CBCS CURRICULAR FRAMEWORK (2022-23)

TABLE 1: B.Sc.(Ca.M.E.) Programme SEMESTER - I

S.NO	Name of the Course	Course Code	Part No	Type of the Paper	Total Marks	IA TEST	Sem End Exam	Teaching Hours	Credits
1	ENGLISH PRAXIS-I	22ENGT11	I	First Language	100	30	70	4	3
2	HINDI-I	22HINT11	I	Second Language	100	30	70	4	3
3	TELUGU-I	22TELT11							
4	PROBLEM SOLVING IN C	22CSCT11	II	Core	100	30	70	4	4
5	DIFFERENTIAL EQUATIONS	22MATT11	II	Core	100	30	70	6	5
6	CIRCUIT THEORY AND ELECTRONIC DEVICES	22ELET11	II	Core	100	30	70	4	4
7	PROBLEM SOLVING IN C LAB	22CSCP11	II	Core Lab	50	15	35	2	1
8	CIRCUIT THEORY AND ELECTRONIC DEVICES LAB	22ELEP11	II	Core Lab	50	15	35	2	1
9	ENVIRONMENTAL STUDIES	22CLSCT01	III	Life Skill	50	15	35	2	2
		TOTAL(Maximum)			650	195	455	28	23

TABLE 2: B.Sc.(Ca.M.E) Programme SEMESTER - II

S.NO	Name of the Course	Course Code	Part No	Type of the Paper	Total Marks	IA TEST	Sem End Exam	Teaching Hours	Credits
1	ENGLISH PRAXIS-II	22ENGT21	I	First Language	100	30	70	4	3
2	TELUGU-II	22TELT21	I	Second Language	100	30	70	4	3
3	HINDI-II	22HINT21							
4	DATA STRUCTURES	22CSCT21	II	Core	100	30	7	4	4
5	REAL ANALYSIS	22MATT21	II	Core	100	30	70	6	5
6	DIGITAL ELECTRONICS	22ELET21	II	Core	100	30	70	4	4
7	DATA STRUCTURES LAB	22CSCL21	II	Core Lab	100	30	7	2	1

CBCS CURRICULAR FRAMEWORK (2022-23)									
8	DIGITAL ELECTRONICS LAB	22ELEL21	II	Core Lab	50	15	35	2	1
9	COMMUNITY SERVICE PROJECT	22CAIP2	II	CSP	100	100	0	0	4
10	ENTREPRENEURSHIP DEVELOPMENT	22LSCT04	III	Life Skill	50	15	35	2	2
11	ELECTRONIC SYSTEM DESIGN AND MANUFACTURE WITH PCB	22ELESDL01	III	Skill Development	50	15	35	2	2
12	YOGA	CEXP01	IV	Extension Activity	50	15	35	2	2
		TOTAL(Maximum)			900	340	434	32	31

TABLE 3: B.Sc.(Ca.M.E) Programme SEMESTER - III									
S.NO	**Name of the Course**	**Course Code**	**Part No**	**Type of the Paper**	**Total Marks**	**IA TEST**	**Sem End Exam**	**Teaching Hours**	**Credits**
1	HINDI-III	22HINT01	I	Second Language	100	30	70	4	3
2	TELUGU-III	22TELT01	I						
3	DATABASE MANAGEMENT SYSTEMS	22CSCT34	II	Core	100	30	70	4	4
4	ABSTRACT ALGEBRA	22MATT31	II	Core	100	30	70	6	5
5	SOLID GEOMETRY	22MATT01	II	Core	100	30	70	6	5
6	MICROPROCESSOR SYSTEMS	22ELET31	II	Core	100	30	70	4	4
7	DATABASE MANAGEMENT SYSTEMS LAB	22CSCL33	II	Core Lab	50	15	35	2	1
8	MICROPROCESSOR SYSTEMS LAB	22ELEL31	II	Core Lab	50	15	35	2	1
9	QUANTITATIVE APTITUDE	22LSCT14	III	Life Skill	50	15	35	2	2
10	REASONING	22LSCT15	III	Life Skill	50	15	35	2	2
11	CYBER SECURITY ESSENTIALS	22CSCSDT05	III	Skill Development	50	15	35	2	2
12	YOGA	22CEXP01	IV	Extension Activity	50	15	35	2	2

CBCS CURRICULAR FRAMEWORK (2022-23)									
		TOTAL(Maximum)			800	240	560	36	31
TABLE 4: B.Sc.(Ca.M.E) Programme SEMESTER - IV									
S.NO	Name of the Course	Course Code	Part No	Type of the Paper	Total Marks	IA TEST	Sem End Exam	Teaching Hours	Credits
1	ENGLISH PRAXIS-III	22ENGT01	I	First Language	100	30	70	4	3
2	LINEAR ALGEBRA	22MATT41	II	Core	100	30	70	6	5
3	OPERATING SYSTEMS	22CSCT41	II	Core	100	30	70	4	4
4	OBJECT ORIENTED PROGRAMMING USING JAVA	22CSCT01	II	Core	100	30	70	4	4
5	MICROCONTROLLER AND INTERFACING	22ELET41	II	Core	100	30	70	4	4
6	ANALOG CIRCUITS AND COMMUNICATIONS	22ELET01	II	Core	100	30	70	4	4
7	OPERATING SYSTEMS LAB	22CSCL41	II	Core Lab	50	15	35	2	1
8	OBJECT ORIENTED PROGRAMMING USING JAVA LAB	22CSCL01	II	Core Lab	50	15	35	2	1
9	MICROCONTROLLER AND INTERFACING LAB	22ELEL41	II	Core Lab	50	15	35	2	1
10	ANALOG CIRCUITS AND COMMUNICATIONS LAB	22ELEL01	II	Core Lab	50	15	35	2	1
11	IN HOUSE PROJECT	22CAIP4	II	IHP	100	100	0		4
12	COMMUNICATION SKILLS FOR EMPLOYABILITY-I	22ENGSDCT04	III	Skill Development	50	15	35	2	2
13	COMMUNICATION SKILLS FOR EMPLOYABILITY-II	22ENGSDCT05	III	Skill Development	50	15	35	2	2
14	NCC/NSS/SPORTS/CULTURAL/CLUBS	22CEXP02	IV	Extension Activity	50	15	35	2	2
		TOTAL(Maximum)			1050	385	665	40	38

CBCS CURRICULAR FRAMEWORK (2022-23)

TABLE 5: B.Sc.(Ca.M.E) Programme : SEMESTER - V

S.NO	Name of the Course	Course Code	Part No	Type of the Paper	Total Marks	IA TEST	Sem End Exam	Teaching Hours	Credits
1	NUMERICAL METHODS	22MATSET01	II	CORE	100	30	70	5	5
2	MATHEMATICAL SPECIAL FUNCTIONS	22MATSET02	II	CORE	100	30	70	5	5
3	MULTIPLE INTEGRALS AND APPLICATIONS OF VECTOR CALCULUS	22MATSET03	II	CORE	100	30	70	5	5
4	INTEGRAL TRANSFORMS WITH APPLICATIONS	22MATSET04	II	CORE	100	30	70	5	5
5	PARTIAL DIFFERENTIAL EQUATIONS AND FOURIER SERIES	22MATSET05	II	CORE	100	30	70	5	5
6	NUMBER THEORY	22MATSET06	II	CORE	100	30	70	5	5
7	INDUSTRIAL ELECTRONICS	22ELESET01	II	CORE	100	30	70	3	3
8	INDUSTRIAL ELECTRONICS LAB	22ELESEL01	II	CORE LAB	50	15	35	3	2
9	ELECTRONIC INSTRUMENTATION	22ELESET02	II	CORE	100	30	70	3	3
10	ELECTRONIC INSTRUMENTATION LAB	22ELESEL02	II	CORE LAB	50	15	35	3	2
11	EMBEDDED SYSTEM DESIGN	22ELESET03	II	CORE	100	30	70	3	3
12	EMBEDDED SYSTEM DESIGN LAB	22ELESEL03	II	CORE LAB	50	15	35	3	2
13	CONSUMER ELECTRONICS	22ELESET04	II	CORE	100	30	70	3	3
14	CONSUMER ELECTRONICS LAB	22ELESEL04	II	CORE LAB	50	15	35	3	2
15	DATA COMMUNICATION AND NETWORKING	22ELESET05	II	CORE	100	30	70	3	3
16	DATA COMMUNICATION AND NETWORKING LAB	22ELESEL05	II	CORE LAB	50	15	35	3	2
17	VLSI DESIGN	22ELESET06	II	CORE	100	30	70	3	3
18	VLSI DESIGN LAB	22ELESEL06	II	CORE LAB	50	15	35	3	2
19	INTERNET OF THINGS	22ELESET07	II	CORE	100	30	70	3	3
20	INTERNET OF THINGS LAB	22ELESEL07	II	CORE LAB	50	15	35	3	2
21	VERILOG HDL WITH PROGRAMMING	22ELESET08	II	CORE	100	30	70	3	3

CBCS CURRICULAR FRAMEWORK (2022-23)									
22	VERILOG HDL WITH PROGRAMMING LAB	22ELESEL08	II	CORE LAB	50	15	35	3	2
23	BIG DATA ANALYTICS USING R	22CASSET01	II	CORE	100	30	70	3	3
24	BIG DATA ANALYTICS USING R LAB	22CASSEL02	II	CORE LAB	50	15	35	3	2
25	DATA SCIENCE USING PYTHON	22CASSET02	II	CORE	100	30	70	3	3
26	DATA SCIENCE USING PYTHON LAB	22CASSEL03	II	CORE LAB	50	15	35	3	2
27	MOBILE APPLICATION DEVELOPMENT	22CASSET03	II	CORE	100	30	70	3	3
28	MOBILE APPLICATION DEVELOPMENT LAB	22CASSEL04	II	CORE LAB	50	15	35	3	2
29	CYBER SECURITY AND MALWARE ANALYSIS	22CASSET04	II	CORE	100	30	70	3	3
30	CYBER SECURITY AND MALWARE ANALYSIS LAB	22CASSEL05	II	CORE LAB	50	15	35	3	2
31	MULTIMEDIA TOOLS AND APPLICATIONS	22CASSET05	II	CORE	100	30	70	3	3
32	MULTIMEDIA TOOLS AND APPLICATIONS LAB	22CASSEL06	II	CORE LAB	50	15	35	3	2
33	DIGITAL IMAGING	22CASSET06	II	CORE	100	30	70	3	3
34	DIGITAL IMAGING LAB	22CASSEL07	II	CORE LAB	50	15	35	3	2
		TOTAL(Maximum)			**800**	**240**	**560**	**34**	**30**

TABLE 6: B.Sc.(Ca.M.E.) Programme SEMESTER - VI									
S.NO	**Name of the Course**	**Course Code**	**Part No**	**Type of the Paper**	**Total Marks**	**Internal Assessment**	**External Assessment Component**	**Monitoring Hours**	**Credits**
1	INTERNSHIP IN ELECTRONICS	22ELEIAP6	II	Core Project	200	60	140	6	12
2	INTERNSHIP IN COMPUTER APPLICATIONS	22CSCIAP6							

P. B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE: VIJAYAWADA-10.
(An Autonomous college in the jurisdiction of Krishna University, Machilipatnam)

Semester I	Course Code	Course Title	Credits	Hours
B.Sc. (CAMS / CAME / MSCS / CSCS / MPCS / MECS)	**CSCP11B/ CGSP11(CSCS)**	**Problem Solving in C Lab**	**1**	**30**

Course Outcome No	Upon successful completion of this course, students should have the knowledge and skills to:	Program Outcome No
CO1	Apply logical skills to analyze a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO2	Design an algorithmic solution for a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO3	Write a maintainable C program according to coding standards for a given algorithm	PO1, PO7, PSO1, PSO4, PSO2
CO4	Debug a given program	PO1, PO7, PSO1, PSO4, PSO2
CO5	Execute the C program	PO1, PO7, PSO1, PSO4, PSO2

CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1					L	M	L
CO2					M	L	M
CO3					L	M	L
CO4					M	L	H
CO5					L	M	L

Experiments List

Cycle-I

Week 1:

Write a C program to check whether the given two numbers are equal, bigger or smaller?

Week 2:

Write a C program to perform arithmetic operations using Switch...case?

Week 3:

- Write a program to find the sum of individual digits of a positive integer.
- Write a program to check whether the given number is Armstrong or not.

Week 4:

Write a program to generate the first N terms of the Fibonacci sequence.

Week 5:

Write a program to find both the largest and smallest number in a list of integer values

Week 6:

- Write a program that uses functions to add two matrices.
- Write a program for multiplication of two n X n matrices.

Week 7:

Write a program to demonstrate refection of parameters in swapping of two integer values using Call by Value& Call by Address.

Week 8:

Write a program to calculate factorial of given integer value using recursive functions.

Cycle-II

Week 9:

Write a program to search an element in a given list of values.

Week 10:

Write a program to illustrate pointer arithmetic.

Week 11:

Write a program to sort a given list of integers in ascending order.

Week 12:

Write a program to calculate the salaries of all employees using Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

a. DA is 30 % of Basic Pay

b. HRA is 15% of Basic Pay

c. Deduction is 10% of (Basic Pay + DA)

d. Gross Salary = Basic Pay + DA+ HRA

e. Net Salary = Gross Salary - Deduction

Week 13:

Write a program to perform various string operations.

Week 14:

Write a program to read the data character by character from a file.

Week 15:

Write a program to create Book (ISBN, Title, Author, Price, Pages, Publisher) structure and store book details in a file and perform the following operations

a. Add book details

b. Search a book details for a given ISBN and display book details, if available

c. Update a book details using ISBN

d. Delete book details for a given ISBN and display list of remaining Books.

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Semester I	Course Code	Course Title	Credits	Hours
B.Sc. (CAMS / CAME / MSCS / CSCS / MPCS / MECS)	**CSCT11B/ CGST11(CSCS)**	**Problem Solving In C**	**4**	**60**

Course Objectives:

This course aims to provide exposure to problem-solving through programming and introduce the concepts of the C Programming language.

Course Learning Outcomes:

Course Outcome No	Upon successful completion of the course, a student will be able to:	Program Outcome No.
CO1	Understand the evolution & functionality of Digital Computers and develop an algorithm for solving a given problem.	PO1, PO7, PSO1, PSO4
CO2	Understand tokens and control structures in C.	PO1, PO7, PSO1, PSO4
CO3	Understand arrays and strings and implement them.	PO1, PO7, PSO1, PSO4
CO4	Understand the right way of using functions, pointers, structures and unions in C	PO1, PO7, PSO1, PSO4
CO5	Develop and test programs written in C files	PO1, PO7, PSO1, PSO4

CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1						L	M
CO2						M	L
CO3						M	L
CO4						L	M
CO5						M	L

UNIT I **12 periods**

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II **12 periods**

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.

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

UNIT III **10 periods**

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi-dimensional arrays, character handling and strings.

UNIT IV **14 periods**

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

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V **12 periods**

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 – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

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

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.

2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.

3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.

4. Yashavant Kanetkar - Let Us 'C' – BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)

2. Student seminars (on topics of the syllabus and related aspects (individual activity))

3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion

2. Try to solve MCQ's available online.

3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),

2. Closed-book and open-book tests,

3. Problem-solving exercises,

4. Practical assignments and laboratory reports,

5. Observation of practical skills,

6. Individual and group project reports like "Creating Text Editor in C".

7. Efficient delivery using seminar presentations,

8. Viva voce interviews.

9. Computerized adaptive testing, literature surveys and evaluations,

10. Peers and self-assessment, outputs form individual and collaborative work

P. B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE: VIJAYAWADA-10.
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MODEL Question Paper: 2020-2021

TITLE: Problem solving in C **COURSE CODE: CSCT11B/CGST11(CSCS)**
SECTIONS: B.Sc. (CAMS / CAME / MSCS / MPCS / MECS) & B. Sc (CSCS) **SEMESTER: I**
TIME: 3 Hrs. **MAX: 75M**

SECTION –A

ANSWER ANY FIVE QUESTIONS **5 X 5 =25 M.**

1. What is a flowchart? Utilize flowchart symbols and draw a flowchart to find biggest of two numbers. **(CO1, L3)**
2. Write a short note on block diagram of computers. **(CO1, L2)**
3. Explain do…while loop with an example program. **(CO2 , L2)**
4. Develop a C program to find largest number in a given integer list. **(CO3 ,L3)**
5. Classify data types in C. Write a short note on any two data types. **(CO2 , L2)**
6. How to declare and initialize 1D arrays. **(CO3, L1)**
7. Construct a student structure to accept student details and write a C program to calculate grade of a student. (**CO4 , L3)**
8. Illustrate command line arguments with an example program. **(CO5, L2)**

SECTION – B

ANSWER ALL THE QUESTIONS **5 X 10 =50 M.**

9 A) Define Algorithm. Demonstrate Key features of algorithm with examples. **(CO1, L2)**

(or)

B) List out the characteristics and limitations of computers. **(CO1, L1)**

10 A) Give Classification of Control statements in C. Explain multi-way decision making statements in C with examples. **(CO2, L2)**

(or)

B) Write a program to check whether the given number is Armstrong or not. **(CO2, L3)**

11 A) Develop a program in C for matrix multiplication. **(CO3, L3)**

(or)

B) Demonstrate various String handling functions in C with examples. **(CO3, L2)**

12 A) Compare and contrast structures with unions. **(CO4, L4)**

(or)

B) Explain the types of functions in C. **(CO4, L2)**

13 A) List different file handling functions in C. Explain with examples. **(CO5, L2)**

(or)

B) Explain call by value and call by reference with example. **(CO4, L2)**

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P.B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE

Siddhartha Nagar, Vijayawada – 520 010

Autonomous - ISO 9001 – 2015 Certified

Title of the Paper: CIRCUIT THEORY AND ELECTRONIC DEVICES

Offered to: B.SC (M.ECs, CA.M.E) –ELET11B

Course Type: Core (TH) / Core (P)

Year of Introduction: 2021-22 **Year of Revision:** **Percentage of Revision:**

Semester : I **Credits : 3**

Hours Taught: 60 hrs. Per Semester **Max.Time** : 3 Hours

Course Prerequisites:

Introduction of Network Theory

Course Objectives:

1. To explain the basic concepts and laws of DC and AC electrical networks and solve them using mesh and nodal analysis techniques.
2. To analyze circuits in time and frequency domain.
3. To synthesize the networks using passive elements.
4. To understand the construction, working and V - I characteristics of electronic devices.
5. To understand the concept of power supply.

Course Outcomes:

At the end of the course, the student will be able to –

CO1: To remember the concept of current & voltage in circuits.

CO2: To understand various Electrical networks by using principles of network theorems.

CO 3: To apply the behavior of R, C network with DC & sinusoidal excitation.

