analysis of fluid motion.

Unit – II : (10 hours)

Equations of motion of a fluid- Pressure at a point in fluid at rest – Pressure at a point in a moving fluid – Conditions at a boundary of two inviscid immiscible fluids – Euler's equations of motion – Bernoulli's equation – Worked examples.

Unit – III : (10 hours)

Discussion of the case of steady motion under conservative body forces - Some flows involving axial symmetry – Some special two-dimensional flows – Impulsive motion – Some further aspects of vortex motion.

Unit – IV : (15 hours)

Some Two – dimensional Flows, Meaning of two-dimensional flow – Use of Cylindrical polar coordinates – The stream function – The complex potential for two-dimensional, Irrotational, Incompressible flow – Uniform Stream – The Milne-Thomson Circle theorem – the theorem of Blasius.

Unit – V : (15 hours)

Viscous flow, Stress components in a real fluid – Relations between Cartesian components of stress – Translational motion of fluid element – The rate of strain quadric and principal stresses – Some further properties of the rate of strain quadric – Stress analysis in fluid motion – Relations between stress and rate of strain – the coefficient of viscosity and laminar flow - The Navier-Stokes equations of motion of a viscous fluid.

Reference Text Books :

1. A Text Book of Fluid Dynamics by F. Charlton Published by CBS Publications, New Delhi.
2. Classical Mechanics by Herbert Goldstein, published by Narosa Publications, New Delhi.
3. Fluid Mechanics by T. Allen and I.L. Ditsworth published by (McGraw Hill, 1972)
4. Fundamentals of Mechanics of fluids by I.G. Currie published by (CRC, 2002)
5. Fluid Mechanics, An Introduction to the theory by Chia-shun Yeh published by (McGraw Hill, 1974)
6. Fluids Mechanics by F.M White published by (McGraw Hill, 2003)
7. Introduction to Fluid Mechanics by R.W Fox, A.T Mc Donald and P.J. Pritchard published by (John Wiley and Sons Pvt. Ltd., 2003

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, CLUSTER-C, PAPER – VIII-C-1 Cluster Elective–VIII-C-1: GRAPH THEORY

60 Hrs

UNIT – I (12 hrs) Graphs and Sub Graphs :

Graphs , Simple graph, graph isomorphism, the incidence and adjacency matrices, sub graphs, vertex degree, Hand shaking theorem, paths and connection, cycles.

UNIT – II (12 hrs)

Applications, the shortest path problem, Sperner"s lemma.

Trees :

Trees, cut edges and Bonds, cut vertices, Cayley"s formula.

UNIT – III (12 hrs) :

Applications of Trees - the connector problem.

Connectivity

Connectivity, Blocks and Applications, construction of reliable communication Networks,

UNIT – IV (12 hrs):

Euler tours and Hamilton cycles

Euler tours, Euler Trail, Hamilton path, Hamilton cycles , dodecahedron graph, Petersen graph, hamiltonian graph, closure of a graph.

UNIT – V (12 hrs)

Applications of Eulerian graphs, the Chinese postman problem, Fleury"s algorithm - the travelling salesman problem.

Reference Books :

1. Graph theory with Applications by J.A. Bondy and U.S.R. Murthy published by Mac. Millan Press
2. Introduction to Graph theory by S. Arumugham and S. Ramachandran, published by scitech Publications, Chennai-17.
3. A Text Book of Discrete Mathamatics by Dr. Swapan Kumar Sankar, published by S.Chand & Co. Publishers, New Delhi.
4. Graph theory and combinations by H.S. Govinda Rao published by Galgotia Publications.

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B.

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, CLUSTER-C, PAPER – VIII-C-2 Cluster Elective -VIII-C-2: APPLIED GRAPH THEORY

60 Hrs

UNIT – I (12 hrs) : Matchings

Matchings – Alternating Path, Augmenting Path - Matchings and coverings in Bipartite graphs, Marriage Theorem, Minimum Coverings.

UNIT –II (12 hrs) :

Perfect matchings, Tutte"s Theorem, Applications, The personal Assignment problem -The optimal Assignment problem, Kuhn-Munkres Theorem.

UNIT –III (12 hrs) : Edge Colorings

Edge Chromatic Number, Edge Coloring in Bipartite Graphs - Vizing"s theorem.

UNIT –IV (12 hrs) :

Applications of Matchings, The timetabling problem.

Independent sets and Cliques

Independent sets, Covering number , Edge Independence Number, Edge Covering Number - Ramsey"s theorem.

UNIT –V (12 hrs) :

Determination of Ramsey"s Numbers – Erdos Theorem, Turan"s theorem and Applications, Sehur"s theorem. A Geometry problem.

Reference Books :-

1. Graph theory with Applications by J.A. Bondy and U.S.R. Murthy, published by Mac. Millan Press.
2. Introduction to graph theory by S. Arumugham and S. Ramachandran published by SciTech publications, Chennai-17.
3. A text book of Discrete Mathematics by Dr. Swapan Kumar Sarkar, published by S. Chand Publishers.
4. Graph theory and combinations by H.S. Govinda Rao, published by Galgotia Publications.

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI, PAPER – VIII-(D)-1

Cluster Elective –VIII-(D)-1; NUMERICAL ANALYSIS

60 Hrs

UNIT- I: (10 hours)

Errors in Numerical computations : Errors and their Accuracy, Mathematical Preliminaries, Errors and their Analysis, Absolute, Relative and Percentage Errors, A general error formula, Error in a series approximation.

UNIT – II: (12 hours)

Solution of Algebraic and Transcendental Equations: The bisection method, The iteration method, The method of false position, Newton Raphson method, Generalized Newton Raphson method. Muller's Method

UNIT – III: (12 hours) Interpolation - I

Interpolation : Errors in polynomial interpolation, Finite Differences, Forward differences, Backward differences, Central Differences, Symbolic relations, Detection of errors by use of Differences Tables, Differences of a polynomial

UNIT – IV: (12 hours) Interpolation - II

Newton's formulae for interpolation. Central Difference Interpolation Formulae, Gauss's central difference formulae, Stirling's central difference formula, Bessel's Formula, Everett's Formula.

UNIT – V : (14 hours) Interpolation - III

Interpolation with unevenly spaced points, Lagrange's formula, Error in Lagrange's formula, Divided differences and their properties, Relation between divided differences and forward differences, Relation between divided differences and backward differences Relation between divided differences and central differences, Newton's general interpolation Formula, Inverse interpolation.

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall of India Pvt. Ltd., New Delhi. (Latest Edition)
2. Numerical Analysis by G. Sankar Rao published by New Age International Publishers, New – Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities: Seminar/ Quiz/ Assignments

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS

SEMESTER – VI, PAPER – VIII-(D)-1

Cluster Elective –VIII-(D)-1; NUMERICAL ANALYSIS

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Define the following (a) Absolute Error (b) Relative Error (c) Percentage Error.