CO4: To analyze the behavior of Inductor and it various states

CO5: To evaluate the concept of Resonance & R, L, C network with variation of any one of it

	P01	P02	P03	P04	P05	PO6	P07
C01					L		
CO2						H	
CO3							L
CO4					H		
CO5						L	

Course Delivery method: Face-to-face

Course has focus on: Employability and **S**kill Development

Websites of Interest: https://www.physics-and-radio-electronics.com/, https://www.clear.rice.edu/

Co-curricular Activities: Assignment, PPT's, App based simulations

Syllabus

Course Details:

Unit	Learning Units	Lecture Hours
I	Passive Networks: (D.C) AND Networks Theorems: (D.C) Branch current method, Nodal Analysis, star to delta and delta to star conversions, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems.(Problems)	16
II	RC & RL Circuits and the Sine Wave: Transient response of RC and RL circuits with step input, The sine wave, average value, effective (R.M.S) values, Phase relations, Basic Response and frequency response of R, L & C elements. Differences between A.C and D.C. low pass and high pass filters, passive differentiating and integrating circuits.	12
III	Series and Parallel Resonance Circuits: Series resonance and parallel resonance circuits, Q - Factor, Selectivity and band width, Tank circuit-LC oscillations.	5
IV	Power Supplies and Photo Electronic Devices: Rectifiers: Half wave, full wave and bridge rectifiers-Efficiency-ripple Factor-Regulation, Filters: L-section & π-section filters. Three terminal fixed voltage I.C. regulators (78XX and &79XX) LED, IR-LED, Photo diode, Opto-Isolators, LDR, and solar cell;	13
V	Transistors: BJT: Construction, and characteristics of CE Configurations, Complete hybrid equivalent model, and Transistor as a switch. BJT Biasing: Fixed-Bias, Emitter-Stabilized Bias, Voltage-Divider Bias. FET: Construction, and Characteristics of FET/JFET, and MOSFETs, Advantages of FET over BJT UJT: UJT construction-working, and V-I characteristics, UJT as a Relaxation oscillator.	14

TEXT BOOKS:

1. Introductory circuit Analysis (UBS Publications) ---- Robert L. Boylestad.
2. Electronic Devices and Circuit Theory --- Robert L. Boylestad & Louisashelsky.
3. Circuit Analysis by P.Gnanasivam --- Pearson Education
4. Electronic Devices and Circuits I – T.L.Floyd- PHI Fifth Edition

REFERENCE BOOKS:

1. Engineering Circuit Analysis By: Hayt & Kemmerly - MG.
2. Networks and Systems – D. Roy Chowdary.

3. Electric Circuit Analysis- S.R. Paranjothi- New Age International.
4. Integrated Electronics – Millmam & Halkias.
5. Electronic Devices & Circuits – Bogart.
6. A Text Book Of Applied Electronics, -- Dr. Sedha R.S., S.Chand & Company Ltd

P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE, VIJAYAWADA – 10

Model Question Paper –FEB-2022

TITLE: CIRCUIT THEORY AND ELECTRONIC DEVICES

Course Code: ELET11B **Maximum Marks:** 75M

Time: 3 Hours **Pass Minimum:** 30M

SECTION – A

Answer any FIVE of the following: **5 x 5 = 25 M**

1. Explain the concept of nodal analysis. (Co2)--(L3) 5M
2. State and explain Milliman's theorem. (co3)- (L4) 5M
3. Write short notes on basic response of R, L & C elements.(co1) (L2) 5M
4. Derive an expression for LC oscillations of a tank circuit. (Co5)-(L6) 5M
5. Deduce an equation for ripple factor, efficiency of half wave rectifier. (Co1)-(L5) 5M
6. Explain the working of LDR. (co3) (L4) 5M
7. Write an equation for emitter stabilized bias circuit. (co1)- (L5) 5M
8. Differentiate the advantages of FET over BJT. (Co1)- (L1) 5M

SECTION – B

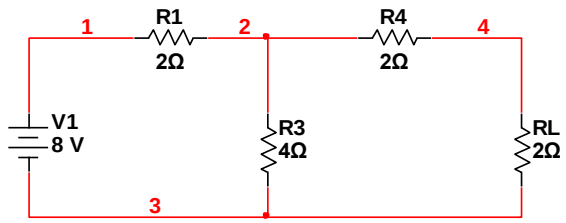
Answer any FIVE of the following: **5 x 10 = 50 M**

9. (a) Explain the format approach of mesh analysis. (Co1)- (L1) 4M
How can you convert star to delta conversion. (co2) (L1) 6M

(or)

(b) State and prove Norton's Theorem (c03)-(L4) 6M

Find the I_L in the given circuit by using Thevenin's theorem (co3) (L6) 4M



10. (a) Derive RMS value of sinusoidal waveform. (Co1)-(L4) 5M
Explain frequency response of resistor and reactor. (Co1)-(L4) 5M

(Or)

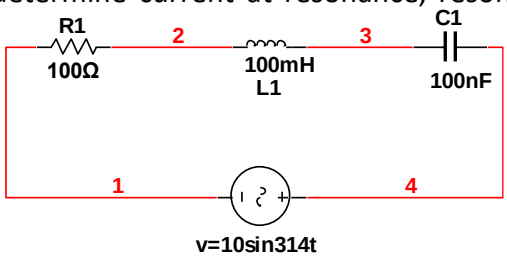
(b) What is alternating current? How does it differ from direct current? Derive an expression for average & virtual value of A.C. Define form factor .Give its significance (co1)-(L4) 10M

11. (a) What is resonance? Derive the expression for frequency response, band width, Q-Factor and selectivity of series RLC resonance circuit.(co5)- (L1) 10M

(or)

(b)Distinguish between series and parallel resonance (co5)- (L1) 4M

For the circuit shown below, determine current at resonance, resonant frequency, Qfactor and selectivity.(co5)- (L2) 6M



12. (a)Define rectifier and explain briefly about half wave rectifier and derive its efficiency. (Co5) - (L4) 10M

(or)

(b)Explain about 3-terminal voltage IC regulators of positive and negative. Co3) - (L4) 10M

13. (a)Explain about the construction and working of FET and explain drain and transfer characteristics of FET. (Co2) - (L3) 10M

(or)

(b) Discuss about the construction and working of V-I characteristics of UJT(Co2) - (L3) 10M

Parvathaneni Brahmayya Siddhartha College of Arts & Science, Vijayawada-10
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College with Potential for Excellence
(Awarded by UGC)

GENERAL ENGLISH SYLLABUS FOR B.A/ B.COM/B.SC COURSES UNDER CBCS
SEMESTER-I

Course Code: ENGT11B **Time: 3 Hours**
Title: English Praxis– I **Max. Marks: 75**
Credits: 3 **Pass Marks: 30**

SYLLABUS
ENGLISH PRAXIS-I
A COURSE IN COMMUNICATION AND SOFT SKILLS

I. UNIT: Listening Skills 10 hours

1. Importance of Listening
2. Types of Listening
3. Barriers to Listening
4. Effective Listening

II. UNIT: Speaking Skills 10 hours

1. Sounds of English: Vowels and Consonants
2. Word Accent
3. Intonation

III. UNIT: Grammar 15 hours

1. Concord
2. Modals
3. Tenses (Present/Past/Future)
4. Articles
5. Prepositions
6. Question Tags
7. Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
8. Error Correction

IV. UNIT: Writing 10 hours

1. Punctuation
2. Spelling
3. Paragraph Writing

V. UNIT: Soft Skills 15 hours

1. SWOC
2. Attitude
3. Emotional Intelligence
4. Telephone Etiquette
5. Interpersonal Skills

REFERENCES:

1. A Course in Communication Skills and Soft Skills – I & II, Published by Orient Black Swan Private Limited, 2016.

2. A Course in Communication Skills and Soft Skills – III, Published by Orient Black Swan Private Limited, 2016.
3. "Communication Skills" by Leena Sen , published by Asoke K Ghosh, Prentice Hall of India Private Ltd – Delhi-110006.
4. "Effective English Communication for you" by Syamala, Emerald publishers New Edition-2007.
5. "A Practical Course in Spoken English" by J.K. Gangal, PHI Learning Private Ltd – 2010.
6. Murphy's English Grammar, Published by Cambridge University Press, 2004.
7. Communication Skills in English, Published by Oxford University Press, 1990.
8. Modern English by N. Krishnaswamy , Published by Macmillan India Limited, 1998.

GENERAL ENGLISH SYLLABUS FOR B.A/ B.COM/B.SC COURSES UNDER CBCS
SEMESTER-I

Course Structure and Syllabi under CBCS

Sl No.	Semester	Course Code	Name Of The Subject	Teaching Hours	Credits
1	**I Semester**	**ENGT11B**	**English Praxis-I**	4	3

OBJECTIVE: The main objective of this course is to equip the learners with listening, speaking, reading, writing skills and also build up their ability to use Soft Skills in their professional and daily life effectively.

COURSE OUTCOMES:

At the end of the course, the learners will be able to:

CO 1. Gain more confidence in learning various kinds of listening techniques as well as create more effective strategies to improve one's ability to listen and to understand people. **PO2**

CO 2. Improve their speaking ability in English both in terms of fluency and comprehensibility and practice in using English to perform preliminary communicative functions required for their everyday social and professional interactions with others. **PO2**

CO 3. Explore basic elements of grammar and test their abilities in concord, modals, tenses, articles, prepositions, question tags and transformation of sentences. **PO7**

CO 4. Develop their written expression of thought and discover opportunities to build connections within the areas of punctuations, spelling and paragraph writing. **PO2**

CO 5. Formulate problem solving skills, making appropriate and responsible decisions, improve their attitude, emotional intelligence, telephone etiquette and interpersonal skills. **PO6**

CO-PO MATRIX- ENG T11B							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	H						
CO2	H						
CO3							M
CO4		H					
CO5						H	

PARVATHANENI BRAHMAIAH SIDDHARTHA COLLEGE OF ARTS AND SCIENCE; VIJAYAWADA-10

(An autonomous college in the jurisdiction of Krishna University)

SEMESTER- I **PAPER - I**

TITLE OF THE PAPER: HINDI-I

NO OF HOURS: 60 **CREDITS: 03**

WEF: 2021-22

COURSE CODE: HINT11A

COURSE OUTCOMES:

1. मानव मूल्यों को पहचानकर छात्र समाज कल्याण हेतु अपने योगदान दे सकेंगे ।
2. आधुनिक युग की भावनाओं को पहचानकर सामाजिक समस्यओं के प्रति जागरुक हो सकेंगे।
3. हिन्दी और अंग्रेजी के माध्यम से विध्यार्थी अनुवाद कौशल विकसित कर सकेंगे।
4. छात्रों में व्याकरण के व्दारा भाषा में निपुणता बढ़ेगी।
5. छात्रों में पत्रलेखन व्दारा लेखन कौशल बढ़ेगा तथा संप्रेषण बढ़ेगा।

SYLLABUS

I.गद्य संदेश :

1.साहित्य की महत्ता

2.सच्ची वीरता

3.मित्रता

II.कथा – लोक :

1.मुक्तिधन

2.गूदड़ साई

3.उसने कहा था

III.व्याकरण : कार्यालयीन हिन्दी शब्दावली

(हिन्दी से अंग्रेजी में बदलना तथा अंग्रेजी से हिन्दी में बदलना)

IV. व्याकरण :

1.लिंग

2.वचन

3.विलोम शब्द

4.काल

5.वाच्य

6.वाक्य शुद्ध कीजिए

V.पत्र लेखन: पत्र लेखन (मित्र को पत्र, पिताजी को पत्र)

Recommended Books:

1.गद्य संदेश – Dr.V.L.Narasimham Siva Koti

2.कथा – लोक - Dr.Ghana Shyam

3.मिलिन्द प्रकाशन

Hyderabad-95.

Degree First Year Text Book,

Vikram Publishers Pvt. Ltd., Durga Agraharam, Vijayawada-2

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE :: VIJAYAWADA-520 010.
(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)
I SEMESTER Model Question Paper

Course Code: HINT11A **Max. Marks: 70M**
Time: 3 Hrs. **Pass Min. : 30M**

SECTION-I

I निम्न लिखित प्रश्नों का उत्तर लिखिए। **4×5=20**

1.(a) जीवन में साहित्य की क्या आवश्यकता है? साहित्य व्दारा सभ्यता की परीक्षा किस प्रकार हो सकती है? L1

(अथवा)

(b) वीरता किसे कहते हैं? लेखक का 'सच्ची वीरता' से क्या अभिप्राय है? L1

2.(c) रहमान का चरित्र-चित्रण कीजिए। L2

(अथवा)

(d) गूदड़ साई का शीर्षक पर अपना उद्देश्य प्रकट कीजिए। L2

3.(e) काल किसे कहते हैं तथा उसके कितने प्रकार हैं? L3

(अथवा)

(f) वाच्य किसे कहते हैं तथा उसके कितने प्रकार हैं? L3

4.(g) **नीचे दिए गए शब्दों का लिंग बदलकर लिखिए। L1**

1.विद्वान 2.अध्यापक 3.मोर 4.ठाकुर 5.धोबी

(अथवा)

(h) **नीचे दिए गए शब्दों का वचन बदलकर लिखिए। L1**

1.लड़की 2.वीर 3.सेना 4. रुपया 5.कविता

SECTION-II **1×10=10**

5.(a) 'मित्रता' पाठ का सारांश लिखिए। L2

(अथवा)

(b) 'साहित्य की महत्ता' पाठ का सारांश लिखिए। L2

SECTION-III 1×10=10

6.(a) 'मुक्तिधन' कहानी का सारांश लिखिए। L2

(अथवा)

(b) 'उसने कहा था' कहानी का सारांश लिखिये। L2

SECTION-IV

7.(a) **किन्हीं पाँच शब्दों को अंग्रेजी से हिंदी में अनुवाद कीजिए। L2** **5×2=10**

1.Acceptance 2.Ballot Officer 3.Chairman 4.Duty 5.Supervisor
6.High Court 7.Fair copy 8.Eligibility 9. Passport 10.Accountant

(अथवा)

(b) **किन्हीं पाँच शब्दों को हिंदी से अंग्रेजी में अनुवाद कीजिए। L2**

1.प्रशासन 2.परिपत्र 3.गोपनीय 4.स्पष्टीकरण 5.राजदूत
6.निर्देशक 7.शिक्षा-अधिकारी 8.कुलपति 9.महा प्रबंधक 10.अनुवादक

8.(a) **किन्हीं पाँच शब्दों का विलोम शब्द लिखिए। L1** **5×2=10**

1.वीरता 2. अच्छा 3.नया 4.आना 5.भिन्न 6.सस्ता 7.मित्र 8. लेना

(अथवा)

(b) **वाक्य शुद्ध कीजिए। L1**

1.मोहन पुस्तक पढ़ा।

2.सीता ने चार आम खाया।

3.राम ने गया।

4.दशरथ की तीन रानियाँ थीं।

5.चोरी कौन किया?

SECTION-V 1×10=10

9.(a) पुस्तकें खरीदने के लिए पैसे माँगते हुए अपने पिताजी के नाम पर पत्र लिखिए। L3

(अथवा)

(b) हिंदी सीखने की आवश्यकता के बारे में बताते हुए अपने मित्र को पत्र लिखिए। L3

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE :: VIJAYAWADA-10.
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MATHEMATICS	MATT11A	2019-'20(BT)	B.Sc. & B.A. (EMS)

SEMESTER-I **PAPER-I** **No of Credits: 5**

DIFFERENTIAL EQUATIONS

Course Outcomes

S. No	C.O
	Upon successful completion of this course, students should have the knowledge and skills to:
1	Determine the solution of differential equations of the first order and of the first degree by Exact, Linear and Bernoulli's method.
2	Understand the basic concepts of first order differential equations to find Orthogonal trajectories.
3	Determine the solution of differential equations of the first order and of a degree higher than first by using methods of solvable for P, X, and Y.
4	Compute all solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients.
5	Calculate the solutions of higher order differential equations by Cauchy Euler and Variation of parameters.

CO-PO MATRIX

CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1					H		
CO2					H		
CO3						M	
CO4							M
CO5							M

OBJECTIVES:

1. Understand all of the concepts relating to the order and linearity of ODEs, analytic and computational solution methods for ODEs, and the real-world applications of ODEs.
2. Apply your understanding of the concepts, formulas, and problem solving procedures to thoroughly investigate relevant physical models.

3. Explain the concepts of linear systems, ODE solution methods, and related ideas at a fundamental level, as well as how and why we use the solution techniques that we use.

UNIT-I: DIFFERENTIAL EQUATIONS OF FIRST ORDER& FIRST DEGREE (18Hrs)

1.1 Linear Differential Equations
1.2 Differential Equations Reducible to Linear Form, Bernoulli's differential equations.
1.3 Exact Differential Equations
1.4 Integrating Factors, 1/Mx+Ny, 1/Mx-Ny, $e^{\int f(x)dx}$, $e^{\int g(y)dy}$, *and Inspection method*
1.5 Change of Variables

UNIT-II: ORTHOGONAL TRAJECTORIES &DIFFERENTIAL EQUATIONS OF FIRST ORDER BUT NOT FIRST DEGREE (18Hrs)

2.1 Orthogonal Trajectories
2.2 Self Orthogonal Trajectories
2.3 Equations solvable for p
2.4 Equations solvable for y
2.5 Equations solvable for x
2.6 Equations Homogeneous in X & Y
2.7 Equations that do not contain x (or y)
2.8 Clairaut's Equation and Equations reducible to clairaut's form.

UNIT – III: Higher order linear differential equations-I (18Hrs)

3.1 Solution of homogeneous linear differential equations of order n with constant coefficients
3.2 Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.
3.3 General Solution of f(D)y=0
3.4 General Solution of f(D)y=Q when Q is a function of x.
3.5 $\frac{1}{f(D)}$ is Expressed as partial fractions.
3.6 P.I. of f (D) y = Q when Q= be^{ax}
3.7 P.I. of f (D) y = Q when Q is b sinax or b cosax.

UNIT – IV: Higher order linear differential equations-II (18Hrs)

4.1 Solution of the non-homogeneous linear differential equations with constant coefficients.
4.2 P.I. of f (D) y = Q when Q= bx^k
4.3 P.I. of f (D) y = Q when Q= $e^{ax}V$
4.4 P.I. of f (D) y = Q when Q= xV
4.5 P.I. of f (D) y = Q when Q= x^mV where v = sin bx and cosbx

UNIT-V: Higher order Differential Equations –III (18Hrs)

5.1 The Cauchy-Euler Equation.
5.2 Linear differential Equations with non-constant coefficients
5.3 Method of Variation of parameters.

Prescribed Text book:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION

1	V.Krishna Murthy	A text book of mathematics for B.A/B.ScVol – I	S-Chand&co	2015

Reference books:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	Dr. A. Anjaneyulu	A text book of mathematics for B.A/B.ScVol – I	Deepthi Publications	2015
2	RaiSinghania	Ordinary& Partial Differential Equations	S-Chand	2009
3	ZafarAhsan	Differential Equations and their applications	Prentice-Hall of India Pvt Ltd, McGraw Hill	2000

పి.బి. సిద్ధార్థ ఆర్ట్స్ & సైన్స్ కళాశాల (స్వయంప్రతిపత్తి) :: విజయవాడ -10

బి.ఏ., బి.బి.ఏ., బి.కాం., బి.ఎస్సి., బి.సి.ఏ., తదితర ప్రోగ్రాములు

సి.బి.సి.ఎస్. పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక

2020-2021 విద్యా సంవత్సరం నుండి

తెలుగు - పాఠ్య ప్రణాళిక

సెమి.	కోర్సు	శీర్షిక	పీరియడ్లు/వారానికి	క్రెడిట్లు	మొత్తం మార్కులు		
					IA	SE	Total
I	I	తెలుగు - I	04	03	25	75	100

(B.A,B.Com-GEN,C.A,A&F,TPP,BPM,BBA,BBA-B.A,BCA,B.Sc&CSCS) EXTRA

కోర్స్ కోడ్:TELT11A **అంశం: తెలుగు** **సెమిస్టర్- I**

కోర్సు-1 : తెలుగు-I

యూనిట్ల సంఖ్య: 5 పీరియడ్ల సంఖ్య: 60

కోర్స్ అవుట్ కంమ్స్ :

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ప్రాచీన తెలుగు సాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. తెలుగు సాహిత్యంలో ఆదికవి నన్నయ కాలంనాటి భాషాసంస్కృతులను, ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు.
2. శివకవుల కాలంనాటి మతపరిస్థితులను, భాషా విశేషాలను గ్రహిస్తారు. తెలుగు నుడికారం, సామెతలు, లోకోక్తులు మొదలైన భాషాంశాల పట్ల పరిజ్ఞానాన్ని పొందగలరు.
3. తిక్కన భారతంనాటి మత, ధార్మిక పరిస్థితులను, తిక్కన కవితా శిల్పాన్ని, నాటకీయతను అవగాహన చేసుకోగలరు.
4. పోతన అద్భుత కథాకథన శిల్పం, సజీవపాత్ర చిత్రణ, శబ్దాలంకారాల ప్రయోగం మొదలగు విభిన్న రీతులపట్ల అభిరుచిని పొందగలరు. మొల్ల కవిత్వంలోని వీనుల విందైన పదాలు, పాత్రలు మనోభావాల చిత్రణ గుర్తించగలరు.
5. తెలుగు పద్యం స్వరూప-స్వభావాలను, సాహిత్యాభిరుచిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషా సామర్థ్యాన్ని, రచనలో మెలకువలను గ్రహించగలరు.

లెర్నింగ్ అబ్జెక్టీవ్స్ :

1. తెలుగు భాషాసాహిత్యాల పట్ల ప్రీతి, మమకారం, ప్రాచీన కాలంలోని రాజనీతి పట్ల అవగాహన కల్గుతుంది.
2. ప్రాచీన కాలం నాటి చరిత్ర, సంస్కృతి ఆచార సాంప్రదాయాల పట్ల ఆసక్తి కల్గుతుంది.
3. అలనాటి ధర్మ, మత పరిస్థితులు, నైతిక విలువల పట్ల అవగాహన ఏర్పడుతుంది.
4. పూర్వ కవుల సజీవ పాత్రల సృష్టి, వివిధ శబ్ద ప్రయోగాల పట్ల అభిరుచి కల్గుతుంది.
5. కావ్య భాషలోని భాషా పరిజ్ఞానం, వ్యాకరణాంశాలు, వివిధ రచనలలోని మెలకువలు తెలుసుకుంటారు.

పాఠ్య ప్రణాళిక

యూనిట్–I

రాజనీతి – నన్నయ

మహాభారతము – సభాపర్వం – ప్రథమాశ్వాసంలో 26వ పద్యము "మీవంశమున..... నీవు వారిదైన నేర్పెఱింగి" నుండి 57వ పద్యము "నాయథాశక్తి .... వాని ననుష్ఠితు బ్రియముతోడ" వరకు.

యూనిట్–II

దక్షయజ్ఞం – నన్నెచోడుడ

కుమార సంభవం – ద్వితీయాశ్వాసంలో 49వ వచనం "అంతకమున్ను.... భయంకరా కారంబుదాల్చిన" నుండి 86వ పద్యం " ప్రమథగణము.... కనిరిశంభు" వరకు.

యూనిట్–III

ధౌమ్యధర్మోపదేశము – తిక్కన

మహాభారతము – విరాటపర్వము – ప్రథమాశ్వాసంలో 116వ పద్యం "ఎఱిగెడు వారికినైనను.... వలయు దగియెడు బుద్ధుల్" నుండి 146వ పద్యం "అతడు నియతితోడ .... సంచయములు దగ జపించుచుండె" వరకు.

యూనిట్–IV

మధుర స్నేహం – పోతన

ఆంధ్రమహాభాగవతము – దశమస్కంధము – కుచేలోపాఖ్యానంలో 962వ పద్యం "లలిత పతివ్రతాతిలకంబు... కుపాయమూ హింప వైతి" నుండి 983వ పద్యం "తన మృదుతల్పమందు... ధరణీసురు డెంతటి భాగ్యవంతుడో" వరుకు.

యూనిట్–V

సీతారావణ సంవాదం – మొల్ల

రామాయణము – సుందరకాండములో 40వ వచనం "ఆరామంజూచి.... వృక్షం బారోహించి యందు" నుండి 87వ పద్యం " కావున నిక్కోమలియెడ.... మనకు దిక్కగు మీదన్" వరకు.

వ్యాకరణము:

1. **సంధులు:–** సవర్ణ, గుణ, యణాదేశ, వృద్ధి, అకార, ఇకార, ఉకార, త్రిక సంధులు.
2. **సమాసములు:–** తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి సమాసములు.
3. **ఛందస్సు:–** వృత్త పద్యాల్లో ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము.
   జాతులు, ఉపజాతుల్లో కందము, తేటగీతి, ఆటవెలది మరియు ముత్యాలసరాలు.
4. **అలంకారములు:–** శబ్దాలంకారాల్లో అనుప్రాసాలైన వృత్త్యనుప్రాస, ఛేకానుప్రాస, లాటానుప్రాస, అంత్యాను ప్రాసములు.
   అర్థాలంకారాల్లో ఉపమ, ఉత్ప్రేక్ష, రూపక, శ్లేషలు.

ఆధార గ్రంథాలు:

1. శ్రీమదాంధ్ర మహాభారతము : సభాపర్వము-తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
2. శ్రీమదాంధ్ర మహాభారతము : విరాటపర్వము-తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
3. కుమార సంభవం - నన్నెచోడుడు
4. శ్రీ మహాభాగవతము - పోతన
5. రామాయణము - మొల్ల

SEMESTER– PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE :: VIJAYAWADA-520 010.
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TELUGU	**TELT11A**	**2020-2021**	**B.A., B.Com., B.B.A., B.B.A.-Ana, B.Com.-CA, B.C.A., & B.Sc.,**

I **Credits – 3**

ప్రశ్నపత్ర నిర్మాణ సూచిక : TELUGU-I

1. ప్రతిపదార్థ పద్యాలు :	**2–1**	**1×7=7మా,**	**2. సందర్భ సహిత వ్యాఖ్యలు:**	**5–3**	**3×4=12మా**
3. సంగ్రహరూప ప్రశ్నలు :	**5–3**	**3×4=12మా,**	**4. వ్యాసరూప ప్రశ్నలు :**	**5–3**	**3×8=24మా**
5. సంధులు :	**5–3**	**3×2=6మా,**	**6. సమాసములు :**	**5–3**	**3×2=6మా**
7. ఛందస్సు :	**2–1**	**1×4=4మా,**	**8. అలంకారములు :**	**2–1**	**1×4=4మా**
				మొత్తం =	**75మా**

గమనికలు / సూచనలు:

1. **ప్రతిపదార్థ పద్యాలు:–** "రాజనీతి, ధౌమ్యధర్మోపదేశం, మధురస్నేహం" అనే మూడు పాఠాల నుండి రెండు పద్యాలు ఇవ్వాలి. అవి కూడ ఈ క్రింది పద్యాల్లో నుండి రెండు ఇవ్వాలి–

రాజనీతి:

1. ఉత్తమ మధ్యమాధమ .... కాలము దప్పకుండగన్
2. బహుధనధాన్య సంగ్రహము ..... భవత్పరి రక్ష్యములైన దుర్గముల్

ధౌమ్యధర్మోపదేశము:

3. రాజ గృహంబు కంటె ..... దగదట్లు సేయగన్
4. ధరణిపు చక్క ..... నుండుటనీతి కొల్పునన్

మధురస్నేహం:

5. కలలో నందను ..... సంపద్విశేషోన్నతుల్.
6. కనిడాయం జనునంత ..... విలోలుండై దిగెన్ దల్పమున్.

2. **సందర్భసహిత వ్యాఖ్యలు:–** "రాజనీతి, దక్షయజ్ఞం, ధౌమ్యధర్మోపదేశము, మధురస్నేహం, సీతారావణ సంవాదం" అనే ఐదు పాఠాలనుండి ఒకొక్కటి చొప్పున సందర్భసహిత వ్యాఖ్య ఇవ్వాలి.

3. **సంగ్రహరూప ప్రశ్నలు:–** "రాజనీతి, దక్షయజ్ఞం, ధౌమ్యధర్మోపదేశము, మధురస్నేహం, సీతారావణసంవాదం" అనే ఐదు పాఠాల నుండి ఒకొక్కటి చొప్పునొ సంగ్రహరూప ప్రశ్న ఇవ్వాలి.

4. **వ్యాసరూప ప్రశ్నలు:–** "రాజనీతి, దక్షయజ్ఞం, ధౌమ్యధర్మోపదేశము, మధురస్నేహం, సీతారావణసంవాదం" అనే ఐదు పాఠాల నుండి ఒ కొక్కటి చొప్పున వ్యాసరూప ప్రశ్న ఇవ్వాలి.

5. **సంధులు:–** "సవర్ణ, గుణ, యణాదేశ, వృద్ధి, అకార, ఇకార, ఉకార, త్రిక" సంధులు నుండి ఐదు సంధులు ఇవ్వాలి.

6. **సమాసములు:–** "తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి సమాసములు" నుండి ఐదు సమాసములు ఇవ్వాలి.

7. **ఛందస్సు:–** వృత్తపద్యాలైన "ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము"ల నుండి ఒక పద్యపాదమును ఇవ్వాలి.
జాతులు, ఉపజాతుల పద్యాలైన "కందము, తేటగీతి, ఆటవెలది" మరియు 'ముత్యాలసరాలు' నుండి ఏవైన మూడిచ్చి ఒకదానిని లక్ష్యలక్ష ణ సమన్వయం చేయమనాలి.

8. **అలంకారములు:–** అర్థాలంకారలైన "ఉపమ, ఉత్ప్రేక్ష, రూపకము, శ్లేష"ల నుండి ఒక అలంకారము ఇవ్వాలి. అది కూడ ఐదు పాఠాల (రాజనీతి, దక్షయజ్ఞం, ధౌమ్యధర్మోపదేశము, మధురస్నేహం, సీతారావణసంవాదం) నుండి ఒక పద్యాన్ని ఇవ్వాలి–
శబ్దాలంకారాల నుండి "వృత్తనుప్రాస, ఛేకానుప్రాస, లాటానుప్రాస, అంత్యానుప్రాసా"ల నుండి రెండు అలంకారములు ఇచ్చి, ఒక అలంకా రము వ్రాయమనాలి.

ఇక నమూనా ప్రశ్నపత్రాన్ని పరిశీలించి ప్రశ్నపత్రాన్ని తయారు చేసుకోవాలి.

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I Semester Model Question Paper, 2020-21 Batch

No. of Pages: 2	**Roll No.:**	**Max. Marks: 75M**
Time: 3 Hrs.	**No. of Questions: 08**	**Pass Min. : 30M**

I. క్రింది వానిలో <u>ఒకదానికి</u> ప్రతి పదార్థ తాత్పర్యమును వ్రాయండి: 7మా **L1**

1. బహుధనధాన్య సంగ్రహము బాణశరాసన యోధవీర సం
గ్రహము నిరంతరాంతరుదకంబులు ఘాసరసేందనౌఘ సం
గ్రహము ననేక యంత్రములు గల్గియ సాధ్యములై ద్విషద్భయా
వహ లగుచుండ నొప్పునె భవత్పరి రక్ష్యములైన దుర్గముల్.

లేదా

2. కలలోనందను మున్నెఱుంగని మహా కష్టాత్ముడై నట్టి దు
ర్బలు డౌపత్సమయంబునన్ నిజ పదాబ్జాతంబులు ల్లంబులోన్
దలపన్నంతనె మెచ్చి యార్తి హరుడై తన్నైన నిచ్చున్ సు ని
శ్చల భక్తిన్ భజియించువారి కిడడే సంపద్విశేషోన్నతుల్.

II. క్రింది వానిలో <u>మూడింటికి</u> సందర్భసహిత వ్యాఖ్యలు వ్రాయండి: 3 × 4 = 12మా **L2**

1. వార్త నిర్వహింపవలయు బతికి.
2. నన్ను బనుపు దక్షు బట్టి తెచ్చెదన్.
3. పురుషార్థంబునకు హాని పుట్టక యున్నే?
4. గోవింద దర్శనోత్సాహి యగుచు.
5. ఉండు టిది న్యాయమె లతాంగీ !

III. క్రింది వానిలో <u>మూడింటికి</u> సంగ్రహరూప సమాధానాలు వ్రాయండి: 3 × 4 = 12మా **L1**

1. రాజు చేయకూడని పనుల్ని తెల్పండి?
2. ప్రమథులు దక్షుని బంధించిన తీరును తెల్పండి?
3. ధౌమ్యుని ఉపదేశానంతరం ఏమి జరిగింది?
4. అంతఃపురకాంతలు కుచేలుని గూర్చి భావించిన విషయాల్ని తెల్పండి?
5. త్రిజట తన స్వప్నాన్ని ఏమని వివరించెను?

IV. క్రింది వానిలో <u>మూడింటికి</u> వ్యాసరూప సమాధానాలు వ్రాయండి: 3 × 8 = 24మా **L1**

1. ప్రజాపాలనలో రాజులు పాటించాల్సిన ధర్మాలేవి?
2. 'దక్షయజ్ఞం' సారాంశాన్ని వ్రాయండి.
3. ధౌమ్యుడు పాండవులకు చేసిన ధర్మోపదేశాన్ని వివరించండి
4. 'మధురస్నేహం' పాఠ్య సారాంశాన్ని తెల్పండి?
5. సీతారావణ సంవాదాన్ని వివరించండి.

V. క్రింది వానిలో <u>మూడింటిని</u> విడదీసి, సంధి కార్యము వ్రాయండి: 3 × 2 = 6మా **L3**

1. శతైకవృద్ధి 2. జగమెల్ల 3. మనుజేంద్రుడు
4. కష్టాత్ముడు 5. ఇక్కోమలి

VI. క్రింది వానిలో <u>మూడింటికి</u> విగ్రహ వాక్యాలు వ్రాసి, సమాస నామములు తెల్పండి: 3×2=6మా **L3**

1. అష్టాంగాలు 2. అశ్రమము 3. భీమార్జునులు2
4. మధురస్నేహం 5. తోయజాక్షి

VII. క్రింది పద్య పాదాన్ని గణ విభజన చేసి, యతిని గుర్తించి, ఏ పద్యపాదమో తెల్పండి: 1×4=4మా **L3**

తన మృదుతల్పమందు వనితామణియైన రమాలలామ పొం

లేదా

క్రింది వానిలో <u>ఒకదానికి</u> లక్ష్య, లక్షణ సమన్వయం చేయండి. **L1**

1. తేటగీతి 2. ముత్యాలసరాలు 3. ఆటవెలది

VIII. క్రింది పద్యంలోని అలంకారమును గుర్తించి, లక్ష్య లక్షణ సమన్వయం చేయండి: 1×4=4మా **L3**

బాల సఖుడైన యప్పద్మ పత్రనేత్రు
గాన నేగి దరిద్రాంధకార మగ్ను
లయిన మము నుద్ధరింపుము హరి కృపాక
టాక్ష రవిదీప్తి వడసి మహాత్మ! నీవు.

లేదా

క్రింది వానిలో <u>ఒకదానికి</u> లక్ష్య, లక్షణ సమన్వయం చేయండి. **L1**

1. వృత్త్యాను ప్రాసము 2. లాటానుప్రాసము

P. B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE: VIJAYAWADA-10.
(An Autonomous college in the jurisdiction of Krishna University, Machilipatnam)

Semester II	Course Code	Course Title	Hours	Credits
BSC(MPCS/MECS/CAME/MSCS /CAMS/CSCS/BCA)	CSCP21B	Data Structures Lab	30	1

COURSE OUTCOME NO	Upon successful completion of this course, students should have the knowledge and skills to:	PROGRAM OUTCOME NO
CO1	implement stacks, queues using arrays and linked lists.	PO1, PSO1, PSO2, PSO4
CO2	Write program for conversion from infix to postfix.	PO1, PSO1, PSO2, PSO4
CO3	implement different sorting and searching techniques.	PO 7, PSO1, PSO2, PSO4
CO4	Construct binary trees and binary search trees.	PO 1, PSO1, PSO2, PSO4
CO5	implement binary tree and Graph traversals.	PO1, PO 7, PSO1, PSO2, PSO4

	CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Title of the Course: DATA STRUCTURES LAB	CO1					M	L	M
	CO2					L	M	L
	CO3					M	L	L
	CO4					L	M	L
	CO5					M	L	L

Lab Experiments List

Cycle - I

Week 1: Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array

- Add an element at the beginning of an array
- Insert an element at given index of array
- Update a element using a values and index
- Delete an existing element

Week 2: Write Program to implement the Stack operations using an array.

Week 3: Write a program using stacks to convert a given infix expression to postfix.

Week 4: Write a program for arithmetic expression evaluation.

Week 5: Write Program to implement the Stack operations using Linked List.

Week 6: Write Program to implement the Queue operations using an array.

Week 7: Write Program to implement the Queue operations using Liked List.

Week 8: Write Program to implement circular Queue operations using an array.

Cycle - II

Week 9: Write a program to implement de-queues.

Week 10: Write a program to implement single linked list.

Week 11: Write a program to implement double linked list.

Week 12: Write a program for Binary Search Tree Traversals.

Week 13: Write a program to search an item in a given list using the following Searching Algorithms

- Linear Search
- Binary Search.

Week 14: Write a program for implementation of the following Sorting Algorithms

- Bubble Sort
- Insertion Sort

- Merge sort

Week 15: Write a program for implementation of the following graph traversals.

- BFS
- DFS

@@@@

P. B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE: VIJAYAWADA-10.
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Semester-II	Course Code	Course Title	Hours	Credits
B.Sc. (CAMS / CAME / MSCS / CSCS / MPCS / MECS/), BCA	**CSCT21B**	**Data Structures**	**60**	**4**

Course Objectives

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

Course Outcomes:

Course Outcome No	Upon successful completion of the course, student will be able to:	Program Outcome No
CO1	Learn the concepts of ADT and understand analysis of algorithms	PO1, PSO1, PSO2, PSO4
CO2	Understand available Data Structures for data storage and processing.	PO1, PSO1, PSO2, PSO4
CO3	Learn stacks, queues and their applications	PO1, PSO1, PSO2, PSO4
CO4	Understand trees, graphs and implement their operations	PO1, PO7, PSO1, PSO2, PSO4
CO5	Develop ability to implement different Sorting and Search methods	PO1, PO7, PSO1, PSO2, PSO4

	CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Title of the Course: DATA STRUCTURES	CO1						M	H
	CO2						H	L
	CO3						M	H
	CO4						H	L
	CO5						L	M

UNIT – I: **11Periods**

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages.

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O'

Notation, Algorithm Analysis, Recursion.

UNIT – II: **11Periods**

Linked Lists: Introduction to Lists and Linked Lists, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III: **14Periods**

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues

UNIT – IV: **10Periods**

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of nodes in Binary Trees, Applications of Binary Tree

UNIT – V: **14Periods**

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BOOKS:

- "Data Structures using C", ISRD group Second Edition,TMH
- Data Structures through C", YashavantKanetkar, BPBPublications
- "Data Structures Using C" Balagurusamy E.TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual andchallenging)
2. Student seminars (on topics of the syllabus and related aspects (individualactivity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups asteams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion

2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

P. B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE: VIJAYAWADA-10.
(An Autonomous college in the jurisdiction of Krishna University, Machilipatnam)
MODEL Question Paper: 2020-2021

TITLE: DATA STRUCTURES **COURSE CODE:CSCT21B**

SECTIONS: B.Sc. (CAMS / CAME / MSCS / CSCS / MPCS / MECS /BCA) **SEMESTER: II**

TIME: 3 Hrs. **MAX: 75M**

SECTION –A

ANSWER ANY FIVE QUESTIONS **5 X 5 =25 M.**

1. What is an ADT? Explain with an example. **{CO_1, L2}**
2. Explain about algorithm analysis. **{CO1, L2}**
3. Distinguish between linked lists and arrays. **{CO2, L2}**
4. Evaluate the postfix expression **2 3 1 * + 9 -. {CO3, L5}**
5. Explain about min and max priority queues**. {CO3, L2}**
6. Construct binary tree from the following in order and pre order traversals
   In order: D B E A F C

   Pre order: A B D E C F {**CO4, L3}**
7. Explain various representations of graphs with your own example. **{CO5, L2}**
8. Develop a C program for linear search. **{CO5, L3}**

SECTION – B

ANSWER ALL THE QUESTIONS **5 X 10 =50 M.**

9 A) Explain about Data structure, structured type and atomic type. **{CO1, L2}**

(Or)

B) Explain about Time Complexity and Space Complexity. **{CO1, L2}**

10 A) Explain about inserting and deleting a node in double linked list.**{CO2, L2}**

(Or)

B) Explain about insertion in atomic node linked list. **{CO2, L2}**

11A) Develop a C program for stack's using arrays. **{CO3, L3}**

(Or)

B) Develop a C program for circular queues. **{CO3, L3}**

12 A) Explain about binary tree traversals with an example. **{CO4, L2}**

(Or)

B) Demonstrate with an example deleting a node in a binary search tree. **{CO4, L2}**

13 A) Illustrate Merge sort with an example and write code for it. **{CO5, L2}**

(Or)

B) Illustrate Depth First search with an example. **{CO5, L2}**

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P.B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE

Siddhartha Nagar, Vijayawada – 520 010

Autonomous - ISO 9001 – 2015 Certified

Title of the Paper : DIGITAL ELECTRONICS

Offered to : B.SC(M.ECs, CA.M.E) –ELET21C

Course Type : Core (TH)

Year of Introduction: 2021-22 **Year of Revision:** **Percentage of Revision:**

Semester : II **Credits : 4**

Hours Taught : 60 hrs. per Semester **Max. Time** : 3 Hours

Course Prerequisites (if any) :

Course Objectives:

1.To understand the number systems, Binary codes and Complements.
2. To understand the Boolean algebra and simplification of Boolean expressions.
3. To analyze logic processes and implement logical operations using combinational logic circuits.
4.To understand the concepts of sequential circuits and to analyze sequential systems in terms of state machines
5. To understands characteristics of memory and their classification.
6. To implement combinational and sequential circuits using VHDL.