2. If $y = 4x^6 - 5x$ find percentage error in y at at x=1 if the error in x is 0.04.

3. Find the root of the equation $2x - \log_{10}^{x} = 7$. Which lies between 3.5 and 4 by Regular Falsi Method.

4. Explain merits and demerits of Newton - Rephson Method.

5. Prove the following (a) $E\nabla = \Delta = \nabla E$ (b) $\nabla = 1 - E^{-1}$.

6. Find the Missing form :

x	0	1	2	3	4
y	1	3	9	-	8

7. Find cubic polynomial $y(0) = 1, y(1) = 0, y(2) = 1, y(3) = 10$. Hence or other wise find $y(4)$.

8. $y_{20} = 24, y_{24} = 32, y_{28} = 35, y_{32} = 40,$ find y_{25} by Bessel's Formula.

9. Derive the relation between divided Difference and Backward Differences.

10. Derive Lagrange's Interpolation Formula.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Fit an exponential curve of second kind $y = ae^{bx}$.

12. Fit a straight line to the following data :

x	**0**	**5**	**10**	**15**	**20**	**25**
y	**12**	**15**	**17**	**22**	**24**	**30**

and estimate y value when x = 30.

UNIT - II

13. From the Stirling's interpolation formula obtain the following approximation up to 3rd difference.

$$\frac{d}{dy}(yx) = \frac{2}{3}\left(y_{x+1} - y_{x-1}\right) - \frac{1}{12}\left(y_{x+2} - y_{x-2}\right).$$

14. From the following table find the value of x for which y is maximum and find this value of y

x	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**
y	**0.9320**	**0.9636**	**0.9055**	**0.9985**	**0.999**

UNIT - III

15. Derive newton's cote's Quadrature formula.

16. Evaluate $\int_4^{5.2} \log x dx$ using Weddle's Rule.

SECTION - B

UNIT - IV

17. Solve by Tridiagonal system

$x_1 + 2x_2 = 7,\ x_1 - 3x_2 - x_3 = 4,\ 4x_2 + 3x_3 = 5.$

18. Solve by Jacobi's method $10x + 2y + z = 9,\ x + 10y - z = -22,\ -2x + 3y + 10z = 22.$

UNIT - V

19. Compute y at $x = 0.25$ by Euler's method given $y^1 = 2xy, y(0) = 1$:

20. Using Runge – Kutta methods of second order, compute $y(2.5)$ prove

$\frac{dy}{dx} = \frac{x+y}{x}, y(2) = 2$ falling $h = 0.25$.

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY::NELLORE

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS

SEMESTER – VI: PAPER – VIII-D-2

Cluster Elective –VIII-D-2: ADVANCED NUMERICAL ANALYSIS

60 Hrs

Unit – I (10 Hours)

Curve Fitting: Least – Squares curve fitting procedures, fitting a straight line, nonlinear curve fitting, Curve fitting by a sum of exponentials.

UNIT- II : (12 hours)

Numerical Differentiation: Derivatives using Newton's forward difference formula, Newton's backward difference formula, Derivatives using central difference formula, stirling's interpolation formula, Newton's divided difference formula, Maximum and minimum values of a tabulated function.

UNIT- III : (12 hours)

Numerical Integration: General quadrature formula on errors, Trapozoidal rule, Simpson's 1/3 – rule, Simpson's 3/8 – rule, and Weddle's rules, Euler – Maclaurin Formula of summation and quadrature, The Euler transformation.

UNIT – IV: (14 hours)

Solutions of simultaneous Linear Systems of Equations: Solution of linear systems – Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss-Jordan Method ,Method of factorization, Solution of Tridiagonal Systems,. Iterative methods. Jacobi's method, Gauss-siedal method.

UNIT – V (12 Hours)

Numerical solution of ordinary differential equations: Introduction, Solution by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods.

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall India (Latest Edition).
2. Numerical Analysis by G. Sankar Rao, published by New Age International Publishers, New – Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities:

Seminar/ Quiz/ Assignments

Instruction to Paper Setter:

Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

B.A./B.Sc. THIRD YEAR MATHEMATICS

SEMESTER – VI: PAPER – VIII-D-2

Cluster Elective –VIII-D-2: ADVANCED NUMERICAL ANALYSIS

MODEL QUESTION PAPER

TIME : 3 Hours ***Max.Marks : 75***

PART – A

I. Answer any FIVE Questions : ***5 X 5 = 25M***

1. Fitting a second degree parabola by the method of Least-Squares.

2. Fit a exponential curve $y = ab^x$.

3. Find first two Derivatives using Newton's backward difference formula.

4. Find the first and second derivatives of the function tabulated below at x = 15

x	1.5	2	2.5	3	3.5	4
y	3.325	7	13.625	24	38.875	59

5. Derive Trapezoidal Rule.

6. Evaluate $\int_0^1 e^x dx$ using Simpson's $\frac{1}{3}$rd method.

7. Solve by matrix inverse method $x+y-2z=3,\ 2x-y+z=0,\ 3x+y-z=8$.

8. Explain Gaussian Elimination method .

9. Explain Taylor's Method.

10. Explain modified Euler Method.

PART - B

Answer any FIVE of the following Questions.
Choosing at least ONE Question from Each Section. ***(5 × 10 =50 Marks)***

SECTION - A

UNIT - I

11. Define the types of errors and Establish a general error formulas by taking $\mu = f\left(x_1, x_2 \ldots\ldots, x_n\right)$.

12. Given $a = 10 \pm 0.05, b = 0.0356 \pm 0.0002,\ c = 15300 \pm 100, d = 62000 \pm 500$. Find the maximum absolute error in $a+b+c+d, a+5c-d$.

UNIT - II

13. Explain Bisection method to find a real root of the equation $f(x) = 0$.

14. Explain Muller's method to find root of $f(x) = 0$ by Muller's method find root of the equation $x^3 - x^2 - x - 1 = 0$

UNIT - III

15. If $f(x)$ is a polynomial of degree 'n' and the values of x are equally spaced then prove that $\Delta^n f(x)$ is a constant.

16. Evaluate the following taking interval as 1 using finite deference method :

(a) $\Delta \mathrm{Tan}^{-1} x$ (b) $2x/x!$ (c) Δ^{e^x}.