Course Outcomes : At the end of this course, students should be able to:

CO1 : Remember the binary number theory of digital circuits
CO2 : Understand the concepts of Boolean algebra and have knowledge to analyze and design combinational systems using standard gates and minimization methods (such as karnaugh maps).
CO3 : Apply design various logical inputs of different IC- logic families
CO4 : Analyze design flip-flops and latches for sequential systems composed of standard sequential modules, such as counters and registers
CO5 : Evaluate combinational systems composed of standard combinational modules, such as multiplexers and decoders and understand various data manipulation circuits

	P01	P02	P03	P04	P05	PO6	P07
C01					H		
CO2				L			
CO3						M	
CO4					H		
CO5						L	

Syllabus

Course Details:

UNIT-1 (10hrs)

NUMBER SYSTEM AND CODES:

Decimal, Binary, Hexadecimal, Octal, BCD, Conversions, Compliments (1's, 2's, 9's and 10's), Addition, Subtraction, Gray, Excess-3 Code, Code conversion from one to another.

Unit – II (12hrs)

BOOLEAN ALGEBRA AND THEOREMS:

Boolean Theorems, De-Morgan's laws, Digital logic gates, Multi level NAND & NOR gates. Standard representation of logic functions (SOP and POS), Minimization Techniques (Karnaugh Map Method: 3,4, 5 variables),don't care condition.

Unit – III (12hrs)

COMBINATIONAL DIGITAL CIRCUITS:

(Adders-Half & full adder, Sub-tractor-Half and full sub-tractors, Parallel binary adder, Magnitude Comparator, Multiplexers (2:1,4:1)) and De-multiplexers (1:2,4:1), Encoder (8-line-to-3-line) and Decoder (3-line-to-8-line).

IC-LOGIC FAMILIES**:** TTL logic, DTL logic, RTL Logic, CMOS Logic families (NAND&NOR Gates), Bi-CMOS inverter.

Unit – IV (12hrs)

Sequential digital circuits:

Flip Flops: S-R FF, J-K FF, T and D type FFs, Master-Slave FFs, Excitation tables, Registers:-shift left register, shift right register, Counters -Asynchronous-Mod16, Mod-10,Mod-8,Down counter, Synchronous 4-bit counter

Unit – V (10hrs)

MEMORIES:

General Memory Operations, ROM, RAM (Static and Dynamic), PROM, EPROM, EEPROM, EAROM, PLA (Programmable logic Array), PAL (Programmable Array Logic).

Textbook:

1. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.
2. Ronald J. Tocci. "Digital Systems-Principles and Applications" 6/e. PHI. New Delhi. 1999.(UNITS I to IV)
3. G.K.Kharate-Digital electronics-oxford university press
4. S.Salivahana&S.Arivazhagan-Digital circuits and design
5. Fundamentals of Digital Circuits by Anand Kumar

Reference Books:

1. Herbert Taub and Donald Schilling. "Digital Integrated Electronics" . McGraw Hill. 1985.
2. S.K. Bose. "Digital Systems". 2/e. New Age International. 1992.
3. D.K. Anvekar and B.S. Sonade. "Electronic Data Converters : Fundamentals & Applications". TMH. 1994.
4. Malvino and Leach. " Digital Principles and Applications". TMG Hill Edition.

Course Delivery method: Face-to-face / Blended

Course has focus on: **F**oundation and **S**kill Development

Websites of Interest: https://www.javatpoint.com/, https://www.geeksforgeeks.org/

Co-curricular Activities: Assignments, PPT's, Mini projects.

P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE, VIJAYAWADA – 10

Model Question Paper

TITLE: DIGITAL ELECTRONICS

Course Code: ELET21C **Maximum Marks: 70M**

Time: 3 Hours **Pass Minimum: 28M**

SECTION – A

Answer the following: **5 x 4 = 20 M**

1. a) Discuss briefly about 9's compliment method**.(co1)-(L1)-4M**

(or)

b) Perform BCD addition for $(1010)_2$ and $(1111)_2$. **(co1)-(L1)-4M**

2.a)Simplify the Boolean expression if Y=A+AB.-(co2)-(**L2)-4M**

(or)

b) Write about SOP and POS in brief. .-(co2)-(**L2)-4M**

3. a) Explain about Bi-MOS inverter.- **(co3)-(L1)-4M**

(or)

b)Discuss about RTL not gates **co3)-(L1)-4M**

4. a) Explain the working of Shift register**.-(co4)- (L1)-4M**

(or)

b) Discuss about T-Flip-flop in brief. **-(co4)- (L1)-4M**

5.a)Difference between SRAM and DRAM. (**co5)**-(**L1)**-4M

(or)

b) Explain about a) PROM b)EPROM -(**co5)**-(**L1)**4M

SECTION-B

Answer the following 5X10=50M

6. (a)Explain about rules of 1's compliment and 2's compliment method.-(**co1)-(L1)-10M**

(or)

b) Convert the following grey code to binary vice-versssa.

(1)11101 (2)100110—(**co1)-(L1)-10M**

7.a)Simplify the following functions in sum of products using K-map and draw their implementation.

(i)F (A, B, C, D) =∑ (7, 13, 14, 15)

(ii)F(W,X,Y,Z)=∑(1,3,7,11,15)+d∑(0,2,5) **-(c02)-(L3)-10M**

b) Explain briefly about canonical and standard form of Boolean algebra.**–(c02)-(L3) -10M**

8. a)Define the following terms (i) Half adder (ii) Full adder (iii) Decoder. Explain the design procedure of Full subtractor (c03)-**(L2)** -10M

(or)

b) Discuss about the construction and working of TTL NAND gate and Characteristics.(**co3)-(L2)-10M**

9. a) Explain the difference between combinational and sequential logic circuits. & Explain the operation of JK-Flip-flop and draw the timing diagram.(**co4)-(L3)-10M.**

(or)

b))Define counter and Explain briefly about ripple counter.**(co4)–(L3)-10M**

10.a) Discuss briefly about Programmable logic array(PLA)(**co5)-(L2)-10M**

(or)

b) Explain briefly about Semi conductor memories.-**(co5)-(L2)**

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Signature of the Course In-charge

Signature of the Program me In-charge Signature of the HOD

Note: Kindly see that total document is in A4 paper size - Font – Times new roman – size 12

ParvathaneniBrahmayya Siddhartha College of Arts & Science, Vijayawada-10
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Reaccredited at the level 'A+' by the NAAC
College with Potential for Excellence
(Awarded by UGC)
DEPARTMENT OF ENGLISH
GENERAL ENGLISH SYLLABUS FOR B.A/ B.COM/B.SC COURSES UNDER CBCS
SEMESTER-II

COURSE CODE: ENGT21B **Max. Marks: 100**
No. of Hours per Week: 4 **External: 75M**
No. of Credits: 3 **Internal: 25M**

English Praxis Course-II

A Course in Reading & Writing Skills

I. UNIT

Prose: 1. How to Avoid Foolish Opinions	Bertrand Russell	12
Skills: 2. Vocabulary: Conversion of Words		
: 3. One Word Substitutes		
: 4. Collocations		

II. UNIT

Prose: 1. The Doll's House	Katherine Mansfield	
Poetry: 2. Ode to the West Wind	P B Shelley	
Non-Detailed Tex: 3. Florence Nightingale	Abrar Mohsin	12
Skill: 4. Skimming and Scanning		

III. UNIT

Prose: 1. The Night Train at Deoli	Ruskin Bond	
Poetry: 2. Upagupta	Rabindranath Tagore	12
Skill: 3. Reading Comprehension		
: 4. Note Making/Taking		

IV. UNIT

Poetry: 1. Coromandel Fishers	Sarojini Naidu	12
Skill: 2. Expansion of Ideas		
: 3. Notices, Agendas and Minutes		

V.UNIT

Non-Detailed Text : 1. An Astrologer's Day	R K Narayan	12

Skills: 2. Curriculum Vitae and Resume
Total: 60 hrs.
: 3. Letters
: 4. E-Correspondence

DEPARTMENT OF ENGLISH

GENERAL ENGLISH SYLLABUS FOR B.A/ B.COM/B.SC COURSES UNDER CBCS

SEMESTER-II

COURSE CODE: ENGT21B **Max. Marks: 100**

No. of Hours per Week: 4 **External: 75M**

No. of Credits: 3 **Internal: 25M**

Course Structure and Syllabi under CBCS

Sl No.	Semester	Course Code	Name Of The Subject	Teaching Hours	Credits
1	**II Semester**	**ENGT21B**	**English praxis -II**	4	3

OBJECTIVE: The main objective of this course is to facilitate the learners to acquire the linguistic competence essentially required in a variety of life situations and develop their intellectual, personal and professional abilities.

COURSE OUT COMES:

At the end of the course the learners will be able to:

CO 1. Acquaint the learner with some widely used words which appeal to be similar but are semantically different and also help them to realize the importance of meanings, and understand the grammatical structures in writing. **PO7**

CO 2. Speak clearly, effectively and appropriately with correct pronunciation, pause and articulation of voice for a variety of audiences and purposes. **PO2**

CO 3. Analyze, interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose, and form. **PO1**

CO 4. Think critically; convey their own interpretations, perspectives, producing new creative and artistic works following grammatical structures in oral and written assignment. **PO7**

CO 5. Write effectively for a variety of professional and social settings adapting other writer's ideas as they explore and develop their own. **PO3**

CO-PO MATRIX- ENG T21B							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M						
CO2			M				
CO3		H					
CO4							H
CO5							H

PARVATHANENIBRAHMAIAH SIDDHARTHA COLLEGE OF ARTS AND SCIENCE; VIJAYAWADA-10

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SEMESTER- II **PAPER - II**

TITLE OF THE PAPER: HINDI-II

NO OF HOURS: 60 **CREDITS: 03**

WEF: 2021-22 **COURSE CODE: HINT21A**

COURSE OUTCOMES:

1.मानव मूल्यों से विद्यार्थी अवगत होंगे तथा इस दिशा में आगे बढ़ेंगे।

2.आधुनिक युग की भावनाओं को पहचानकर,निरंतर सामाजिक समस्याओं का सामना करते हुए,आगे बढ़ेंगे।

3.विषय के विश्लेषण से सामाजिक दायित्व को निभाने में अग्रसर होंगे।

4.ग्रहण किये गये पाठ्यांशों के द्वारा विद्यार्थियों का ज्ञान मापन बढ़ेगा तथा अपने क्षेत्र में भी आगे होंगे

5.भाषा की प्रवीणता और प्रयोग से विद्यार्थी उज्वल भविष्य की ओर बढ़ेंगे।

PARVATHANENIBRAHMAIAH SIDDHARTHA COLLEGE OF ARTS AND SCIENCE; VIJAYAWADA-10

(An autonomous college in the jurisdiction of Krishna University)

SEMESTER- II **PAPER - II**

TITLE OF THE PAPER: HINDI-II

NO OF HOURS: 60 **CREDITS: 03**

WEF: 2021-22 **COURSE CODE: HINT21A**

SYLLABUS:

I.गध्य संदेश:

1. संस्कृति औरसाहित्य का परस्पर संबंध
2. भारत एक है
3. एच.आई.वी. / एड्स

II. कथा लोक

1. ज़रिया
2. भूख हड़ताल
3. परमात्मा का कुत्ता

III.कार्यालयीन हिन्दी शब्दावली

(हिन्दी से अंग्रेजी में बदलना तथा अंग्रेजी से हिन्दी में बदलना)

IV. **व्याकरण:** संधि विच्छेद ,वाक्य प्रयोग

V.**पत्र लेखन:** आवेदन पत्र,पुस्तक विक्रेता के नाम पत्र

Recommended Books:

1. गध्य संदेश- Dr. V. L.Narasimham Siva Koti

2. कथा लोक- Dr. Ghana Shyam

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS &SCIENCE :: VIJAYAWADA-520 010.

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II SEMESTER Model Question Paper

Course Code: HINT21A **Max. Marks: 70M**

Time: 3 Hrs. **Pass Min. : 30M**

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SECTION-I

निम्नलिखित प्रश्नों का उत्तर लिखिए।

4×5=20

1. (a) भारत की मध्यकालीन संस्कृति कैसी रही है? L1

(अथवा)

(b) विविधता के भीतर भारत की एकता कैसे समायी हुई है? स्पष्ट कीजिए। L1

2. (c) एच.आई.वी./ एड्स के लक्षणों पर प्रकाश डालिए। L2

(अथवा)

(d) "अधेड आदमी" चरित्र चित्रण कीजिए। L2

3. (e) "ज़रिया" कहानी का उद्धेश्य क्या है? L2

(अथवा)

(f) "भूख हड़ताल" की विशेषताएँ क्या-क्या हैं? L2

4. (g) अनुवाद किसे कहते हैं ?L1

(अथवा)

(h) संधि किसे कहते हैं तथा उसके कितने प्रकार के हैं ?L1

SECTION-II

1×10=10

1. (a) एच.आई.वी./ एड्स के इतिहास पर प्रकाश डालिए।L2

(अथवा)

(b) 'भारत एक है' पाठ का सारांश लिखिए। L2

SECTION-III **1×10=10**

6. (a) "ज़रिया" कहानी का सारांश लिखिए। L2

(अथवा)

(b) "भूख हड़ताल" कहानी का सारांश लिखिए। L2

SECTION-IV

7.(a) **किन्हीं दस शब्दों को अंग्रेजी से हिंदी मेंअनुवाद कीजिए। L1**

10×1=10

1.Camp Office 2.Embassy 3.Muncipal Corporation 4.Governor 5.Applicant
6.Charge 7.Absence 8.Supervisor 9.Court 10. Building division 11.District board 12.Cash section 13. Branch office 14.Complaint office
15.Enquiry office

(अथवा)

(b) **किन्हीं दस शब्दों को हिंदी से अंग्रेजी में अनुवाद कीजिए।L1**

1.प्रशासनअधिकारी 2.विज्ञापन 3.लेखा परीक्षक 4.प्राचार्य 5.स्वीकार करना
6.अतिथि गृह 7.प्रयोगशाला 8.हृदय-रोग विभाग 9.जिला बोर्ड 10.कलक्टरी
11.सिविल न्यायालय 12.वन विभाग 13.प्रसारण केन्द्र 14.बजट अनुभाग
15.अस्पताल

8.(a) **किन्हीं पाँच शब्दों का संधि विच्छेद कीजिए।L3**

5×2=10

1.रामावतार 2.परमौषध 3.यद्यपि 4.गायक
5.उन्नति 6.प्रत्येक 7.यशोधरा 8.निराशा

(अथवा)

(b) **किन्हीं पाँच शब्दों को वाक्यों में प्रयोग कीजिए। L3**

1.विरासत 2.अज्ञानांधकार 3.इकट्ठा करना 4.बसर करना
5.दुर्भिक्ष 6.पथ प्रदर्शक 7.हवन 8.चिरस्थाई

SECTION-V

1×10=10

9. (a) अनुवादक की नौकरी के लिए प्रबन्धक के नाम पत्र लिखिए। L3

(अथवा)

(b) किसी पुस्तक विक्रेता के नाम पत्र लिखिए। L3

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TELUGU	TELT21A	2020-'21	B.A., B.Com., B.B.A., B.B.A.-Ana, B.Com.-CA, B.C.A., & B.Sc.,

SEMESTER–II **Credits – 3**

TELUGU-II

ఆధునిక తెలుగు సాహిత్యం

యూనిట్ల సంఖ్య: 5

కోర్స్ అవుట్ కమ్స్:

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ఆంగ్ల భాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని, దాని విశిష్టతలను గుర్తిస్తారు.
2. సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన "వచన కవిత్వం, కథ, నవల, నాటకం" విమర్శలపై అవగాహన పొందుతారు.
3. భావకవిత, అభ్యుదయ కవిత్వాల లక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు. ఇంకా అస్తిత్వవాదం, ఉద్యమాల పుట్టుకను, ఆవశ్యకతను గుర్తిస్తారు.
4. కథా సాహిత్యం ద్వారా సామాజిక చైతన్యాన్ని పొందుతారు. సిద్ధాంతాల ద్వారా కాకుండా, వాస్తవ పరిస్థితులను తెలుసుకోవడం ద్వారా సిద్ధాంతాన్ని సమీక్షించుకోగలరు.
5. ఆధునిక తెలుగు కల్పనా సాహిత్యం ద్వారా సామాజిక, సాంస్కృతిక, రాజకీయ చైతన్యాన్ని పొందుతారు.

లెర్నింగ్ ఆబ్జెక్టివ్స్:

1. ఆధునిక భాషా సాహిత్యము నందలి ప్రక్రియల పట్ల ప్రీతి, మమకారం, ఆసక్తి కల్గుతుంది.
2. ఆధునిక కవిత్వము పట్ల అవగాహన పద్ధతులు, ప్రసిద్ధులైన కవుల, రచయితల రచనా శైలి తెలుస్తాయి.
3. ఆధునిక సాహిత్య ప్రక్రియలైన కథ, నవల, నాటకం, విమర్శ మొదలగు సాహిత్య ప్రక్రియలలో రచనా మెలకువలు తెలుసుకోవటం జరుగుతుంది.
4. ఆధునిక సాహిత్యంలోని వివిధ కొత్త పదబంధాలు, శబ్ద ప్రయోగవైచిత్రి, భాషా పరిజ్ఞానాన్ని తెలుసుకుంటారు.
5. కాలానుగుణంగా సాహిత్యం తన స్వరూపాన్ని ఏవిధముగా మార్చుకుంటుందో విద్యార్థులు క్షుణ్ణంగా పరిశీలించే అవకాశం కల్గుతుంది.

Contd...

TELUGU	TELT21A	2020-'21	B.A., B.Com., B.B.A., B.B.A.-Ana, B.Com.-CA, B.C.A., & B.Sc.,

TELUGU-II

పాఠ్యప్రణాళిక

యూనిట్-I

1. ఆధునిక కవిత్వం - పరిచయం
2. కన్యక - గురజాడ వేంకట అప్పారావు
3. కొండవీడు - దువ్వూరి రామిరెడ్డి (కవి కోకిల గ్రంథావళి - ఖండ కావ్యాలు - నక్షత్రాల సంపుటి నుండి)
4. మాతృ సంగీతం - అనిసెట్టి సుబ్బారావు (అగ్ని వీణ కవితాసంపుటి నుండి)

యూనిట్-II

5. తెలుగు కథానిక - పరిచయం
6. భయం / కథ / - కాళీ పట్నం రామారావు
7. స్వేదం ఖరీదు ?/ కథ / - రెంటాల నాగేశ్వరరావు

యూనిట్-III

8. తెలుగు 'నవల' - పరిచయం
9. రథచక్రాలు / నవల / - మహీధర రామ్మోహనరావు (సంక్షిప్త ఇతివృత్తం మాత్రమే)
10. రథ చక్రాలు / సమీక్షా వ్యాసం / - డా. యల్లాప్రగడ మల్లికార్జునరావు

యూనిట్-IV

11. తెలుగు నాటకం - పరిచయం
12. యక్షగానము / నాటకము / నాటిక / - ఎం.వి.ఎస్. హరనాథరావు
13. అపురూప కళారూపల విధ్వంస దృశ్యం 'యక్షగానము'/ సమీక్షావ్యాసం - డా.కందిమళ్ళ సాంబశివరావు

యూనిట్-V

14. తెలుగు సాహిత్య విమర్శ - పరిచయం
15. విమర్శ - స్వరూప స్వభావాలు, ఉత్తమ విమర్శకుడు - లక్షణాలు.