SECTION - B

UNIT - IV

17. Derive Gauss's Backward Interpolation Formula.

18. Using sterling formula find y_{28}. $y_{20} = 49225,\ y_{25} = 48316,\ y_{30} = 47236,$ $y_{35} = 45926,\ y_{40} = 44306.$

UNIT - V

19. Find the interpolation polynomial for the following using Lagrange's Method :

x	0	1	2	5
y	2	3	12	147

20. Derive Newton's general interpolation formula with divided difference.

Instruction to Paper Setter:
Two questions must be given from each unit in Part-A and Part-B

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR BA/B.SC (CBCS) DEGREE EXAMINATION

THIRD YEAR : SEMESTER–VI

Elective Paper – VII(A) : APPLIED STATISTICS **3 Hrs/Week**

Unit-I

Analysis of times series: Components of times series: meaning and examples, trend by least squares (straight line and parabola) methods and moving average methods. Seasonal indices by simple averages, ratio to moving average, ratio to straight-line trend

Unit-II

Index numbers: Meaning, problems involved in the construction of index numbers, simple and weighted index numbers. Criteria of good index numbers. Fixed base and chain base index numbers. Cost of living index numbers, wholesale price index numbers

Unit-III

Official Statistics: Functions and organization of CSO and NSSO. Agricultural Statistics, Area Statistics, Yield statistics, National income and its computation.

Unit-IV

Vital statistics: Meaning, Definition, uses, sources of vital statistics, various Death rates-CDR,ASDR,STDR and Birth rates -CBR,ASFR,TFR.

Unit-V

Reproduction Rates: Measurement of population growth, crude rate of natural increase, Pearle's vital index, Gross Reproduction Rate[GRR], Net Reproduction Rates[NRR]. Life tables (Introduction and uses only)

Text Books:

1. Fundamentals of applied statistics : VK Kapoor and SC Gupta.
2. BA/BSc III year paper - III Statistics - applied statistics - Telugu academy by Prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry.

Reference Books:

1. Indian Official statistics - MR Saluja.
2. Anuvarthita Sankyaka Sastram - Telugu Academy.

Practical's–Semester-VI Paper-VII(A Conduct any 6 of the following

1. Measurement of Linear Trend
2. Measurement of Seasonal Indices-Link Relatives method
3. Reversal tests.
4. Cost of living Index Numbers.
5. Mortality, Fertility& Re-production rates.
6. Life tables. 7. Any one of the above Using MS-Excel

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE.

THREE YEAR BA/B.SC (CBCS) DEGREE EXAMINATION

THIRD YEAR :: SEMESTER–VI :: SUB - STATISTICS

Elective Paper – VII(A) : APPLIED STATISTICS

(WITH MATHAMATICS)

MODEL PAPER

Time : 3hours *Max marks : 75*

PART - A

Answer any FIVE questions. Each question carries 5 Marks. *5 X 5 = 25M*

1. Define a time series and give its uses.
2. Describe linear trend by the method of least squares.
3. Define Index numbers and give their uses.
4. Discuss the uses of cost of living index numbers.
5. Explain Agricultural statistics in India.
6. Explain the concept of national Income.
7. Define vital statistics. Mention its uses.
8. Explain (i) CBR (ii) TFR.
9. What are the different measures of population Growth?
10. Define Vital index.

PART-B

Answer any TWO questions. Each question carries 10 Marks. *2 X 10 = 20M*

11. Describe the components of a time series.
12. Describe the method of ratio to trend to find seasonal variations.
13. Explain briefly the problems involved in the construction of an index numbers.
14. Discuss various weighted index numbers.

PART-C

Answer any THREE questions. Each question carries 10 Marks. *3 X 10 = 30M*

15. Describe the central statistical organization and its functions.
16. Discuss National sample survey organization and its functions.
17. Explain the methods of obtaining vital statistics.
18. Explain different death rates.
19. Define life table. Mention its uses.
20. Explain the Gross and Net Reproduction Rates.

Elective Paper – VII (B) : DEMOGRAPHY and VITAL STATISTICS

3 Hrs/Week

Unit-I

Population Theories: Coverage and content errors in demographic data, use of balancing equations and Chandrasekharan - Deming formula to check completeness of registration data. Adjustment of age data, use of Myer and UN indices, Population composition, dependency ratio.

Unit-II

Vital Statistics: Introduction and sources of collecting data on vital statistics, errors in census and registration data. Measurement of population, rate and ratio of vital events, Measurements of Mortality: Crude Death Rate (CDR), Specific Death Rate (SDR), Infant Mortality, Rate (IMR) and Standardized Death Rates.

Unit – III

Vital Statistics: Stationary and Stable population, Central Mortality Rates and Force of Mortality. Life (Mortality) Tables: Assumptions, description, construction of Life Tables and Uses of Life Tables.

Unit-IV

Vital Statistics: Abridged Life Tables; Concept and construction of abridged life tables by Reed-Merrell method, Greville's method and King's Method. Measurements of Fertility: Crude Birth Rate (CBR), General Fertility Rate (GFR), Specific Fertility Rate (SFR) and Total Fertility Rate (TFR).

Unit –V

Vital Statistics: Measurement of Population Growth: Crude rates of natural increase, Pearl's

Vital Index Gross Reproduction Rate (GRR) and Net Reproduction Rate (NRR).

Suggested Reading:

1. Mukhopadhyay P. (1999): Applied Statistics, Books and Allied (P) Ltd.
2. K.Srinivasan: Basic Demographic Techniques and Application
3. Gun, A.M., Gupta, M.K. and Dasgupta, B. (2008): Fundamentals of Statistics, Vol. II, 9th Edition, World Press.
4. Biswas, S. (1988): Stochastic Processes in Demography & Application, Wiley Eastern Ltd.
5. Croxton, Fredrick E., Cowden, Dudley J. and Klein, S. (1973): Applied General Statistics, 3rd Edition. Prentice Hall of India Pvt. Ltd.,
6. Keyfitz N., Beckman John A.: Demogrphy through Problems S-Verlag New York.

PRACTICALS – SEMESTER-VI PAPER-VII(B)

1. Measurements of Mortality
2. Measurements of Fertility:
3. Life Tables (Real Population Method)
4. Life Tables (Hypothetical cohort method)
5. Construction of Abridged Life tables
6. Reproduction rates

Cluster Elective Paper – VIII(A1) : OPTIMIZATION TECHNIQUES

UNIT –I **3 Hrs/Week**

Introduction: Origin and development of OR, Nature and features of OR, Meaning and Definitions of OR, Applications and Limitations of OR.

UNIT – II

Linear Programming Problem: Introduction, Mathematical formulation of the LPP, Canonical and standard form of LPP. Graphical solution of a Linear Programming Problem , Problems.

UNIT – III

Solution of LPP: Definitions of BFS, IBFS, Degenerate solution, Slack and Surplus variables, Optimum solution, Computational procedure of Simplex method , Big- M method and Problems.

UNIT – IV

Transportation Problem: Introduction, Transportation Table, General Transportation problem Initial basic feasible solution(IBFS) by North West Corner Rule, Least cost method and Vogel's Approximation Method (VAM), Un-Balanced Transportation Problem

UNIT –V

Assignment problem: Introduction, Mathematical formulation of the problem, Optimal solution by Hungarian method. Un balanced assignment problem, The travelling salesman problem.