ఆకార గ్రంథాలు / వ్యాసాలు:

1. ఆధునిక కవిత్వం - పరిచయం - ప్రొ.ఎస్వీ. సత్యనారాయణ
2. తెలుగు కథానిక - పరిచయం - ప్రొ. రాచపాళెం చంద్రశేఖర రెడ్డి
3. తెలుగు నవల - పరిచయం - వల్లంపాటి వెంకట సుబ్బయ్య
4. సాంఘిక నవల - కథన శిల్పం - ప్రొ. సి. మృణాళిని
5. తెలుగు నాటకం - పరిచయం - ప్రొ.ఎస్.గంగప్ప
6. తెలుగు సాహిత్య విమర్శ - పరిచయం - ప్రొ. జి.వి. సుబ్రహ్మణ్యం
7. నూరేళ్ల తెలుగు నాటక రంగం - ప్రొ. మొదలి నాగభూషణ శర్మ
8. నాటక శిల్పం - ప్రొ. మొదలి నాగభూషణ శర్మ

Contd...

TELUGU	TELT21A	2020-'21	B.A., B.Com., B.B.A., B.B.A.-Ana, B.Com.-CA, B.C.A., & B.Sc.,

ప్రశ్నపత్ర నిర్మాణ సూచిక: **TELUGU-II**

1. సంక్షిప్తరూప ప్రశ్నలు : 5 × 5 = 25మా

ప్రతి యూనిట్ నుండి తప్పనిసరిగా ఒక ప్రశ్న ఇచ్చి, మొత్తం మీద ఎనిమిది ప్రశ్నలు ఇవ్వాలి. అందులో ఐదింటికి సమాధానాలు వ్రాయమనాలి.

2. వ్యాసరూప ప్రశ్నలు : 5 × 10 = 50మా

ప్రతి యూనిట్ నుండి తప్పనిసరిగా ఒక ప్రశ్న ఇచ్చి, మొత్తం మీద ఎనిమిది ప్రశ్నలు ఇవ్వాలి. అందులో ఐదింటికి సమాధానాలు వ్రాయమనాలి.

మొత్తం = 75మా

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE :: VIJAYAWADA-520 010.

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SEMESTER-END EXAMINATIONS, APRIL-2021

నమూనా ప్రశ్నపత్రం

Course Code: TEL T21A (Telugu-II) **Max. Marks: 75M**

Time: 3 Hrs. **Pass Min. : 30M**

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SECTION - A

I. క్రింది వానిలో ఐదింటికి సంగ్రహ రూప సమాధానాలు వ్రాయండి: 5 × 5 = 25మా

1. 'కొండవీడు' - శ్రీ దువ్వూరి.
2. తెలుగు కథానికను పరిచయం చేయండి.
3. 'కన్యక' ఖండికను వివరించండి.
4. తెలుగు నాటక సాహిత్యాన్ని తెల్పండి.
5. ఉత్తమ విమర్శకుని లక్షణాలు.
6. ఆధునిక కవిత్వం - పరిచయం.
7. కాళీ పట్నం రామారావు.
8. అనిసెట్టి సుబ్బారావు.

SECTION - B

II. క్రింది వానిలో ఐదింటికి వ్యాసరూప సమాధానాలు వ్రాయండి: 5 × 10 = 50మా

9. శ్రీ దువ్వూరి 'కొండవీడు' ఖండికలో ఇచ్చిన సందేశాన్ని తెల్పండి.
10. 'భయం' కథలోని రచయిత అభిప్రాయాన్ని వివరించండి.
11. 'రథ చక్రాలు' నవల్లోని ఇతివృత్తాన్ని విశ్లేషించండి.
12. యక్షగానాన్ని సమీక్షించండి.
13. విమర్శ స్వరూప స్వభావాల్ని వివరించండి.
14. ఆధునిక కవిత్వ ఆవిర్భావ వికాసాన్ని తెల్పండి.
15. తెలుగు సాహిత్య విమర్శను వివరింపుము.
16. సాహిత్య ప్రక్రియగా 'నవల' స్థానాన్ని విమర్శించండి.

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P.B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Siddhartha Nagar, Vijayawada – 520 010
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DATABASE MANAGEMENT SYSTEMS LAB

Offered to: B.Sc. (MPCS,MECS,CAME,MSCS,CAMS) **Course Code: CSCP33A**	
Course Type: Core (Practical)	**Course:** Database Management Systems Lab
Year of Introduction: 2017 – 2018	**Year of offering:** 2021
Year of Revision: 2021 **Semester**: III	**Percentage of Revision:** 10% **Credits: 1**
Hours Taught: 30 hrs. Per Semester **Max.Time**: 3 Hours	

Course Prerequisites (if any):
Knowledge in databases, SQL queries.

Course Description:
This course is designed to facilitate students to improve their practical skills in handling databases.

Course Objectives:
The main aim of this course is to enable students to experience database operations practically and develop logic in PL/SQL.

Course Outcomes: At the end of this course, students should be:
CO1: Able to implement basic relationships.(PO5, PO7)
CO2: Able to implement various SQL queries.(PO5, PO7)
CO3: Able to use no of constraints on data.(PO5, PO7)
CO4: Able to use different types of joins.(PO5, PO7)
CO5: Able to design PL/SQL programs(PO5, PO7)

LAB LIST

1. Order Tracking Database

The Order Tracking Database consists of the following defined six relation schemas. Employees(eno,ename,zip,hdate)
Parts(pno,pname,qoh,price,level) (hint: qoh: quality on hand)
Customers(cno,cname,street,zip,phone)
Orders(ono,cno,eno,received date,shipped date)
Odetails(ono,pno,qty)
Zipcodes(zip,city)

Solve the following queries

1. Get all pairs of customer numbers for customers based on same zip code. 2. Get part numbers for parts that have been ordered by at least two different customers. 3. For each odetail row, get ono, pno, pname,qty and price values along with the total price for the item. (total price=price*qty)
4. Get customer name and employee pairs such that the customer with name has placed an order through the employee
5. Get customer names living in Fort Dodge or liberal.
6. Get cname values of customers who have ordered a product with pno 10506. 7. Get pname values of parts with the lowest price.
8. Get cname values of customers who have placed at least one order through the employee with number 1000.
9. Get the cities in which customers or employees are located.
10. Get the total sales in dollars on all orders.
11. Get part name values that cost more than the average cost of all parts.
12. Get part names of parts ordered by at least two different Customers.
13. Get for each part get pno, pname and total sales
14. For each part, get pno, pname, total sales, whose total sales exceeds 1000
15. Get pno, part names of parts ordered by at least two different customers.
16. Get cname values of customers who have ordered parts from any one employee based in Wichita or liberal.

1. Shipment database

An enterprise wishes to maintain the details about his suppliers and other corresponding details. For that it uses the following tables

Table s(sid,sname,address)
primary key : sid
Table p(pid,pname,color)
primary key : pid
Table cat(sid,pid,cost)
primary key : sid+pid
reference key : sid references s.sid
pid references p.pid

Solve the following queries

1. Find the pnames of parts for which there is some supplier
2. Find the snames of suppliers who supply every part.
3. Find the snames of suppliers who suppy every red part.
4. Find the pnames of parts supllied by london supplier and by no one else
5. Find the sids of suppliers who charge more for some part other than the average cost of that part
6. Using group by with having clause get the part numbers for all the parts supplied by more than one supplier.
7. Get the names of the suppliers, who do not supply part p2.
8. Find the sids of suppliers who supply a red and a green part
9. Find the sids of suppliers who supply a red or a green part

10.find the total amount has to pay for that supplier by part located from London

3.Employee database

AN ENTERPRISE WISHES TO MAINTAIN A DATABASE TO AUTOMATE ITS OPERATIONS. ENTERPRISE DIVIDED INTO TO CERTAIN DEPARTMENTS AND EACH DEPARTMENT CONSISTS OF EMPLOYEES. THE FOLLOWING TWO TABLES DESCRIBES THE AUTOMATION SCHEMAS

Dept (deptno, dname, loc)

Emp (empno,ename,job,mgr,hiredate,sal,comm,deptno)

1. Create a view, which contain employee names and their manager names working in sales department.
2. Determine the names of employee, who earn more than their managers. 3. Determine the names of employees, who take highest salary in their departments. 4. Determine the employees, who located at the same place.
5. Determine the employees, whose total salary is like the minimum salary 6. of any department.
7. Update the employee salary by 25%, whose experience is greater than 10 years. 8. Delete the employees, who completed 32 years of service.
9. Determine the minimum salary of an employee and his details, who join on the same date.
10. Determine the count of employees, who are taking commission and not taking Commission.
11. Determine the department does not contain any employees.
12. Find out the details of top 5 earner of company.
13. Display those managers name whose salary is more than average salary of his employees.
14. Display those employees who joined the company before 15th of the month? 15. Display the manager who is having maximum number of employees working under him?
16. Print a list of employees displaying „less salary“ if less than 1500 if exactly 1500 display as „exact salary“ and if greater than 1500 display „more salary“?
17. Display those employees whose first 2 characters from hire date-last 2 characters of salary?
18. Display those employees whose 10% of salary is equal to the year of joining? 19. In which year did most people join the company? Display the year and number of employees.
20. Display the half of the enames in upper case and remaining lower case
21. Display ename, dname even if there no employees working in a particular department(use outer join).

4. Pl/sql programs

1. Write a pl/sql program to check the given number is strong or not.
2. Write a pl/sql program to check the given string is palindrome or not.

3. Write a pl/sql program to swap two numbers without using third variable.

4. Write a pl/sql program to generate multiplication tables for 2,4,6.

5. Write a pl/sql program to display sum of even numbers and sum of odd numbers in the given range.

6. Write a pl/sql program to check the given number is palindrome or not.

7. write a pl/sql procedure to prepare an electricity bill by using

following table table used: elect

name null? Type
mno not null number(3)
cname varchar2(20)
cur_read number(5)
prev_read number(5)
no_units number(5)
amount number(8,2)
ser_tax number(8,2)
net_amt number(9,2)

8. Write a procedure to update the salary of employee, who belongs to certain department with a certain percentage of raise.

9. Write a PL/SQL program to fire triggers on insert, update anddelete commands. @@@@

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DATABASE MANAGEMENT SYSTEMS

Offered to: B.Sc. (Computer Science ALL SECTIONS) /BCA Course Code: CSCT34B / CSCT37	
Course Type: Core (Theory)	**Course:** Database Management Systems
Year of Introduction: 2017 – 2018	**Year of offering:** 2021
Year of Revision: 2021	**Percentage of Revision:** 10%
Semester: III **Credits: 4**	
Hours Taught: 60 hrs. Per Semester	**Max.Time**: 3 Hours

Course Prerequisites (if any): Basic knowledge in computers andprogramming.

Course Description:

This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:
1. To understand data, database, DBMS and its components and architecture.
2. To understand building blocks of ER model and EER model and their properties.
3. To understand CODD Rules, relational model, relational calculus, relational algebra and normalization.
4. To understand SQL commands and implement the queries on tables.
5. To understand PL/SQL operations.

Course Outcomes: At the end of this course, students should be able to:

CO1: Gain the Knowledge on Database, DBMS and analyse the difference between file-based system and DBMS. (PO5, PO7)
CO2: Model Database using ER and EER diagrams and design database schemas based on that model. (PO5, PO7)
CO3: Understanding the fundamental concepts of DBMS with Special emphasis on Relational Model, understanding Normalization and applying it to normalization of database. (PO5, PO7)
CO4: Create a small database using SQL COMMANDS, store and Retrieve data from the database. (PO5, PO7).
CO5: Understanding PL/SQL and various operations in PL/SQL (PO5, PO7).

Syllabus

Unit	Learning Units	Lecture Hours
I	**Overview of Database Management Systems:** Introduction to Data, information, data vs. information –database and DBMS Role and advantages of DBMS – types of databases –problems with file system data management - -Database systems-components of Database system- DBMS functions **Data Models:** The importance of Data models – Data model basic building blocks – Business Rules- The evolution of Data Models-Degrees of data abstraction	12
II	**Entity-Relationship Modeling:** The Entity Relationship Model – entities – attributes –relationships – connectivity and cardinality –relationship degree - Developing an ER diagram – **The Extended Entity Relationship Model** Entity Super types and Subtypes- Specialization and Generalization -entity integrity - selecting primary keys - Natural Keys and Primary Keys - Primary Key Guidelines - When to Use Composite Primary Keys -	12
III	**The Relational Database Model:** A logical view of data- Tables and their characteristics – keys – Integrity rules – Relational Set operators – Codd‟s Relational database rules **Normalization of database tables:** The need for normalization – The normalization process – converting to first normal form – conversion to second normal form – conversion to third normal form – higher level normal forms -	12
IV	**Structured Query Language:** Introduction to Sql-Data Definition Commands – Data Types - Creating Table Structures - SQL Constraints - advanced data definition commands - alter – drop **Data Manipulation Language:** Adding Table Rows Saving Table Changes - Updating Table Rows - Restoring Table Contents - Deleting Table Rows **Select Queries:** Selecting Rows with Conditional Restrictions – operators - advanced select queries – virtual tables – joining database tables – sub queries – SQL functions	12
V	**PL/SQL:** Introduction- -Structure of PL/SQL-PL/SQL Language Elements-Data Types Control Structures- Iterative Control- Procedures – Functions - Database Triggers**:** Types of Triggers	12

PrescribedTextBooks			
	Author	**Title**	**Publisher**
1	Carlos Coronel, Steven Morris,Peter Rob	Database Principles fundamentals of design, implementation and management	Cengage Learning

2	Steven Feuerstein	Oracle PL./SQL programming	OREILLY

ReferenceTextBook			
	Author	**Title**	**Publisher**
1	Raghu Ramakrishnan	Database Management Systems	McGrawhill
2	J. D. Ullman	Principles of Database Systems	Pearson prentice hall
3	Abraham Silberschatz, Henry Korth, and S. Sudarshan	Database System Concepts	McGraw hill
4	R. Elmasri and S. Navathe	Fundamentals of Database Systems	Pearson

Course Delivery method: Face-to-face / Blended

Course has focus on: Skill Development, Employability

Websites of Interest:

www.tutorialspoint.com/plsql
www.javatpoint.com/pl-sql-tutorial

Co-curricular Activities: Programming Contests, Hackathons & Quiz.

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DATABASE MANAGEMENT SYSTEMS

MODEL QUESTION PAPER FOR SEM END

EXAMINATION CLASS: B.Sc.(Computer Science)/ BCA

Course Code: CSCT34B / CSCT37 **Max. Marks: 75M**

Semester: III **Time: 3 Hours**

SECTION - A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. What are the differences between data and information.(CO1, L1)
2. Write a short note on evolution of data models.(CO1, L1)
3. Explain different types of attributes with neat diagrams. (CO2, L2)
4. Explain CODD Rules(CO3, L2)
5. Explain different types of Aggregate functions in SQL. (CO4, L2)
6. Write a short note on string functions in SQL (CO4, L1)
7. Explain Structure of PL/SQL(CO5, L2)
8. Explain Functions in PL/SQL.(CO5, L2)

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. a. Explain the role and advantages of DBMS? (CO1, L1)

OR

b. Explain briefly about degrees of data abstraction. (CO1, L1)

10. a. Explain Specialization hierarchy with an example.(CO2, L2)

OR

b. Explain Entity Relationship diagram with an example (CO2, L2)

11. a. Write a short note on relational set operators (CO3, L1)

OR

b. What is normalization? Explain with an example upto 3NF. (CO3, L2)

12. a. Explain DDL, DML, DCL commands in SQL with examples. (CO4, L2)

OR

b. Explain views in SQL with syntax and examples.(CO4, L2)

13 a. Discuss about iterative control statements available in PL/SQL with syntax and examples.(CO5, L2)

OR

b. Explain types of Triggers.(CO5, L2)

@@@@

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Title of the Paper: MICROPROCESSOR LAB

Offered to: B.SC (M.ECs, CA.M.E) –ELEP31A

Course Type: Core (P)

Year of Introduction: 2022-23 **Year of Revision:** **Percentage of Revision:**

Semester : III **Credits :1**

CO1: To understand basic programmes in microprocessor.

CO2: To understand software simulation using emu8086mp

CO3: To understand multi core processor and its advantages

LAB LIST:

EMU SOFTWARE:

1. **ADDITION OF TWO 8-BIT & 16-BIT NUMBERS.**
2. **SUBTRACTION OF TWO 8-BIT & 16-BIT NUMBERS.**
3. **MULTIPLICATION OF TWO 8-BIT & 16-BIT NUMBERS.**
4. **DIVISION OF TWO 8-BIT & 16-BIT NUMBERS.**
5. **DECIMAL ADDITION OF TWO 8-BIT & 16-BIT NUMBERS.**
6. **DECIMAL SUBTRACTION OF TWO 8-BIT & 16-BIT NUMBERS.**
7. **CONVERT PACKED BCD TO UNPACKED BCD**
8. **CONVERT UNPACKED BCD TO PACKED BCD**
9. **REVERSE OF 16-BIT USING 8-BIT OPERATION**
10. **FIND THE SUM AND SQUARE OF 8-BIT NUMBERS.**
11. **FIND FACTORIAL OF A GIVEN NUMBER**
12. **REVERSE AND X-OR OF A GIVEN NUMBER**
13. **USE STACK POINTER EXCHANGE THE VALUES.**

14. FIND SEVERAL WAYS TO PASS PARAMETERS

15. FIND SIMPLE INPUT AND OUTPUT

16.T O BLINKING OF SEVEN SEGMENT LED

17. TO GENERATE DISPLAY AS PBSC COLLEGE.

18. TO FIND LOGICAL OPERATIONS OF A GIVEN NUMBER.

19. TO FIND LARGEST NUMBER IN AN ARRAY.

Interfacing Experiments using 8086 microprocessor (DEMO):

1. Traffic Light Controller
2. Elevator,
3. 7-segment display

LAB MANUAL ARE SUPPLIED BY DEPARTMENT

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Title of the Paper: MICROPROCESSOR SYSTEM

Offered to: B.SC (M.ECs, CA.M.E) –ELET31A **Course Type:** Core (TH) /Core(p)

Year of Introduction: 2022-23 **Year of Revision:** **Percentage of Revision:**

Semester : III **Credits : 4**

Hours Taught: 60 hrs. Per Semester **Max.Time** : 3 Hours

Course Prerequisites:

Introduction of Digital Electronics

COURSE OBJECTIVES:

1. To understand basic architecture of 16 bit & interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
2. To understand RISC based microprocessors and concept of multi core processors.
3. The student can gain good knowledge on microprocessor and implement in practical applications
4. Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
5. To Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

Course outcomes:

At the end of the course, the student will be able to

CO_1: To gain knowledge on micro processors 8086 architectures and implement in practical application.

CO_2: To understand and device techniques for faster execution of instructions, improve the speed of operation and enhance performance of microprocessor.

CO_3: To apply various assembly language programs and test using moderate complexity.
CO_4: To understand the memory chips and peripheral chips for 16-bit 8086 microprocessor.
CO_5: To remember multi core processor and its advantages of ARMTDMIS.

ELET31		P01	P02	P03	P04	P05	PO6	P07
	C01					H		
	CO2						H	
	CO3						L	
	CO4					M		
	CO5						L	

UNIT -I: (15Hrs)

CPU ARCHITECTURE

Introduction to Microprocessor, INTEL -8085(μP) Architecture, CPU, ALU unit, Register organization, Address, data and control Buses. Pin configuration of 8085, 8086 Architecture, Evaluation of Microprocessor, Internal operation, Pin description. Instruction format, Machine language instructions, Instruction Execution timing, Addressing modes

UNIT -II: (10 Hrs)

INSTRUCTION SET: Data transfer Instruction, Logical Instructions, Arithmetic Instructions, Branch Instructions, Flag Manipulation , Shift and rotate Instruction, Loop Instruction

UNIT -III: (15Hrs)

Assembly Language Programming, Programmes for Addition, Subtraction, Multiplication, Find the largest and smallest number in an array. Modular programming:–Linking and Relocation, Stacks, Procedures, Interrupts and Interrupt Routines.