Text Book :

1. B.A/B.Sc III Year Paper-IV Statistics- Quality Reliability and Operations Research TeluguAcademy by Dr T.C.Ravichandra Kumar, Dr R.V.S.Prasad, Dr D.Giri, Dr.G.S.Devasena
2. Classical Optimization techniques by A.L.Cambo

List of reference books:

1. Taha, H. A. (2007): Operations Research: An Introduction, 8th Edition, Prentice Hall of India.
2. KantiSwarup, Gupta, P.K. and Manmohan (2007): Operations Research, 13th Edition, Sultan Chand and Sons.
3. S.Kalavathy, Operations Research, 4th Edition, Vikas Publishing

Practicals – Semester-VI Paper-VIII(A1)

Conduct any six of the following

1. Solution of LPP by Graphical Method
2. Solution of LPP by Simplex Method
3. Solution of LPP by Big M Method
4. Solution of TP by North West Corner Rule to find IBFS
5. Solution of TP by Least Cost Method to find IBFS
6. Solution of TP by VAM to find IBFS

7. Solution of Unbalanced TP
8. Solution of Assignment problem by Hungarian Method
9. Solution of unbalanced Assignment problem.
10. Solution of traveling salesman problem.

Cluster Elective Paper – VIII(A2) : NUMERICAL ANALYSIS

3 Hrs/Week

UNIT – I

Finite Differences: Definitions of operators Δ, ∇ and E, - Properties - Relationship among operators-Difference Table- Uses- Estimation of single and Two Missing values- Newton's Binomial expansion rule- Problems

UNIT – II

Interpolation and Extrapolation: Assumptions- uses- Newtons's forward formula- Newtons back ward formula- Interpolation at unequal intervals- Divided differences- properties- Newtons divided differences formula- Lagranges formula- Problems

UNIT – III

Central Difference: Gauss Forward and Backward formulae- Sterling's formula- Bessel's formula- Laplace everett's formula - Problems

UNIT – IV

Numerical Differentiation: First and Second order derivatives-Newton,s forward and Back ward Differentiation formulae-, Gauss Forward and Backward differentiation formulae- Sterling's and Bessel's differentiation formulae- Problems

UNIT – V

Numerical Integration: Importance- General Quadrature rule- Trapezoidal Rule- Simpson's -1/3 Rule- Simpson's -3/8 Rule - Problems

List of reference books:

1. Statistical Methods by S.C.Gupta,
2. Gupta, S. C. and Kapoor, V.K. (2008): Fundamentals of Mathematical Statistics, New Edition(Reprint), Sultan Chand & Sons
3. Statistics and Numerical methods by Dr. A. Singaravelu, ARS Publications.
4. Sankhya Visleshanam- Telugu Academy

Conduct any six of the following

1. Newton's back ward formula
4. Lagrange's formula
5. Sterling's central difference formula
6. Bessel's central difference formula
7. Gauss forward differentiation formula
8. Gauss backward differentiation formula
9. Sterling's differentiation formula
10. Bessel's differentiation formula
11. Simpson's 1/3 and 3/8 rule

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER

Paper-VII: Elective-I(A)
Operating Systems

Course Objectives

1. To understand the services provided by and the design of an operating system.
2. To understand the structure and organization of the file system.
3. To understand what a process is and how processes are synchronized and scheduled.
4. To understand different approaches to memory management.
5. Students should be able to use system calls for managing processes, memory and the file system.

Course Outcomes

1. Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.
2. Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.
3. Analyze memory management techniques, concepts of virtual memory and disk scheduling.
4. Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.

UNIT - I

Operating System Introduction: Operating Systems Objectives and functions, Computer System Architecture, OS Structure, Evolution of Operating Systems (Simple Batch, Multi programmed, Distributed Systems, Real-Time Systems), Operating System services.

UNIT - II

Process and CPU Scheduling - Process concepts - The Process, Process State, Process Control Block, Threads, Process Scheduling - Schedulers, Preemptive and non-preemptive Scheduling algorithms (FCFS, SJF, RR)

UNIT - III

Memory Management and Virtual Memory - Logical & physical Address Space, Swapping, Contiguous Allocation, Paging, Structure of Page Table. Segmentation, Segmentation with paging

Structure of Computer Science/Information Technology (IT) Syllabus

UNIT - IV

File System Interface - The Concept of a File, Access methods, Directory Structure, File Sharing, Protection, File System Structure

Mass Storage Structure - Overview of Mass Storage Structure, Disk Structure, Disk Attachment

UNIT - V

Deadlocks - System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.

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TEXT BOOK

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.
2. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.

REFERENCES BOOKS:

1. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press
2. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
3. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhere, TMH.
4. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.
5. Operating Systems, A. S. Godbole, 2nd Edition, TMH

Student Activity:

1. Load any new operating system into your computer.

2. Partition the memory in your system

3. Create a file in a directory structure

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

Paper-VII : Elective-I(A)

OPERTING SYSTEMS

MODEL QUESTION PAPER

Time: 3 Hours | Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

III YEAR VI SEMESTER
Paper-VII: Elective-I(A)

Operating Systems Lab

1. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. For each of the scheduling policies, compute and print the average waiting time and average turnaround time.
2. Developing applications using Inter Process Communication (using shared memory)
3. Implement any two memory management schemes
4. Implement file allocation techniques (Linked)
5. Implement Deadlock prevention algorithm.
6. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for Round robin. Compute and print the average waiting time and average turnaround time.
7. Implement file allocation techniques (Indexed)
8. Implement file allocation techniques (Contiguous)
9. Developing applications using Inter Process Communication (pipes)
10. Developing applications using Inter Process Communication (message queues)
11. Implement Deadlock detection algorithm.
12. Implement Deadlock avoidance algorithm.

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
Paper-VII: Elective-I(B)
DISTRIBUTED SYSTEMS

Course Objectives

- To expose the fundamentals of distributed computer systems, assuming the availability of facilities for data transmission.
- To discuss multiple levels of distributed algorithms, distributed file systems, distributed databases, security and protection.

Course Outcomes

- Create models for distributed systems.
- Apply different techniques learned in the distributed system.

UNIT I

Introduction to Distributed Computing Systems, System Models, and Issues in Designing a Distributed Operating System, Examples of distributed systems.

UNIT II

Features of Message Passing System, Synchronization and Buffering, Introduction to RPC and its models, Transparency of RPC, Implementation Mechanism, Stub Generation and RPC Messages, Server Management, Call Semantics, Communication Protocols and Client Server Binding.

UNIT III

Introduction, Design and implementation of DSM system, Granularity and Consistency Model, Advantages of DSM, Clock Synchronization, Event Ordering, Mutual exclusion, Deadlock, Election Algorithms.

UNIT IV

Task Assignment Approach, Load Balancing Approach, Load Sharing Approach, Process Migration and Threads.

UNIT V

File Models, File Accessing Models, File Sharing Semantics, File Caching Schemes, File Replication, Atomic Transactions, Cryptography, Authentication, Access control and Digital Signatures.

Text Book

1.Pradeep. K. Sinha: " Distributed Operating Systems: Concepts and Design " , PHI, 2007.

Reference Books

1 .George Coulouris, Jean Dollimore, Tim Kindberg: " Distributed Systems" , Concept and Design, 3rd Edition, Pearson Education, 2005.

Student Activity

1. Implementation of Distributed Mutual Exclusion Algorithm.
2. Create a Distributed Simulation Environment.

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

Paper-VII : Elective-I(B)

DISTRIBUTED SYSTEMS

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
Paper-VII: Elective-I(B)

DISTRIBUTED SYSTEMS LAB

1. Java program using RPC
2. Java program using Client/Server implementation
3. Java program to implement deadlock avoidance
4. Implementation of mutual exclusion
5. Java program to demonstrate clock synchronization
6. Java program to implementation of election algorithm
7. Java program to implement threads
8. File replication methods
9. Java program for access a sequential file
10. Implementation cryptography techniques

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
Paper-VII : Elective-I(C)
Web Technologies

Course Objective

- To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.
- To provide skills to design interactive and dynamic web sites.

Course Outcome

1. To understand the web architecture and web services.
2. To practice latest web technologies and tools by conducting experiments.
3. To design interactive web pages using HTML and Style sheets.
4. To study the framework and building blocks of .NET Integrated Development Environment.
5. To provide solutions by identifying and formulating IT related problems.

UNIT -1

Introduction to Internet : Definition of Internet – History of Internet – Advantages & disadvantages of Internet – Tools of internet - How internet works. Introduction to WWW: Definition of WWW –WWW tools - Web Terminology –web browser – web server

UNIT-2

E-Mail : Definition of e-mail – advantages & disadvantages of e-mail – how to work with e-mail accounts – e-mail inner working : Store and forward method & Central mail spool method– message components – message composition – features of e-mail. Protocols: TCP/IP - HTTP

UNIT -3

Introduction to HTML: Basic HTML – HTML document structure – HTML tags – Basefont tag – title tag – body tag – Text formatting tags – Character tags - Character entities
HTML Lists : Ordered List , Unordered List & Definition List – Using colors – Using Images

Structure of Computer Science/Information Technology (IT) Syllabus

UNIT – 4

Horizontal Rule Tag - HTML Tables – Nested Tables - Hyperlinks: Textual, Graphical Links to sections – Multimedia Objects – Frames – Nested Frames – Forms – Form Controls : textbox, password, checkbox, radio button, select, text area - Processing of forms

UNIT – 5

Advanced HTML : Cascading Style Sheets: Introduction – Using Styles: As an attribute, tag & external file – Defining Your own styles – Properties and values : properties related to Fonts , Backgrounds & colors, text , boxes & borders

Text Book

1. Inline/Online: Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw Ellen Hepp, McGraw – Hill
2. Harvey M. Deitel and Paul J. Deitel, **"Internet & World Wide Web How to Program", 4/e,** Pearson Education.

References:

1. Chris Bates, **Web Programming Building Internet Applications**, Second Edition, Wiley.
2. Uttam Kumar Roy, **Web Technologies** from Oxford University Press
3. Paul S.Wang Sanda S. Katila, **An Introduction to Web Design Plus Programming**,Thomson.
4. Robert W.Sebesta, **Programming the World Wide Web**, Third Edition, Pearson Education.
5. Joel Sklar, Principles of **Web Design**, Thomson.
6. Raj Kamal, Internet and **Web Technologies**, Tata McGraw Hill.
7. Gopalan & Akilandeswari, **Web Technology**: A Developer"s Perspective, PHI.

Student Activities:

1. **Prepare a web site for your college**
2. **Prepare your personal website**

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

Paper-VII : Elective-I(C)

WEB TECHNOLOGIES

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. What is Internet? Write about advantages of Internet
2. Explain briefly about web server
3. What is protocol? Explain TCP/IP
4. Explain about message composition in Internet
5. What is HTML? Explain HTML document structure
6. Write about Basefont tag
7. Briefly explain about hyperlinks
8. Explain about frames
9. What is a property? Explain various properties
10. Explain about attribute.

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Write about Tools of WWW
12. Explain about how Internet works
13. Write about e-mail advantages.
14. Explain various message components in creating an e-mail
15. Write in detail about HTML tags.
16. Explain about HTML lists.
17. Explain about tables in HTML
18. Write about form controls used in designing a web page.
19. Explain CSS with an example
20. Illustrate how to create a web page with your own styles.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Andhra Pradesh State Council of Higher Education

B.Sc. Computer Science/Information Technology (IT) Syllabus Under CBCS

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Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER

Paper-VII : Elective-I(C)

Web Technologies Lab

1. Create a simple HTML page which demonstrates all types of lists.
2. Create a letter head of your college using following styles
   i. image as background
   ii. use header tags to format college name and address
3. Create a web page, which contains hyper links like fruits, flowers, animals. When you click on hyper links, it must take you to related web page; these web pages must contain with related images.
4. Create a hyperlink to move around within a single page rather than to load another page.
5. Create a leave letter using different text formatting tags.
6. Create a table format given bellow using row span and colspan.

RNO	NAME	MARKS				
		M1	M2	M3	M4	M5

Insert 5 records.

7. Create a table with different formats as given bellow.
   i. Give different background and font colors to table header, footer and body.
   ii. Use table caption tag.
8. Divide a web page vertically and horizontally with scroll bars, name them as shown bellow decorate it with some items.

F1	F2
	F3

9. Create a student Bio-Data, using forms.
10. Create a web page using following style sheets
    i. Inline style sheets.
    ii. Embedded style sheets.
    iii. External style sheets

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Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER

(Cluster A) Paper-VIII : Elective–II-1

VISUAL BASIC PROGRAMMING

Course Objective

- To provide knowledge on GUI programming concepts
- To provide skills to understand how controls are used in programming

Course Outcome

1. To understand the Graphical user interface design
2. To understand input and output operations using forms
3. To study the menu design
4. To study the coding system of various controls

UNIT – I

Object Oriented Programming : Introduction to OOPS – Basic Concepts – Objects and Classes – Concepts of Inheritance. Encapsulation and Polymorphism.

Fundamentals Of Visual Basic : Introduction – Features of VB – VB Editions – Controls – Properties – Events – Methods.