UNIT -IV: (10Hrs)

Basic 8086 Configurations – Minimum mode and Maximum Mode, Interrupt Priority Management I/O Interfaces: Serial Communication interfaces, Parallel Communication, Programmable Timers, Keyboard and display, DMA controller

UNIT -V: (10Hrs)

ARM PROCESSOR

Introduction to 16/32 bit processors, Arm architecture & organization, Arm based MCUs, Programming model, Instruction.

TEXT BOOKS:

1. Microcomputer Systems the 8086/8088 family – YU-Cheng Liu and Glenn SA Gibson
2. Microcontrollers Architecture Programming, Interfacing and System Design – Raj Kamal Chapter: 15.1, 15.2, 15.3, 15.4.1
3. 8086 and 8088 Microprocessor by Tribel and avatar singh

REFERENCES:

1. Microprocessors and Interfacing – Douglas V.Hall
2. Microprocessor and Digital Systems – Douglas V. Hall
3. Advanced Microprocessors & Microcontrollers - B.P.Singh & Renu Singh – New Age
4. The Intel Microprocessors – Architecture, Programming and Interfacing – Bary B. Brey.
5. Arm Architecture reference manual –Arm ltd.

Course Delivery method: Face-to-face / Blended
Course has focus on: **F**oundation and **S**kill Development
Websites of Interest: **https://en.wikipedia.org/wiki/VHDL**
Activities: Assignments, PPT's.

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Title: Microprocessor systems

MODEL PAPER

SECTION-A

Answer any FIVE of the following: 5x5=25M

1. Describe the flag register of 8086.-(co2)-(L1)
2. Explain about register organization of 8086. (Co1)–(L2)
3. Define interrupt vector table and explain.-(co3)-(L2)
4. Draw the block diagram of DMA.-(co4)-(L3)
5. Write short notes on shift instructions.(co2)-(L1)
6. Discuss about minimum mode configuration.(co4)-(L2)
7. Compare series communication and parallel communication systems. (Co4)–(L4)
8. Write briefly about instruction format.-(co1)-(L2)

SECTION-B

Answer the following: 5x10=50M

9.a)Explain the functional block diagram of 8085 microprocessor and explain each block in detail.-(co1)-(L1)

(or)

b) Draw the architecture of 8086 microprocessor and explain each block in detail.(co1)-(L1)

10. a)Discuss briefly about (i) Data transfer (ii) Air thematic (iii) branch instructions.(co2)-(L2)

(or)

b) Explain briefly about Flag manipulation and loop instructions.-(co2)-(L2)

11. a) Explain the procedure concepts of assembly language and What are differences between procedures and interrupts-(co3)-(L3)

(or)

b) Write an ALP program to find the largest number in an array.-(co3)-(L3)

12. a) With a neat block diagram explain programmable peripheral interface(8255) and explain BSR & I/O mode. (Co4) –(L3)

(or)

b)Explain about the block diagram of 8279 of keyboard/display and each pin in detail.(co4)-(L3)

13. a)Briefly explain the architectural features of ARM processor.(co5) –(L1)

(or)

b)Write about programming model of ARM in detail.-(co5)-(L3)

PARVATHANENIBRAHMAIAH SIDDHARTHA COLLEGE OF ARTS AND SCIENCE; VIJAYAWADA-10

(An autonomous college in the jurisdiction of Krishna University)

SEMESTER- III/IV **PAPER – III/IV**

TITLE OF THE PAPER: HINDI-III/IV

NO OF HOURS: 60 **CREDITS: 03**

WEF: 2021-22 **COURSE CODE: HINT01A**

Cos:

1.दोहों के व्दारा विद्यार्थियोंमें समाज सुधार की भावना, मानव मूल्यों का विकास हो सकेगा।

2. हिंदी साहित्य के इतिहास के व्दारा हिन्दी भाषा और साहित्य की प्रमुखता से परिचित हो सकेंगे।

3. समाज कल्याण के विषयों को समझकर विद्यार्थिअपने ज्ञान का विकास कर सकेंगे।

4. समाज में हिन्दी भाषा के परिचित हो सकेंगे और हिन्दी भाषा का ज्ञानप्राप्तकर दूसरों से आसानी से संप्रेषित करने में सक्षम हो सकेंगे।

5.प्रयोजनमूलक हिन्दी प्राप्तकर सकेंगे और हिन्दी में पत्राचार का कौशल विकसित कर सकेंगे।

PARVATHANENIBRAHMAIAH SIDDHARTHA COLLEGE OF ARTS AND SCIENCE; VIJAYAWADA-10

(An autonomous college in the jurisdiction of Krishna University)

SEMESTER- III/IV **PAPER – III/IV**

TITLE OF THE PAPER: HINDI-III/IV

NO OF HOURS: 60 **CREDITS: 03**

WEF: 2021-22 **COURSE CODE: HINT01A**

SYLLABUS

I.**काव्य दीप**:

साखी- 1-10 - कबीरदास

बालवर्णन - सूरदास

मातृभूमि - मैथिलीशरण गुप्त

तोडती पत्थर - सूर्यकांत त्रिपाठी निराला

गीत फरोश - भवानी प्रसाद मिश्र

II.**हिन्दी साहित्य का इतिहास**:

काल विभाजन - आचार्य रामचन्द्र शुक्ल के अनुसार

भक्ति काल : ज्ञानाश्रयी शाखा - कबीर

प्रेमाश्रयी शाखा - जायसी

III.**साधारण निबन्ध**:समाचार पत्र, पर्यावरण और प्रदूषण,

बेकारी की समस्या, कंप्यूटर

IV. **अनुवाद** :(हिन्दी से अंग्रेजी में बदलना तथा अंग्रेजी से हिन्दी में बदलना)

V.**प्रयोजनमूलकहिन्दी**: परिपत्र,कार्यालय ज्ञापन,राष्ट्र-भाषा हिन्दी

Recommended Books:

1.काव्य दीप- **SRI B.RADHA KRISHNA MURTHY**

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(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)
III SEMESTER Model Question Paper, November-2022 (Hindi-III)

Course Code: HINT01A **Max. Marks: 75M**
Time: 3 Hrs. **Pass Min. : 30M**

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PART-A

I. निम्नलिखित प्रश्नों में से किन्हीं पाँच प्रश्नों का उत्तर दीजिए: 5×5=25M

1. व्याख्या कीजिए। L2

पाहन पूजे हरि मिलै, तो मैं पूजूँ पहाड़।

ताते ये चाकी भली , पीस खाय संसार ।।

2.किसी एक कवि का साहित्यक परिचय दीजिए। L1

(i)कबीर (ii) सूर्यकांतत्रिपाठी‘निराला’

3.मातृभूमिकविता की विशेषताएँ लिखिए। L1

4.व्याख्या कीजिए । L2

जी गीत जनम का लिखूँ, मरन का लिखूँ,

जी गीत जीत का लिखूँ, शरण कर लिखूँ।

5.ज्ञानमार्ग शाखा की विशेषताएँ बताइए। L2

6.प्रदूषण के निवारणोपाय लिखिए। L1

7.परिपत्र की परिभाषा दीजिए। L1

8.अनुवाद किसे कहते हैं? L2

PART-B

II. निम्नलिखित प्रश्नोंका उत्तर दीजिए: 5×10=50M

9. किसी एक कविता का सारांश विशेषताओं के सहित लिखिए। L2
(i)गीत फरोश (ii) तोड़ती पत्थर

10. (अ) हिन्दी साहित्य का इतिहास - काल विभाजन के बारे में लिखिए। L2

अथवा

(आ) प्रेमाश्रय शाखा की विशेषताओं का परिचय दीजिए।

11.किसी एक निबंध पर प्रकाश डालिए। L2

(i) बेकारी की समस्या (ii) पर्यावरण और प्रदूषण (iii) कंप्यूटर

12. (अ) हिन्दी में अनुवाद कीजिए। L2

(i) India is our country

(ii) We should respect our parents

(iii)How many students are there in the class room?

(iv)Where are you going now?

(v)This is our college.

अथवा

(आ)अंग्रेजी में अनुवाद कीजिए।

(i)हम कॉलेज जाते हैं।

(ii)हिन्दी हमारी राष्ट्रभाषा है।

(iii)रमा नाचती है।

(iv)मानव सेवा ही माधव सेवा है।

(v)कल रविवार था।

13.किसी एक पर टिप्पणी लिखिए। L1

(i)परिपत्र (ii)कार्यालय ज्ञापन (iii)राष्ट्र-भाषा हिन्दी

Department of Mathematics

COURSE STRUCTURE

Sem	Course Code	Paper	Title of the Paper	Total Marks	Internal Exam	Sem.End Exam	Teaching Hours	Credits
II	MATT31	CORE	ABSTRACT ALGEBRA	100	25	75	6	5

Programme Outcomes

S. No	P.O
	At the end of the Programme the student will be able to:
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematical problems and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MATT

S. No	C.O Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
1	Understand concepts of groups and its properties.	L2, PO –1
2	Determine subgroups and whether the given subsets of a group are subgroups.	L4, PO - 1
3	Explain the significance of cosets, normal subgroups and factor groups.	L2,PO - 2
4	Determine group homomorphisms and isomorphisms.	L4, PO – 1
5	Find cycles of a given permutations and understand the properties of cyclic groups.	L1, PO – 2

CO-PO MATRIX							
CO-PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1					**H**		
CO2					**H**		
CO3						**M**	
CO4							**M**
CO5							**M**

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS &SCIENCE

VIJAYAWADA-10.

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

MATHEMATICS	MAT T	2019 – 20 onwards	B.Sc(MSDS)

ABSTRACT ALGEBRA

SEMESTER-II **No of Credits: 5**

OBJECTIVES:
1. This course aims to provide a first approach to the subject of algebra, which is one of the basic pillars of modern mathematics.
2. The focus of the course will be the study of certain structures called groups, Sub groups, cyclic groups, permutation groups etc..
3. Abstract algebra gives to student a good mathematical maturity and enables to build Mathematical thinking and skill.

UNIT-I : GROUPS **(16 hrs)**

1.1 Binary Operation, Semi group, Algebraic Structure, Monoid, Cancellation laws, Group definition, Abelian group, Elementary Properties

1.2 Finite and Infinite groups with examples, Order of a group with examples

1.3 Addition modulo m – Definition – theorem – Problems

1.4 Multiplication Modulo P – definition- {1, 2, 3,…….p-1} where P is a prime number is a group – theorem – Problems

1.5 Order of an element of a group – Definition – Theorems.

UNIT-II: SUB GROUPS **(20 hrs)**

2.1 Complex definition, Multiplication of two complexes, Inverse of a complex, subgroup definition, Identity and Inverse of a subgroup

2.2 Criterion for a complex to be a subgroup, Criterion for the product of two subgroups to be a subgroup

2.3 Union and Intersection of subgroups.
2.4 Cosets Definition – Properties of cosets.
2.5 Index of a subgroups of a finite groups, Lagrange's Theorem.

UNIT-III: NORMAL SUBGROUPS (18 hrs)

3.1 Definition of a normal subgroup, Proper and improper normal subgroups
3.2 Intersection of two normal subgroups, Subgroup of index 2 is a normal subgroup, Simple group
3.3 Quotient group, Criteria for the existence of a Quotient group

UNIT-IV: HOMOMORPHISM (16 hrs)

4.1 Definition of a Homomorphism, Image of a Homomorphism, Properties of a Homomorphism
4.2 Isomorphism, Automorphism definitions and elementary properties
4.3 Kernel of a homomorphism, Fundamental theorem on homomorphism of groups and Applications
4.4 Inner automorphism, Outer automorphism.

(P.T.O)

UNIT-V: PERMUTATIONS AND CYCLIC GROUPS (20 hrs)

5.1 Definition of a permutation group, Equal permutations, Permutation multiplications, Order of a permutation, Inverse of a permutation, Orbits and cycles of permutation
5.2 Transposition, Even and odd permutations – Theorem – Related Problems.
5.3 Cayley's theorem – Related Problems.
5.4 Definition of a cyclic group – Properties of Cyclic group
5.5 Standard theorems on cyclic groups – related problems.

Prescribed Text book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	V.Venkateswara Rao, BVSS Sharma, S.AnjaneyaSastry & Others	A textbook of mathematics for B.A/B.ScVol – I	S-Chand	2015

Reference books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	Dr.A. Anjaneyulu	A text book of mathematics for	Deepthi Publications	2015

		B.A/B.ScVol – I		
2	M.L.Khanna	Modern Algebra	Jaya Prakashnadh & Co	2012

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SEMESTER – II
Model Paper

COURSE CODE: MATT

TITLE OF THE PAPER: ABSTRACT ALGEBRA

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

Section – A

Answer any FIVE questions **5x5=25**

1. In a group G, Show that the inverse of an element is unique. (L1,CO1)
2. H is a non-empty complex of a group G. Show that the necessary and sufficient condition for H to be a sub group of G is $a,b\in H\Rightarrow ab^{-1}\in H$. (L1,CO2)
3. Show that any two left (right) cosets of a sub group are either disjoint (or) identical.(L2,CO3)
4. Show that every subgroup of an abelian group is normal. (L3,CO3)
5. Prove that Every Quotient group of an abelian group is abelian. (L2,CO3)
6. If 'f' is a homomorphism of a group G into a group G', then show that the Kernel of f is a normal subgroup of G. (L3,CO3)
7. Use Cayley's theorem to find the regular permutation group isomorphic to the multiplicative group $\{1,-1,i,-i\}$. (L3,CO5)
8. Prove that every cyclic group is abelian. (L2,CO5)

Section – B

Answer ALL questions. **(5 x 10 = 50)**

Unit - I

9. Prove that the set Z of all integers from an abelian group w.r.t to the operation defined by a * b = a+b+2 $\forall$ a,b$\in$z. (L3, CO1)

(OR)

10. Prove that G = {0,1,2,3,4,5} is an abelian group w.r.t. addition modulo 6.(L3,CO1)

Unit – II

11. Prove that the union of two sub groups of a group G is a sub group of G if and only if one is contained in the other. (L1,CO2)

(OR)

12. State and prove Lagrange's theorem on groups. (L1,CO2)

Unit – III

13. If H is a normal subgroup of a group G, then prove that the set of all cosets of H in G is a group with respect to coset multiplication. (L1,CO3)

(OR)

14. Prove that H is a normal subgroup of a group G iff product of two right cosets of H is again a right coset of H. (L1,CO3)

(P.T.O)

Unit – IV

15. State and Prove Fundamental Theorem of Homomorphism. (L1,CO4)

(OR)

16. Let 'a' be a fixed element of a group G. Prove that the mapping $f_a : G \to G$ defined by $f_a(x) = a^{-1}xa \forall x \in G$ is an automorphism of G. (L2,CO4)

Unit - V

17. Prove that every finite group G is isomorphic to a permutation group. (L1,CO5)

(OR)

18. Prove that every subgroup of a cyclic group is cyclic. (L1,CO5)

CO PO MAPING

Course Code : TEL T01A SEMESTER III/IV

COURSE NAME	COURSE OUT COMES NO	COURSE OUT COMES	PO NO.
B.A., B.B.A. B.B.A. B.A. B.COM (TPP) B.COM (A & F) B.COM (GEN) B.COM (C.A.) B.COM (BPM) B.COM (CA) B.C.A. B.Sc. (MPC) B.Sc. (BZC) B.Sc. (M.E.Cs) B.Sc. (M.PCs) B.Sc. (M.S.Cs) B.Sc. (CAME) B.Sc. (CAMS) B.Sc. (MSDS) B.Sc. (CSCS)	CO 1	వర్ణము, పదము, వాక్యములతో భాషాస్వరూపాన్ని పరిస్తూ పూర్ణంగా తెలుసుకొని చక్కని వ్యవహార వైఖరి ప్రదరిస్తారు.	6
	CO 2	సమాజ స్వరూపాన్ని సాహిత్య ప్రక్రియల ద్వారా పూర్తిగా అవగతం చేసుకొని జీవితాన్ని పరిపూర్ణంగా సాధించగలుగుతారు.	4
	CO 3	వివిధ భాషల పై సంప్రదాయము, సంస్కృతుల ప్రభావాన్ని భిన్న సమాజ దృక్పథాన్ని అవగాహన చేసుకుంటారు.	1
	CO 4	సమాజంలో ప్రసార మాధ్యమాల కృషిని గమనిస్తూ చైతన్యవంతమైనస్ఫూర్తిదాయకమైన జీవితాన్ని గడుపుతారు.	3
	CO 5	చక్కని విలువలతో అందర్నీ కలుసుకుంటూ సహజ సిద్ధమైన నైపుణ్యాలని మరింత పెంపొందించగలుగుతూ ఆదర్శవంతులౌతారు.	2

CO – PO MATRIX

Academic Year 2020-21

Course Code : TEL T01A SEMESTER III/IV

CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1		L					
CO2			M				
CO3							H
CO4				M			
CO5					H		

SYLLABUS పాఠ్యప్రణాళిక

TELUGU-III / IV **TELT01A** **Credits – 3**

యూనిట్-I వ్యక్తీకరణ నైపుణ్యాలు

1. భాష-ప్రాథమికాంశాలు:- భాష-నిర్వచనం, లక్షణాలు, ఆవశ్యకత, ప్రయోజనాలు.

2. 'వర్ణం-పదం-వాక్యం', వాక్య లక్షణాలు, సామాన్య-సంయుక్త-సంశ్లిష్ట వాక్యాలు.

3. భాషా నిర్మాణంలో 'వర్ణం-పదం-వాక్యం' ప్రాధాన్యత.

యూనిట్-II సృజనాత్మక రచన

4. కవితా రచన:- ఉత్తమ కవిత - లక్షణాలు.

5. కథా రచన:- ఉత్తమ కథ - లక్షణాలు.

6. వ్యాస రచన:- ఉత్తమ వ్యాసం - లక్షణాలు.

యూనిట్-III అనువాద రచన

7. అనువాదం:- నిర్వచనం, అనువాద పద్ధతులు.

8. అనువాద సమస్యలు:- భౌగోళిక, భాషా, సాంస్కృతిక సమస్యలు, పరిష్కారాలు.

9. అభ్యాసము:- ఆంగ్లం నుండి తెలుగునకు ఒక పేరాను అనువదించడం.

యూనిట్-IV మాధ్యమాలకు రచన-I:- ముద్రణ / ప్రింట్ మీడియా

10. ముద్రణా మాధ్యమం / అచ్చు /:- పరిచయం, పరిధి, వికాసం.

11. వివిధ రకాల పత్రికలు - పరిశీలన, పత్రికా భాష, శైలి, వైవిధ్యం.

12. పత్రికా రచన:- వార్తా రచన, సంపాదకీయాలు, సమీక్షలు - అవగాహన.

యూనిట్-V మాధ్యమాలకు రచన-II:- ప్రసార మాధ్యమం / ఎలక్ట్రానిక్ మీడియా

13. ప్రసార మాధ్యమాలు:- నిర్వచనం, రకాలు, విస్తృతి, ప్రయోజనాలు.

14. శ్రవణ మాధ్యమాలు-రచన:- రేడియో రచన, ప్రసంగాలు, నాటికలు, ప్రసార సమాచారం.

15. దృశ్య మాధ్యమాలు-రచన:- వ్యాఖ్యానం / యాంకరింగ్, టెలివిజన్ రచన.

ఆధార గ్రంథాలు / వ్యాసాలు:

1. వ్యక్తీకరణ నైపుణ్యాలు-చూ.

1. ఆధునిక భాషా శాస్త్ర సిద్ధాంతాలు - ఆచార్య పి.ఎస్. సుబ్రహ్మణ్యం. 2. తెలుగు భాషా చరిత్ర - సం.ఆచార్య భద్రిరాజు కృష్ణమూర్తి.
3. తెలుగు వాక్యం - డా.చేకూరి రామారావు.