UNIT – II

Application Window

Project Explorer – The Properties Window – Tool Box: Text Box Control – Command Button – Check Box – The line and shape controls – Menu Bar – Tool bars – Tool box – Project explorer window – Properties window – Object browser – Form Designer – Code editor window – Form layout window

UNIT-III:

Forms and controls:

Setting form properties – Working with Properties Window – Name – Caption – Picture – The Controls box – Min button and Max button – Movable – Border style – Font – properties

Form methods: Move, Graphic methods, Show method

Form Events - Working with a control – Opening the code window.

UNIT – IV

Variables in VB: Declaring variables – Data types – Constants – Conversion – Arrays

Writing Code in VB: The code window – Subroutine – control Structures in VB – Performing Loops in VB.

UNIT V

Arrays: Definition, one dimensional and two dimensional arrays, declaring array, storing values in an array

Menus: Menu convention – creating menus in VB

Multiple Documents Interfaces: Features of MDI Form – Property – Creating MDI forms

TEXT BOOKS:

1. PROGRAMING WITH VISUAL BASIC – MOHAMMED AZAM – Vikas publishing house Pvt.Ltd. – New Delhi.

2. OBJECT ORIENTED PROGRAMING – E. BALAGURUSWAMY – Tata McGraw – Hill Publishing Company Limited – New Delhi.

REFERENCE BOOKS:

1. 'VISUAL BASIC 6.0 PROGRAMMING " – Content Development Group – Tata McGraw – Hill Publishing Company Limited – 2002 – New Delhi
2. 'INTRODUCTION TO OOP AND VB' – V.K.JAIN – Vikas Publishing House – New Delhi
3. 'VISUAL BASIC 6' – PAUL SHERIEF –PRENTICE HALL OF INDIA Pvt. Ltd – New Delhi.
4. 'TEACH YOURSELF VISUAL BASIC 6' –SCOTT WARNER - Tata McGraw – Hill Publishing Company Limited – New Delhi.
5. "USING VISUAL BAISC 6" – Brain Siler and Jeff Spotts – Prentice Hall Of India Limited – New Delhi – Eleventh Edition (2002).

VIKRAMA SIMHAPURI UNIVERSITY :: NELLORE

CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster A) Paper-VIII : Elective–II-1

VISUAL BASIC PROGRAMMING

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Write about classes and objects.
2. Briefly explain Visual Basic editions.
3. Define project explorer window
4. Explain Form Designer
5. Write about forms and controls.
6. What is a method? Explain any three form methods
7. What is a variable? Explain how to declare variables in VB
8. Explain constants in Visual Basic
9. Define an array. Write about declaring an array
10. What is menu? Explain

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Write about basic concepts of OOPS
12. Write in detail about features of VB
13. What is tool box? Explain various tools in tool box
14. Write about text box control in VB
15. Explain how you will work with properties window.
16. Write about various form events used in Visual Basic.
17. Explain various data types used in Visual Basic
18. Write about looping statements in VB
19. Briefly explain menu creation in Visual Basic
20. Explain in detail about creating a MDI form.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster A) Paper-VIII : Elective–II-1

VISUAL BASIC PROGRAMMING LAB

1. Design a form to demonstrate text boxes
2. Design a form to demonstrate check boxes
3. Design a form to demonstrate command buttons
4. Design a form and write code to demonstrate graphic methods of a form
5. Write Visual Basic code to find largest of four numbers
6. Write Visual Basic code to print mathematical table of a number
7. Write Visual Basic code to illustrate select..case statement
8. Write Visual Basic code to find whether a number is prime or not
9. Design a form for simple calculator
10. Design a form to demonstrate various events of a form
11. Menu creation
12. MDI form creation

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Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER

(Cluster A) Paper-VIII : Elective–II-2

PHP (PERSONAL HOME PAGE)

Course Objective

- To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.
- To provide skills to design interactive and dynamic web sites.

Course Outcome

1. To understand the web architecture and web services.
2. To practice latest web technologies and tools by conducting experiments.
3. To design interactive web pages using PHP

UNIT - I

The Building Blocks of PHP

What is PHP? - Variables - Data Types - Operators and Expressions - Constants

Flow Control Functions in PHP

Switching Flow - Loops - Code Blocks and Browser Output

UNIT - II

Working with Functions

What Is a Function - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State Between Function Calls with the static Statement - Arguments - Testing for the Existence of a Function

UNIT - III

Working with Arrays

What Are Arrays - Creating Arrays – Array Related Constructs and Functions

Working with Objects

Creating an Object - Object Inheritance

UNIT - IV

Working with Strings, Dates, and Time

Formatting Strings - Investigating Strings - Manipulating Strings

Using Date and Time Functions - Date, and Time Functions - Other String,

Structure of Computer Science/Information Technology (IT) Syllabus

UNIT - V

Working with Forms

Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads

Text books:

1. Sams Teach Yourself PHP, MySQL, and Apache All in One, Fifth Edition - Meloni, Julie C. 2012 by Pearson Education

Reference Book

1. Visual QuickStart Guide - PHP for the Web, Fourth Edition - Larry Ullman
2. PHP Bible, Tim Converse Joyce Park, 2nd Edition, Wiley
3. Beginning PHP4, Wankyu Choi, Allan Kent, Chris Lea, Ganesh Prasad, Chris Ullman Wrox publications

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster A) Paper-VIII : Elective–II-2

PHP (PERSONAL HOME PAGE)

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

Section-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1. Write about variables used in PHP
2. Illustrate constants in PHP
3. Explain defining a function.
4. Write about returning values from a function
5. What are arrays? Explain
6. Explain how to create an object in PHP
7. Define String. Write about formatting strings
8. Write any five date functions with examples
9. What is a form? Explain form input
10. Explain how to send a mail on form submission.

Section - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11. Explain various data types used in PHP
12. Write about various loop statements.
13. What is a function? Explain with an example
14. Write about scope of variables
15. Explain how you will create arrays in PHP
16. Write about working with object in PHP
17. Explain how to manipulate strings with an example
18. Write about time functions with an example
19. Briefly explain how to combine HTML and PHP code on a single page
20. Explain various form elements in PHP

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster A) Paper-VIII : Elective–II-2

PHP (PERSONAL HOME PAGE) LAB

1. PHP program to demonstrate arithmetic operators
2. PHP program to demonstrate various constants
3. PHP program to find biggest of 5 numbers
4. PHP program to print sum of natural numbers
5. PHP program to find factorial of a number using function
6. PHP program to sort a list of values using an array
7. PHP program to implement any two array related constructs
8. PHP program to create an object
9. PHP program to implement single inheritance
10. PHP program to manipulate strings
11. PHP program to implement date functions
12. PHP program to create a simple form

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster B) Paper-VIII : Elective–II-1

FOUNDATIONS OF DATA SCIENCE

Course Objectives

Modern scientific, engineering, and business applications are increasingly dependent on data, existing traditional data analysis technologies were not designed for the complexity of the modern world. Data Science has emerged as a new, exciting, and fast-paced discipline that explores novel statistical, algorithmic, and implementation challenges that emerge in processing, storing, and extracting knowledge from Big Data.

Course Outcomes

4. Able to apply fundamental algorithmic ideas to process data.
5. Learn to apply hypotheses and data into actionable predictions.
6. Document and transfer the results and effectively communicate the findings using visualization techniques.

UNIT I

INTRODUCTION TO DATA SCIENCE :Data science process – roles, stages in data science project – working with data from files – working with relational databases – exploring data – managing data – cleaning and sampling for modeling and validation – introduction to NoSQL.

UNIT II

MODELING METHODS :Choosing and evaluating models – mapping problems to machine learning, evaluating clustering models, validating models – cluster analysis – K-means algorithm, Naïve Bayes – Memorization Methods – Linear and logistic regression – unsupervised methods.

UNIT III

INTRODUCTION TO R Language: Reading and getting data into R – ordered and unordered factors – arrays and matrices – lists and data frames – reading data from files – probability distributions – statistical models in R - manipulating objects – data distribution.

UNIT IV

MAP REDUCE: Introduction – distributed file system – algorithms using map reduce, Matrix-Vector Multiplication by Map Reduce – Hadoop - Understanding the Map Reduce architecture - Writing Hadoop Map Reduce Programs - Loading data into HDFS - Executing the Map phase - Shuffling and sorting - Reducing phase execution.

UNIT V

DELIVERING RESULTS :Documentation and deployment – producing effective presentations– Introduction to graphical analysis – plot() function – displaying multivariate data – matrix plots – multiple plots in one window - exporting graph - using graphics parameters.

Reference Books

1.Nina Zumel, John Mount, "Practical Data Science with R", Manning Publications, 2014.
2.Jure Leskovec, Anand Rajaraman, Jeffrey D.Ullman, "Mining of Massive Datasets", Cambridge University Press, 2014.
3.Mark Gardener, "Beginning R - The Statistical Programming Language", John Wiley & Sons, Inc., 2012.
4.W. N. Venables, D. M. Smith and the R Core Team, "An Introduction to R", 2013. 5.Tony Ojeda, Sean Patrick Murphy, Benjamin Bengfort, Abhijit Dasgupta, "Practical Data Science Cookbook", Packt Publishing Ltd., 2014.
6.Nathan Yau, "Visualize This: The FlowingData Guide to Design, Visualization, and Statistics", Wiley, 2011.
7.Boris lublinsky, Kevin t. Smith, Alexey Yakubovich, "Professional Hadoop Solutions", Wiley, ISBN: 9788126551071, 2015.

Student Activity:

1. Collect data from any real time system and create clusters using any clustering algorithm

2. Read the student exam data in R perform statistical analysis on data and print results.

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster B) Paper-VIII : Elective–II-1

FOUNDATIONS OF DATA SCIENCE

MODEL QUESTION PAPER

Time: 3 Hours | Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1.
2.
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SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11.
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Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster B) Paper-VIII : Elective–II-1

FOUNDATIONS OF DATA SCIENCE LAB

1) Installing R and R studio
2) Basic Operations in R
    a. Arithmetic Operations
    b. Logical Operators - <=, >, >=, = , !=, &&,
3) Basic data manipulation using R
4) Operation on vectors and matrices.
5) Basic Plotting
6) Frequency plots
7) Box plots
8) Bar charts & Pie charts
9) While, for break, next, repeat.
10) Basic functions- `Print()`, `exp( )`, `Log( )`, `sqrt( )`, `abs( )`, `sin( )`, `Cos( )`, `tan( )`, `factorial( )`, `rand ()`.

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III YEAR VI SEMESTER

(Cluster B) Paper-VIII : Elective–II-2

BIG DATA TECHNOLOGY

Course Objective

The Objective of this course is to provide practical foundation level training that enables immediate and effective participation in big data projects. The course provides grounding in basic and advanced methods to big data technology and tools, including MapReduce and Hadoop and its ecosystem.

Course Outcome

1. Learn tips and tricks for Big Data use cases and solutions.

2. Learn to build and maintain reliable, scalable, distributed systems with Apache Hadoop.

3. Able to apply Hadoop ecosystem components.

UNIT I

INTRODUCTION TO BIG DATA: Introduction – distributed file system – Big Data and its importance, Four V"s in bigdata, Drivers for Big data, Big data analytics, Big data applications. Algorithms using map reduce, Matrix-Vector Multiplication by Map Reduce.

UNIT II

INTRODUCTION HADOOP : Big Data – Apache Hadoop & Hadoop EcoSystem – Moving Data in and out of Hadoop – Understanding inputs and outputs of MapReduce - Data Serialization.

UNIT- III

HADOOP ARCHITECTURE: Hadoop Architecture, Hadoop Storage: HDFS, Common Hadoop Shell commands , Anatomy of File Write and Read., NameNode, Secondary NameNode, and DataNode, Hadoop MapReduce paradigm, Map and Reduce tasks, Job, Tasktrackers - Cluster Setup – SSH & Hadoop Configuration – HDFS Administering – Monitoring & Maintenance.

UNIT-IV

HADOOP ECOSYSTEM AND YARN : Hadoop ecosystem components - Schedulers - Fair and Capacity, Hadoop 2.0 New Features- NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN.

UNIT-V

HIVE AND HIVEQL, HBASE:-Hive Architecture and Installation, Comparison with Traditional Database, HiveQL - Querying Data - Sorting And Aggregating, Map Reduce Scripts, Joins & Subqueries, HBase concepts- Advanced Usage, Schema Design

Reference Books

1. Boris lublinsky, Kevin t. Smith, Alexey Yakubovich, "Professional Hadoop Solutions", Wiley, ISBN: 9788126551071, 2015.
2. Chris Eaton, Dirk deroos et al. , "Understanding Big data ", McGraw Hill, 2012.
3. Tom White, "HADOOP: The definitive Guide" , O Reilly 2012.
4. Vignesh Prajapati, "Big Data Analytics with R and Haoop", Packet Publishing 2013.
5. Tom Plunkett, Brian Macdonald et al, "Oracle Big Data Handbook", Oracle Press, 2014.
6. Jy Liebowitz, "Big Data and Business analytics",CRC press, 2013.