2. ఉత్తమ కవిత-లక్షణాలు - చూ. 1.నవ్యకవిత్వ లక్షణములు-ఆచార్య సి.నారాయణరెడ్డి. 2.ఆధునికాంధ్ర కవిత్వము-సంప్రదాయములు, ప్రయోగములు: చతుర్థ ప్రకరణము**3. ఉత్తమ కథ - లక్షణాలు - చూ.** 1. కథా శిల్పం - వల్లంపాటి వెంకట సుబ్బయ్య, పుటలు:11-17

4. ఉత్తమ వ్యాసం - లక్షణాలు - చూ. 1. చదువు-సంస్కృతి (వ్యాసం) - కొడవటిగంటి కుటుంబరావు.

5. అనువాద రచన - చూ. 1. అనువాద సమస్యలు - రాచమల్లు రామచంద్రారెడ్డి, పుటలు: 61-75, 85-94
2. అనువాద పద్ధతులు ఆచరణ సమస్యలు-చేకూరి రామారావు 3.'భాషాంతరంగం',పుట:130-146, తెలుగు విశ్వవిద్యాలయం ప్రచురణ.

6. ముద్రణా మాధ్యమం-చూ. 1. మాధ్యమాలకు రచన, పుటలు: 9-12, డా.బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

7. పత్రికా భాష-చూ. 1. మాధ్యమాలకు రచన, పుటలు: 67-74, డా.బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

8. పత్రికా రచన- చూ. 1. తెలుగు-మౌలికాంశాలు, పుటలు: 59-69, డా.బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

9. ప్రసార మాధ్యమాలు- చూ. 1. మాధ్యమాలకు రచన, పుటలు: 3-10, డా.బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

10. రేడియో రచన- చూ. 1. మాధ్యమాలకు రచన, పుటలు: 141-148, డా.బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

11. వ్యాఖ్యానం/యాంకరింగ్ - చూ. 1. మాధ్యమాలకు రచన, పుటలు: 178-181, డా.బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ.

12. టెలివిజన్ రచన- చూ. 1. మాధ్యమాలకు రచన, పుటలు:153-160, డా.బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయం ప్రచురణ.

13. తెలుగు జర్నలిజం- డా. బూదరాజు రాధాకృష్ణ.

నమూనా ప్రశ్నపత్రం

Course Code: TEL T01A (Telugu-III/IV) **Max. Marks: 75M**
Time: 3 Hrs. **Pass Min. : 30M**

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అ-భాగం

I. క్రింది వానిలో ఐదింటికి సంగ్రహరూప సమాధానాలు వ్రాయండి. ఎనిమిదవ ప్రశ్నకు సమాధానం తప్పనిసరిగా వ్రాయాలి. **5 × 5 = 25మా**

1. భాష - ప్రయోజనాలు. **L2**
2. ఉత్తమ వ్యాసం - లక్షణాలు. **L1**
3. అనువాద సమస్యలు. **L2**
4. సంపాదకీయాలు. **L3**
5. టెలివిజన్ రచన. **L6**
6. ఉత్తమ కథ - లక్షణాలు. **L2**
7. సమీక్షలు - అవగాహన. **L2**
8. క్రింది అంశాన్ని నుడికారం చెడకుండా తెలుగులోకి అనువదించండి. **L2**

   To many, Indian thought, Indian manners, Indian customs, Indian philosophy, Indian literature are repulsive at the first-right, but let them preservere, let then read, let them become familiar with the great principles underlying these ideas, and it is ninety-nine to onethat the charm will come over them, and fascination will be the result. Slow and silent, as the gentle dew that falls in the morning, unseen and unheared yet producing, a most tremendous result, has been the work of the calm, patient, all-suffering spiritual race upon the world of thought.

ఆ-భాగం

II. క్రింది వానిలో ఐదింటికి వ్యాసరూప సమాధానాలు వ్రాయండి: **5 × 10 = 50మా**

9. భాషా నిర్మాణంలో 'వర్ణం-పదం-వాక్యా'ల ప్రాధాన్యతను వివరించండి. **L1**
10. ఉత్తమ కవితా లక్షణాలను విశ్లేషించండి. **L2**
11. అనువాద లక్షణాలను తెల్పి, పద్ధతులను రాయండి. **L3**
12. ముద్రణా మాధ్యమాన్ని వివరించి, దాని పరిధి వికాసాలను తెల్పుము. **L2**
13. యాంకరింగ్ నిర్వహణ, తీరు తెన్నుల్ని తెల్పండి. **L6**
14. పత్రికా భాష - శైలి - వైవిధ్యాన్ని వివరింపుము. **L2**
15. సామాన్య-సంయుక్త-సంశ్లిష్ట వాక్యాలను వివరింపుము. **L1**
16. ప్రసార మాధ్యమాల విస్తృతి, ప్రయోజనాలను సమీక్షించండి. **L2**

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P.B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Siddhartha Nagar, Vijayawada – 520 010
(An Autonomous College under the Jurisdiction of Krishna University)
Re – Accredited at 'A⁺' by NAAC – III Cycle
College with Potential for Excellence (Awarded by the UGC)
ISO 9001 – 2015 Certified

Object Oriented Programming Using JAVA Lab

Offered To:	**B. Sc. (MPCS,CAMS,MSCS)-3 SEM B.SC(MECS, CAME)-4 SEM**	**Course Code:**	CSCP01
Course Type:	Core (Practical)	**Course:**	Object Oriented Programming using Java Lab
Year of Introduction:	2016 – 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15%
Semester:	III OR IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Knowledge in OOP & Java concepts, Programming Fundamentals

Course Objective:

To enable students to implement various OOP concepts using Java programming language and also educating students in accessing databases using JDBC connectivity.

Course Outcomes: At the end of this course, students should be able to:

CO1: Implementing class, constructor, method overloading, method overriding in java. (PO5, PO7)
CO2: Implement different types of inheritance and interfaces in a Java program .(PO5, PO7) CO3: Implement Multithreading, exception handling mechanisms in Java. (PO5, PO7) CO4: Implement Applets and JDBC connectivity. (PO5, PO7)

Java Lab list

1. Write a program to use command line arguments.
2. Write a program to demonstrate that include a method inside the Rectangular Class.
3. Write a program to demonstrate Parameterized Constructors.
4. Write a program to demonstrate Method Overloading.
5. Write a Program to demonstrate Constructor Overloading.
6. Write a program to demonstrate Method Inheritance.
7. Write a program to demonstrate Method Overriding.
8. Write a program to demonstrate Abstract Classes.
9. Write a program to arrange given Strings in Alphabetical Order.
10. Write a program for implementing interfaces.
11. Write a program on Multiple Inheritance.
12. Write a program to demonstrate the Creating threads using thread class.

13. Write a program to demonstrate using thread methods.
14. Write a program to Implement Thread Priority.
15. Write a program to demonstrate Catch Blocks.
16. Write a program to Import Packages.
17. Write a program to demonstrate Applet Program.
18. Write a program to create table and insert values into table in a database.
19. Write a program to delete values in a table in database.
20. Write a program to update values in a table in database.

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OPERATING SYSTEMS LAB

Offered To:	B. Sc. (MPCS, MECS, CAME, MSCS, CAMS)	**Course Code:**	CSCP41C
Course Type:	Core (Practical)	**Course:**	Operating systems Lab
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in OS concepts, data structures and C programming language.

Course Description:

This course deals with training students in developing and implementing logics for various OS scheduling algorithms. It also enables students to gain practical knowledge in implementing various UNIX commands.

Course Objective:

The Purpose of this course is to have students understand and the principles in the design and implementation of operating system software.

Course Outcomes: At the end of this course, students should be able to

CO 1. Implementing DOS & UNIX Commands(PO5, PO6, PO7)

CO 2. Implementing CPU Scheduling Algorithms(PO5, PO6, PO7)

CO 3. Implementing CPU Scheduling Algorithms, Deadlocks Avoidance, Prevention & Memory Management Techniques(PO5, PO6, PO7)

CO 4. Implementing Contiguous Memory Allocation Techniques & Page Replacement Algorithms(PO5, PO6, PO7)

CO 5. Implementing File allocation Strategies(PO5, PO6, PO7)

Lab Exercises

1. **DOS** - Internal Commands
2. **UNIX Commands**

1. In your home directory create a directory named DIR
2. Copy all files whose filenames satisfy the following conditions to ~/DIR. The files are in
   /usr/include directory, their names start with m, end with .h and contain a number.
3. Create a subdirectory called SUBDIR in your DIR directory.
4. The first five lines of each file you have copied from
   /usr/include copy to file ~/DIR/ SUBDIR/first five.
5. The last lines of files in ~/DIR copy to file ~/DIR/SUBDIR/last.
6. Concatenate the two files in ~/DIR/SUBDIR into one file
   ~/DIR/SUBDIR/first and last
7. Delete the files in ~/DIR/SUBDIR except first and last.
8. Store the number of files and directories in ~/DIR into a file
   ~/DIR/SUBDIR/count
9. Output the long information in the ~/DIR/SUBDIR
   directory. (Not its content, but information on it).
10. Delete the contents of ~/DIR/SUBDIR/first and last file without removing the file itself.
11. Add a line containing just a star sign (i.e. *) to file ~/DIR/SUBDIR/first and last.
12. Delete ~/DIR together with all the files it contains.
13. Output lines number 11-20 from file /etc/passwd.

3. List of Programmes

1. Write a Program to implement First Come First Serve Scheduling algorithm
2. Write a Program to implement Shortest Job First Scheduling algorithm
3. Write a Program to implement Round Robin Scheduling algorithm
4. Write a Program to implement Priority Scheduling algorithm
5. Write a program to implement Worst Fit Contiguous Memory Allocation
6. Write a program to implement Best Fit Contiguous Memory Allocation
7. Write a program to implement First Fit Contiguous Memory Allocation
8. Write a program to implement First In First Out Page replacement Algorithm
9. Write a program to implement First In Least Recently Used Page replacement Algorithm
10. Write a program to implement First In Optimal Page replacement Algorithm

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Object Oriented Programming Using JAVA

Offered To:	**B. Sc. (MPCS,CAMS,MSCS)-3 SEM B.SC(MECS, CAME)-4 SEM**	**Course Code:**	CSCT01
Course Type:	Core (Theory)	**Course:**	Object Oriented Programming using Java
Year of Introduction:	2016 - 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15 %
Semester:	III OR IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Programming Concepts.

Course Description: 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 Objectives:

1. Understand the features of Object Oriented Programming.

2. Understand features of Java programming language.

3. Know how to write and execute java programs in text editors.

4. Apply polymorphism, inheritance, multithreading, exception handling mechanism and packages in real life applications.

5. Write and read data from the files using streams, file handling methods and understand JDBC to perform database operations.

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand the concept and underlying principles of Object-Oriented Programming, Understand how object-oriented concepts are incorporated into the Java programming language. (PO5, PO7).

CO2: Implement Object Oriented Programming Concepts (class, constructor, overloading, inheritance, overriding) in java. (PO5, PO7).

CO3: Analyse inheritance and interfaces in a Java program (PO5, PO7).

CO4: Evaluate Multithreading, exception handling in Java. (PO5, PO7).
CO5: Create applets and packages in a Java program, Use of Input/output Streams in java and use of JDBC with Oracle database. (PO5, PO7).

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
I	**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 & Datatypes:** 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**	10
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. **Classes, Objects & Methods:** Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods.	12
III	**Inheritance:** Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes. **Arrays, Strings:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Wrapper classes. **Interfaces:** MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables.	12
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. **Packages:** Introduction, Java API Packages, Creating Packages, Accessing a Package, Using a Package.	13

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. **Managing Input/Output Files In Java:** Introduction, Concept of Streams, Stream classes, Byte Stream Classes, Character Stream classes: Reader stream classes, Writer Stream classes, Reading and writing files. **Java Database Connectivity:** JDBC introduction, Stages in JDBC Program, Working with Oracle Database: Inserting, Deleting and Updating records.	13

Text Books:

1. Programming with Java, E – Balagurusamy, 3e, TMH.
2. Core Java: An Integrated Approach, Dr. R. Nageswara Rao & KogentLearning Solutions Inc.

Reference Books:

1. Programming with Java, 2ed, John R. Hubbard, Schaum's outline Series, TMH
2. Deitel & Deitel, Java TM : How to program, PHI(2007)

Course Delivery method : Face-to-face / Blended

Course has focus on : Employability

Websites of Interest :

[1].https://www.javatpoint.com/java-tutorial

[2].https://www.w3schools.com/java/

[3].https://www.tutorialspoint.com/jdbc/index.htm

Co-curricular Activities : Programming Contests, Assignments & Quiz.

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OBJECT ORIENTED PROGRAMMING USING JAVA

MODEL PAPER

CLASS: **B. Sc. (MPCS,CAMS,MSCS)-3 SEM AND B.SC(MECS, CAME)-4 SEM**

Max. Marks: 75M

Course Code: CSCT01 **Min. Pass: 30M**

Semester: III OR IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. Explain structure of java program.(CO1, L2)
2. Define a class and add methods, variables to it and create objects for it. (CO2,L1)
3. Explain constructors in java with example. (CO2,L2)
4. Explain any five string handling methods in java.(CO3, L2)
5. Illustrate implementing interfaces in java with example. (CO3,L2)
6. Illustrate creating threads in java with example .(CO4,L2)
7. Illustrate Arithmetic Exception in java with example.(CO4, L2)
8. Explain byte stream classes in java. (CO5, L2)

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. (A) Explain Object Oriented Programming Principles. (CO_1,L2)

(OR)

(B) Explain Java Buzz words. (CO1, L2)

10. (A) Explain the following with programs (CO2, L2)

i. Method Overloading 5M

ii. Abstract classes 5M

(OR)

(B) Explain the concept of static members in java with an example. (CO2 ,L2)

11. (A) Explain the concept of final keyword with an example. (CO3,L2)

(OR)

(B) List of different types of inheritance in java with examples. (CO3,L4)

12. (A) Explain life cycle of a thread with neat diagram. (CO4,L2)

(OR)

(B) Define Exception. Explain Exception handling mechanism in java with examples (CO4, L1,L2)

13. (A) Explain creating and accessing package in java with example. (CO5,L2)

(OR)

(B) Explain different stages in JDBC program with an example..(CO5,L6)

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OPERATING SYSTEMS

Offered To:	B. Sc. (MPCS, MECS, CAME, MSCS, CAMS)	**Course Code:**	CSCT41C
Course Type:	Core (Theory)	**Course:**	Operating systems
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in computers, data structures and C programming language.

Course Description:

This course provides basic knowledge about operating system functions, its architectural design along with implementation of various scheduling algorithms. This course also provides knowledge in handling deadlock situation.

Course Objectives:

The Purpose of this course is to give students an idea of the services provided by the operating system, structure, organization of the file system, process synchronizations, scheduling and memory management.

Course Outcomes: At the end of this course, students should be able to

1. **Understand** Operating System Architectural design and its services. (PO5, PO6, PO7)
2. **Implementation** of Scheduling Algorithms. (PO5, PO6, PO7)
3. **Analyze** memory management techniques, concepts of virtual memory and disk scheduling. (PO5, PO6, PO7)
4. **Understand** the implementation of file systems and directories with the interfacing of IO devices with the operating system. (PO5, PO6, PO7)
5. **Identify** the deadlock situation and provide appropriate solutions so that protection and security of the operating system is also maintained. (PO5, PO6, PO7)

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
	Operating System: Introduction, Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations. Evolution of Operating Systems , Types of operating system - Simple, Batch, Multi programmed , Time shared , Parallel, Distributed Systems, Real-Time Systems, Operating System services.	11
II	**Process and CPU Scheduling** – Process concepts , The Process, Process State, Process Control Block, Process communication, Threads. Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling, Dispatcher, , Scheduling Criteria, Scheduling algorithms, Case studies: Linux, Windows. Process Synchronization - The Critical section Problem, Synchronization Hardware, Semaphores, Classic Problems of Synchronization, Monitors.	13
III	**Memory Management and Virtual Memory** – Logical & physical Address Space, Swapping, Contiguous Allocation , Paging-Structure of Page Table, Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement , Page Replacement Algorithms, Allocation of Frames.	13
IV	**File System Interface** – The Concept of a File , Access methods , Directory Structure, ,File System Mounting , File Sharing, Protection, File System Structure, Mass Storage Structure - Overview of Mass Storage Structure , Disk Structure, Disk Attachment, Disk Scheduling.	12
V	**Deadlocks** – System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.	11

Prescribed Text Books			
	Author	**Title**	**Publisher**
1	Silberschatz, Galvin, Gagne	Operating System Concepts, eight Edition	John Willey & Sons INC

Reference Text Book			
	Author	**Title**	**Publisher**
1	Abraham Silberchatz, Peter B. Galvin, Greg Gagne	Operating System Principles, 8th Edition	Wiley Student Edition
2	Naresh Chauhan,	Principles of Operating Systems	OXFORD University Press

Course Delivery method : Face-to-face / Blended

Course has focus on : Skill Development

Websites of Interest:

Co-curricular Activities: Programming Contests, Assignments & Quiz

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OPERATING SYSTEMS

MODEL QUESTION PAPER

COURSE CODE:CSCT41C TITLE OF PAPER: OPERATING SYSTEMS

CLASS / GROUP: B.Sc (MPCS, MECS, CAME, MSCS, CAMS) SEMESTER: IV

Time: 3 Hrs. Max. Marks: 75

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SECTION – A

Answer any <u>FIVE</u> questions: 5 X 5 = 25 Marks

1. Explain computer system architecture with a neat diagram. (CO1, L2)
2. Write about process states with a neat diagram. (CO1, L2)
3. Explain about context switching. (CO2, L2)
4. Write short notes on swapping. (CO3, L2)
5. Write about logical and physical address spaces. (CO3, L2)
6. Write about different file access methods. (CO4, L2)
7. What are the necessary conditions for deadlocks? (CO5, L2)
8. Explain how dead locks can be recovered. (CO5, L2)

SECTION – B

Answer <u>ALL</u> questions: 5 X 10 = 50 Marks

9. (a). Define operating system and explain its functions. (CO1, L2)

OR

(b.) Explain about various types of operating systems. (CO1, L2)

10. (a) Explain SJF and priority scheduling algorithms with an example. (CO2, L2)

OR

(b) Explain about inter process communication. (CO2, L2)

11. (a) Discuss the concept of paging with neat diagram. (CO3, L2)

OR

(b) Consider the following page reference string and calculate the number of page faults by using FIFO and LRU with three frames.

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1 (CO3, L2)

12. (a). Explain in detail file operations. (CO4, L2)

OR

(b). Discuss about FCFS disk scheduling and SSTF scheduling with a suitable example. (CO4,L2)

13. (a) what is deadlock ?explain deadlock preventions methods. (CO5, L2)

OR

(b) Explain banker's algorithm for deadlock avoidance.(CO5, L2)

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Title of the Paper : Analog Circuits and Communication LAB

Offered to: B.Sc (M.ECs,) –ELEP01 **Course Type:** Core (P)

Year of Introduction: 2021-22 **Year of Revision:** **Percentage of Revision:**

Semester: III **Credits: 1**

Course Outcomes:

C01: Analyze important types of integrated circuits.

C02: Demonstrate the ability to design practical circuits that perform the desired operation.

C03: Select the appropriate integrated circuit modules to build a given application.

C04: Use of different modulation and demodulation techniques used in analog communication.

LAB LIST:

1. Op-Amp as inverting and non-inverting
2. Op-Amp Voltage follower and current follower.
3. Op-Amp as integrator and differentiator
4. Op-Amp as adder & subtractor
5. Op-Amp as voltage to current converter
6. Op-Amp as square wave generator
7. AM Modulation and Demodulation.
8. FM Modulation and Demodulation
9. Pre-emphasis and De-emphasis.
10. PM Modulation and Demodulation.

LAB MANUAL: SUPPPLIED BY DEPARTMENT.

Lab experiments are to be done on breadboard and simulation software (using Multisim) and output values are to be compared and justified for variation.

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Title of the Paper:

MICROCONTROLLER LAB (ELEP41A)

C01: To gain the knowledge various addressing modes, instructions set and to design a time delay calculations.
CO2: basic idea about keil software tool.
C03: To write and test various assembly language programming's for moderate complexity.

LAB LIST:

1. Addition and subtraction of two 8-bit numbers.
2. Multiplication and division of two 8-bit numbers.
3. Exchange of higher and lower nibbles in accumulator.
4. BCD operation and reverse and x-or of given numbers.
5. Addition of two 8-bit numbers (keil software).
6. Addition of two 16-bt numbers (keil software)
7. Subtraction of two 8-bit numbers (keil software).
8. Subtraction of two 16-bit numbers (keil software).
9. Multiplication of two 8-bit numbers (keil software).
11. Program for swapping and compliment of 8-bit numbers (keil software).
12. Program to find the largest number in given array (keil software).
13. Program to find the smallest number in given array (keil software).

Lab manual: Supplied by department.
Lab experiments are to be done on 8051 Trainer kit and KEIL software.

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Title of the Paper: Analog Circuits and Communication

Offered to: B.Sc (MECs)-ELET01 **Course Type:** Core (TH)

Year of Introduction: 2021-22 **Year of Revision:** **Percentage of Revision:**

Semester: III **Credits:** 3

Hours Taught: 60 hrs. Per Semester **Max. Time:** 3 Hours

Course Prerequisites: Basic Electronics & Integrated circuits

Course Objectives:

1. To understand the concepts, working principles and key applications of linear integrated circuits.
2. To perform analysis of circuits based on linear integrated circuits.
3. To design circuits and systems for particular applications using linear integrated circuits**.**
4. To introduce students to various modulation and demodulation techniques of analog communication.
5. To analyze different parameters of analog communication techniques.

Course Outcomes: At the end of this course, students should be able to:

C01: Analyze important types of integrated circuits.
C02: Demonstrate the ability to design practical circuits that perform the desired operation.
C03: Select the appropriate integrated circuit modules to build a given application.
C04: Use of different modulation and demodulation techniques used in analog communication.
C05: Identify and solve basic communication problems.
C06: Analyze transmitters and receiver circuits.

Syllabus

Course Details:

Unit	Learning Units	Lecture Hours
I	**OPERATIONAL AMPLIFIERS**: Definition, Characteristics of Op-Amp, Block diagram of opamp, inverting, non-inverting, virtual ground, summing amplifier, subtractor, voltage follower, opamp parameters, voltage to current convertor, integrator, differentiator, differential amplifier, Logarithmic amplifier	12
II	**OP-AMP CIRCUITS**: Voltage regulator, Comparator, Instrumentation amplifier, Schmitt trigger, Sine wave generator, Square wave generator - Astable Multivibrator, Triangular wave generator, Active filters (Basics) - Low pass, High pass, Band pass filters. IC - 555 –functional block diagram.	10
III	**MODULATION:** Need for modulation, Types of Modulation, **Amplitude modulation** – frequency spectrum of AM, representation of AM, power relations in the AM wave. **Generation of AM** – Transistor modulators, **Detection of AM** – Diode detector.	12
IV	**FREQUENCY MODULATION:** Theory of FM, Frequency deviation and carrier swing, modulation index, deviation ratio, percent modulation, Mathematical representation of FM, frequency spectrum and bandwidth of FM wave. **Generation of FM** – Reactance modulator. **Detection of FM** – FM demodulation. Phase Locked Loop (PLL).	14
V	**RADIO BROADCASTING AND RECEPTION:** Spectrum of electromagnetic waves, Radio broadcasting and reception – Block Diagram, AM Transmitter & Super heterodyne AM receiver, FM Transmitter & Super heterodyne FM receiver. Differences between AM and FM.	12

Text Books:

1. Op Amp and Linear Integrated Circuits By Ramakant Gaykwad
2. Linear Integrated Circuits By Roy Choudary
3. Unified Electronics Vol II – J.P. Agarwal and Amit Agarwal.
4. Electronic Communications - George Kennedy
5. Antennas and Wave Propagation – G.S.N.Raju – PHI
6. Principles of communication system –Herbert Taub & D.L.Schilling

Reference Books:

1. Jacob Millan ,Micro Electronics,McGraw Hill.
2. Mithal G K, Electronic Devices and Circuits Thana Publishers.
3. Allan Motter shead ,Electronic Devices and Circuits – An Introduction-Prentice Hall
4. Electronic Communications – Roody & Colen
5. Communication Systems – Hayken --- 4th Edition
6. Modern digital and analog communication system –B.P. Lathi

Course Delivery method: Face-to-face

Course has focused on: Foundation and **S**kill Development

Websites of Interest:

https://www.synopsys.com/, https://www.tutorialspoint.com/

Co-curricular Activities: Assignments, PPT's, Mini-projects.

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Model Question Paper

TITLE: Analog Circuits and Communication

Course Code: ELET01 **Maximum Marks:** 75M

Time: 3 Hrs **Pass Minimum:** 30M

SECTION – A

Answer any *five* of the following: **5 x 5 = 25M**

1. Compare basic and ideal Op-Amps.
2. Explain logarithmic amplifier.
3. Explain zero cross detecting circuit.
4. Discuss need for modulation.
5. Write about power relations of AM wave.
6. Compare NBFM and WBFM.
7. Define frequency deviation, carrier swing and modulation index.
8. Difference between AM and FM wave

SECTION – B

Answer the following: **5 x 10 = 50M**

9. (a) Explain inverting and non-inverting amplifiers" Explain a summing amplifier.

(Or)

(b) Explain integrator and differentiator op-amp circuits.

10. (a) Explain the generation and demodulation of triangular wave form generator

(Or)

(b) Discuss the functional block diagram of IC-555 & mention one example.

11. (a) Explain the generation and demodulation of AM wave.

(Or)

(b) Describe mathematical representation and frequency spectrum of AM wave.

12. (a) Describe mathematical representation and frequency spectrum of FM wave.

(Or)

(b) Explain generation of FM using FET reactance modulator.

13. (a) Discuss briefly about super hetrodyne receiver of AM wave.

(Or)

(b) Draw the block diagram of FM transmitter and explain each block.

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TITLE: MICRO CONTROLLER AND INTERFACING

Offered to: B.SC(M.ECs, CA.M.E) –ELET41A

Course Type: Core (TH)

Year of Introduction: 2021-2022

Semester : IV **Credits : 4**

Hours Taught : 60 hrs. per Semester **Max. Time**: 3 Hours

COURSE OBJECTIVES:

1.To understand the concepts of microcontroller based system.
2. To enable design and programming of microcontroller based system.
3.To know about the interfacing Circuits.

COURSE OUTCOMES:

C01: The student can gain good knowledge on microcontrollers and implement in practical applications
CO2: To understand the different types of microprocessor and microcontrollers and to know the various development software tools.
CO3: To study the basic architecture of 8051 microcontroller and understand each block of the system.
C04: To gain the knowledge various addressing modes, instructions set and to design a time delay calculations
C05: To write and test various assembly language programming's for moderate complexity
C06: To write and test various assembly language programming's for moderate complexity

ELET41		P01	P02	P03	P04	P05	PO6	P07
	C01					M		
	CO2						M	
	CO3						L	
	CO4					M		
	CO5							L

Syllabus

Course Details

UNIT-1 (10hrs)

Introduction, comparison of Microprocessor and micro controller, Evolution of microcontrollers from 4-bit to 32 bit, Development tools for micro controllers, Assembler-Compiler-Simulator/Debugger.

Unit – II (10hrs)

Microcontroller Architecture:

Overview and block diagram of 8051, Architecture of 8051, program counter and memory organization, Data types and directives, PSW register, Register banks and stack, pin diagram of 8051, Port organization, Interrupts and timers.

Unit – III (10hrs)

Addressing modes, instruction set of 8051: Addressing modes and accessing memory using various addressing modes, instruction set: Arithmetic, Logical, Simple bit, jump, loop and call instructions and their usage. Time delay generation and calculation, Timer/Counter Programming,

Unit – IV (15hrs)

Assemble language programming Examples: Addition, Multiplication, Subtraction, division, arranging a given set of numbers in largest/smallest order.

Unit – V (15hrs)

Interfacing and Application of Microcontroller:

Interfacing of – PPI 8255, DAC (0804), Temperature measurement (LM35), interfacing seven segment displays, displaying information on a LCD, control of a stepper Motor (Uni-Polar), Interfacing a 4*3 matrix keypad. Generation of different types of waveforms using DAC.

TEXT BOOKS:

1. The 8051 microcontroller and embedded systems using assembly and c- kennet j.Ayalam, Dhananjay V.gadre, cengage publishers
2.The 8051 microcontrollers and Embedded systems - By Muhammad Ali Mazidi and Janice Gillispie Mazidi – Pearson Education Asia, 4th Reprint, 2002.

REFERENCE BOOKS:

1. Microcontrollers Architecture Programming, Interfacing and System Design – **Raj kamal.**
2. The 8051 Microcontroller Architecture, Programming and Application - **Kenneth J.Ajala ,** west publishing company (ST PAUL, NEW YORK, LOS ANGELES, SAN FRANCISCO).
3. Microcontroller theory and application-Ajay V.Deshmukh

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Model Question Paper

TITLE: MICRO CONTROLLER AND INTERFACING

Course Code: ELET41A **Maximum Marks: 75M**

Time: 3 Hours **Pass Minimum: 30M**

SECTION-A

Answer any FIVE of the following: 5x5=25M

1. Write about evolution of microcontrollers.(CO1)-(L1)
2. List and explain some 8051 16-bit registers. (CO2)-(L2)
3. Explain CALL instruction and stack.(CO3)-(L3)
4. Write an ALP program for two 8-bit numbers.(CO4)-(L1)
5. Write a short note on temperature measurement. (CO5)-(L1)
6. Write short notes on microcontroller testing tools.(CO5)-(L3)
7. Explain about stack pointer.(CO2)-(L2)|
8. Draw the pin diagram for DAC.(CO5)-(L1)

SECTION-B

Answer the following: 5x10=50M

1.a) Explain the difference between microprocessor and microcontroller.(CO1)-(L1)

(or)

b) Draw the pin diagram of 8051 and explain each pin in detail. (CO2)-(L1)

2. a)Explain the architecture of 8051 and explain each pin in detail. (CO2)-(L2)

(or)

b) Explain about port organization of 8051. (CO2)-(L3)

3. a) Explain about different types of Addressing modes.(CO3)-(L1)

(or)

b) Explain about (i)single bit instruction (ii)loop instruction(iii)Air thematic instruction with one example each.(CO3)-(L2)

4. a) Write a ALP program on largest number in an array.(CO4)-(L2)

(or)

b) Write an ALP (i) 8-bit addition (ii) multiplication of 8-bit.(CO4)-(L1)

5. a)Briefly explain the architecture of 8255(PPI).(CO5)-(L3)

(or)

b)Explain about interfacing of stepper motor to 8051 microcontroller.(CO5)-(L2)

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(Awarded by UGC)

DEPARTMENT OF ENGLISH

Course Structure and Syllabi under CBCS

Sl No.	Semester	Course Code	Name Of The Subject	Teaching Hours	Credits
1	**III Semester**	**ENG T01A**	**English praxis -III**	4	3

OBJECTIVE: The main objective of this course is to enrich students' abilities to speak fluently, participate confidently in any social interaction, face any professional discourse, demonstrate critical thinking and enhance conversational skills by deserving the professional interviews.

COURSE OUT COMES: At the end of the course the learners will be able to:

CO 1. Analyse interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose and form.
PO1

CO 2. Comprehend effectively for a variety of professional and social settings, adapting other writer's ideas as they explore and develop their own. **PO2**

CO 3. Engage in simple, common and basic social and academic conversations, demonstrating the ability to open and close a conversation and to ask for clarification, information or assistance, as well as agreeing/disagreeing and giving examples. **PO2**

CO 4. Convey their own interpretations by building dialogues and developing the learner's performance level in spoken English through the activities. **PO7**

CO 5. Acquaint the learner with the skills to debate, describe and role play. **PO3**

CO-PO MATRIX- ENG T01A							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M						
CO2		M					
CO3		H					
CO4							H
CO5						H	

GENERAL ENGLISH SYLLABUS FOR B.A/ B.COM/B.SC COURSES UNDER CBCS

SEMESTER-III

Course Code: ENG T01A **Max. Marks: 100**
No. of Hours per Week: 4 **External: 75M**
No. of Credits: 3 **Internal: 25M**

A COURSE IN CONVERSATIONAL SKILLS

Learning Outcomes

By the end of the course the learner will be able to:

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

I. UNIT

Speech Skills: 1. Tryst with Destiny Jawaharlal Nehru
Skills: 2. Greetings
3. Introductions

II. UNIT

Speech: 1. Yes, We Can Barack Obama
Interview: 2. A Leader Should Know How to Manage Failure Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton
Skills: 3. Requests

III. UNIT

Interview: 1. Nelson Mandela's Interview with Larry King
Skills: 2. Asking and Giving Information
3. Agreeing and Disagreeing

IV. UNIT

Interview: 1. JRD Tata's Interview with T.N.Ninan
Skills: 2. Dialogue Building
3. Giving Instructions/Directions

V. UNIT

1. **Speech**: 1. You've Got to Find What You Love Steve Jobs
Skills: 2. Debates
3. Descriptions
4. Role Play

DEPARTMENT OF MATHEMATICS

COURSE STRUCTURE

Semester	Course Code	Paper	Title of the paper	Total marks	Internal exam	Sem end exam	Teaching hours	credits
IV	MAT T41A	CORE	Linear Algebra	100	25	75	5	5

Programme Outcomes:

S.No	P. O
	At the end of the program the student will able to
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematics problem and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MAT T

S. No	C.O	
	Upon successful completion of their course, students should have the knowledge and skills to	
1.	Knowledge in fundamental concepts of vector spaces.	L2, PO-1
2.	Ability to understand the basic concepts of Basis and Dimensions.	L2, PO-1
3.	Discuss the linear transformations, rank and nullity.	L2, PO-1
4.	Appreciation in the concept of matrices as a tool in solving system of linear equations and determining eigen values and eigen vectors.	L2, PO-1

CO-PO MATRIX							
CO-PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1					**M**		
CO2					**H**		
CO3							**M**
CO4						**M**	
CO5							**M**

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE VIJAYAWADA-10

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MATHEMATICS	**MAT T41A**	**2021 – 22 Onwards**	**B.A (EMS),B.Sc.(MPC,MPCS,MECS,CAME,MSCA,MSCS)**

LINEAR ALGEBRA

SEMESTER-IV **No of Credits: 5**

OBJECTIVE: TO ENHANCE THE ANALYTICAL SKILLS AND APPLICATION SKILLS.

UNIT I: Vector spaces (18hrs)

1.1 Vector space definition – general properties of Vector space.

1.2 subspace definition – theorems & related problems.

1.3 Linear sum of two subspaces, linear combination of vectors and linear span of a set – theorems &related problems.

1.4 Linear dependence of vectors - theorems & related problems.

1.5 Linear independence of vectors - theorems & related problems.

UNIT II: Basis and Dimension (18hrs)

2.1 Basis of a vector space – definition, Basis existence, Basis extension, Basis Invariance, theorems.

2.2 Coordinates – definition & related problems.

2.3 Dimension of a vector space, dimension of a subspace - theorems & related problems.

2.4 Quotient space, dimension of Quotient space - theorems.

UNIT III: Linear Transformation (18hrs)

3.1 Vector space homomorphism – definitions

3.2 Linear transformation, Properties of L.T., Determination of L.T. - theorems & related problems.

3.3 Sum of linear transformations, scalar multiplication of L.T., product of linear transformations, Algebra of linear operators - theorems & related problems.

3.4 Range & Null space of a L.T. – Definitions, theorems & related problems.

3.5 Rank nullity theorem - related problems.

UNIT IV: Matrices (18hrs)

4.1 Fundamentals of Matrices.

4.2 Elementary matrix operations & elementary matrices.

4.3 Rank of a matrix – definition, related problems.

4.4 Echelon form of a matrix, reduction to normal form, PAQ form, Inverse of a matrix – related problems only.

4.5 System of linear equations – homogeneous & non homogeneous linear equations - related problems.

4.6 Eigen values & Eigen vectors of a matrix – definitions, theorems & related problems.

4.7 Cayley - Hamilton theorem, related problems.

UNIT V: Inner product spaces (18hrs)

5.1 Inner product spaces – definition, Norm (or) Length of a vector - theorems & related

problems.

5.2 Schwarz in equality, Triangle inequality, parallelogram law – theorems.

5.3 Orthogonality – orthogonal, orthonormal vectors, orthogonal set, orthonormal sets of I.P.S - theorems & related problems.

5.4 Gram- Schmid orthogonalization process, Bessel's Inequality and Parseval's Identity.

Prescribed Text book:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1.	V. Venkateswara Rao, N. Krishna Murthy.	A text book of Mathematics for B.A/B.ScVol – III. (Pg No: 111-192; 232 – 321 & 339 – 389; 395 – 434).	S-Chand & Co.	2006

Reference Text books:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1.	J.N. Sharma and A. R. Vasistha	Linear Algebra	Krishna PrakashanMandir Meerut-250002.	
2.	Dr. A. Anjaneyulu	A Text Book of Mathematics B.A/B.Sc – Vol III	Deepthi Publications	3rd Edition 2006 – 2007

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SEMESTER – IV **Model Paper**

COURSE CODE : MAT T41A **Time: 3hrs.**
TITLE OF THE PAPER : LINEAR ALGEBRA **Max. Marks: 75**

SECTION – A

Answer any FIVE of the following questions **5X5=25M**

1. The set W of ordered triads (x, y, 0) where x, y ϵ F is a subspace of $V_3(F)$. (CO1, L2)
2. If two vectors are linearly dependent, prove that one of them is a scalar multiple of the other. (CO1, L2)
3. Show that the set { (1,0,0), (1,1,0),(1,1,1) } is a basis of $C^3(C)$.Hence find the coordinates of the vector (3+4i, 6i, 3+7i) in $C^3(C)$. (CO2,L4)

4. Describe explicitly the linear transformation T: $R^2 \rightarrow R^2$ such that T(2, 3) = (4, 5) and T(1, 0) = (0,0) (CO3,L2)

5. Find the rank of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix}$. (CO4,L2)

6. Solve the system $2x_1 - x_2 + x_3 = 0$, $3x_1 + 2x_2 + x_3 = 0$, $x_1 - 3x_2 + 5x_3 = 0$. (CO4,L2)

7. Show that zero is a characteristic root of a matrix if and only if the matrix is singular. (CO4,L2)

8. State & prove the Triangle Inequality. (CO5,L2)

SECTION -B

Answer the following questions. **5X10=50M**

9a) If S, T are the subset of a vector space V (F), then prove that

i) $S \subseteq T \Rightarrow$ (i) $L(S) \subseteq L(T)$

ii) L (S U T) = L(S) + L(T). (CO1,L2)

(OR)

9b). Let V (F) be a vector space and $S = \{ \alpha_1, \alpha_2, \alpha_3, \ldots\ldots \alpha_n \}$ is a finite subset of non-zero vectors of V (F).Then S is linear dependent if and only if some vector $\alpha_k \in S$, $2 \leq k \leq n$, can be expressed as a linear combination of its preceding vectors**.** **(**CO1, L2)

10a) State and prove Basis extension theorem. (CO2, L2)

(OR)

10b) Let W be a subspace of a finite dimensional vector space V (F) then dim V/W = dim V – dim W. (CO2,L2)

11a) Find T (x, y, z) where T : $R^3 \rightarrow R$ is defined by T (1 , 1, 1) = 3; T(0, 1 ,-2) = 1; T(0, 0, 1) = -2. (CO3, L2)

(OR)

11b) State and prove Rank – nullity theorem. (CO3, L4)

12a) Show that the only number λ for which the system $x + 2y + 3z = \boldsymbol{\lambda}x$, $3x + y + 2z = \boldsymbol{\lambda}y$, $2x + 3y + z = \boldsymbol{\lambda}z$ has non-zero solutions is 6. (CO4,L2)

(OR)

12b) State and prove Cayley – Hamilton theorem. (CO4,L2)

13a) State and prove Cauchy – Schwarz's Inequality. (CO5,L4)

(OR)

13b) Given {(2,1,3), (1, 2, 3), (1, 1, 1)} is a basis of R^3; Construct an orthonormal basis.

(CO5,L4)

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