Student Activity:

1. Collect real time data and justify how it has become Big Data
2. Reduce the dimensionality of a big data using your own map reducer

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster B) Paper-VIII : Elective–II-2

BIG DATA TECHNOLOGY

MODEL QUESTION PAPER

Time: 3 Hours | Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1.
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SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11.
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Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster B) Paper-VIII : Elective–II-2

BIG DATA TECHNOLOGY LAB

1) Implement the following Data Structures in Java
    a. Linked Lists
    b. Stacks
    c. Queues
2) Implement the following Data Structures in Java
    a. Set
    b. Map
3) Perform setting up and Installing Hadoop in its three operating modes:
    a. Standalone, Pseudo distributed, Fully distributed
4) Use the web based tools to monitor your Hadoop setup.
5) Implement the following file management tasks in Hadoop.
    a. Adding files
    b. Adding directories
    c. Retrieving files
    d. Deleting files

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Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER

(Cluster C) Paper-VIII : Elective –II-1

COMPUTER NETWORKS

Course Objectives

1. To provide an introduction to the fundamental concepts on data communication and the design of computer networks.
2. To get familiarized with the basic protocols of computer networks.

Course Outcomes

After this course, the student will be able to

1. Identify the different components in a Communication System and their respective roles.
2. Describe the technical issues related to the local Area Networks
3. Identify the common technologies available in establishing LAN infrastructure.

UNIT I :

INTRODUCTION: Definition, Advantages of Networks, Network topologies, Types of Networks, Network models – Internet model, OSI model.

THE PHYSICAL LAYER: Digital Transmission – Coding, Sampling, Analog Transmission - Modulation of digital and analog signals, Guided media

UNIT II :

DATA LINK LAYER: Error detection and correction, Data link Protocols - Stop and wait, Go-back-n, Selective repeat.

Wired LANS – Traditional Ethernet, Fast Ethernet, Gigabit Ethernet, Wireless LAN"s

UNIT III:

NETWORK LAYER: Inter-networks, Addressing, Network layer Protocols – ARP, IPv4, IPv6

UNIT IV:

TRANSPORT LAYER: Process- to- Process delivery, Congestion and Control, Quality of service (QOS) and techniques to improve QOS.

SECURITY: Introduction, Symmetric- key cryptography, Public key cryptography.

Structure of Computer Science/Information Technology (IT) Syllabus

UNIT V:

THE APPLICATION LAYER: Domain Name System-domain name space, distribution of name space, DNS in Internet, Electronic mail, SMTP, File Transfer, FTP, HTTP, World Wide Web.

Text Book

1. Andrew S. Tanenbaum, "Computer Networks", Fifth Edition, Pearson Education.

Reference Books:

1. Bhushan Trivedi, Computer Networks , Oxford University Press
2. James F.Kurose, Keith W.Ross, "Computer Networking", Third Edition, Pearson Education
3. Behrouz A Forouzan, "Data Communications and Networking", Fourth Edition, TMH (2007).
4. Kurose & Ross, "***COMPUTER NETWORKS***" – A Top-down approach featuring the Internet", Pearson Education – Alberto Leon – Garciak.

Student Activity:

1. **Study the functioning of network devices available in your organization .**
2. **Prepare a pictorial chart of LAN connections in your organization**

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster C) Paper-VIII : Elective–II-1

COMPUTER NETWORKS

MODEL QUESTION PAPER

Time: 3 Hours | Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: **(5 x 5= 25 Marks)**

1.
2.
3.
4.
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10.

SECTION - B

Answer any FIVE of the following Questions **(5 × 10 =50 Marks)**

11.
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20.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster C) Paper-VIII : Elective –II-1

COMPUTER NETWORKS LAB

1. Connecting computers in LAN
2. Creating and modifying IP addresses to the systems
3. Java program to implement stop and wait protocols
4. Java program to implement goback-N protocol
5. Java program to implement select-repeat ARQ protocols
6. Java program to implement encryption using RSA algorithm
7. Java program to implement decryption using RSA algorithm
8. Java program to implement encryption using Ceasers Cipher
9. Java program to implement decryption using Ceasers Cipher
10. Java program to implement encryption using transposition cipher

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III YEAR VI SEMESTER

(Cluster C) Paper-VIII : Elective –II-2

CLOUD COMPUTING

Course Objectives:

The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas, Paas, Saas, and developing cloud based software applications on top of cloud platforms.

Course Outcomes

1. Compare the strengths and limitations of cloud computing
2. Identify the architecture, infrastructure and delivery models of cloud computing
3. Apply suitable virtualization concept.
4. Choose the appropriate cloud player , Programming Models and approach.
5. Address the core issues of cloud computing such as security, privacy and interoperability
6. Design Cloud Services and Set a private cloud

Unit 1

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service

Unit II

Cloud scenarios – Benefits: scalability, simplicity , vendors ,security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model

Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platfrom – Benefits – Operational benefits - Economic benefits – Evaluating SaaS

Platform as a Service (PaaS): PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – Services and Benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations

Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization

Reference Books

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill , New Delhi - 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.
4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press
5. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christenvecctiola, S Tammarai selvi, TMH

Student Activity:

1. Prepare the list of companies providing cloud services category wise.
2. Create a private cloud using local server

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CBCS – BSc(Computer Science) - III YEAR - SEMESTER-V

(Cluster C) Paper-VIII : Elective–II-2

CLOUD COMPUTING

MODEL QUESTION PAPER

Time: 3 Hours Max. Marks : 75

SECTION-A

Answer any FIVE of the following Questions: (5 x 5= 25 Marks)

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

SECTION - B

Answer any FIVE of the following Questions (5 × 10 =50 Marks)

11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Instruction to Paper Setter:

Two questions must be given from each unit in Section-A and Section-B

Structure of Computer Science/Information Technology (IT) Syllabus

III YEAR VI SEMESTER
(Cluster C) Paper-VIII : Elective –II-2

CLOUD COMPUTING LAB

1) Use Eucalyptus or Open Nebula or equivalent to set up the cloud and demonstrate.
    i. Find procedure to run the virtual machine of different configuration. Check how many virtual machines can be utilized at particular time.
    ii. Find procedure to attach virtual block to the virtual machine and check whether it holds the data even after the release of the virtual machine.
    iii. Install a C compiler in the virtual machine and execute a sample program.
    iv. Show the virtual machine migration based on the certain condition from one node to the other.
    v. Find procedure to install storage controller and interact with it.
2) Creating a Warehouse Application in Sales Force.com.
3) Creating an Application in Sales Force.com using Apex programming Language.
4) Implementation of SOAP web services in C#/ JAVA Applications.
5) Implementation of Para- Virtualization using VM ware's workstation/ Oracle's Virtual Box and Guest O.S.
6) Case study: PAAS (Face book, Google App Engine)
7) Case Study: Amazon web services.

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PROJECT & VIVA-VOCE

The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 5 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

- Title
- Objectives
- Input and output
- Details of modules and process logic
- Limitations of the project
- Tools/platforms, Languages to be used
- Scope of future application

The Project work should be either an individual one or a group of not more than three members and submit a project report at the end of the semester. The students shall defend their dissertation in front of experts during viva-voce examinations.

EVALUATION OF PROJECT

Project Work – 3 Credits
Dissertation – 2 Credits