

Hall Ticket No. -

Code: R122131

Stanley College of Engineering & Technology for Women (A)

B.E (CSE, CME & AI&DS) III Semester (Main) Examinations-January-2023

Mathematics-III (P&S)

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part- A

6X2=12M

1. a) State and Prove Addition theorem for two events. (2M CO1 BT1)
b) If the mean of Binomial distribution is 3 and variance is $\frac{9}{4}$, Obtain the value of n. (2M CO2 BT1)
c) Define Karl Pearson Coefficient Correlation, (2M CO3 BT1)
d) Given $y' = x^2 - y$, $y(0) = 1$, find correct to four decimal places the value of $y(0.1)$ by using Euler's method. (2M CO4 BT3)
e) Are these vectors linearly dependent, verify $(2,1,0), (1,2,5), (5,4,5)$ (2M CO5 BT2)
f) Find the area A under the normal curve to the left of $z = -1.78$ [Tab. Value: 0.4625] (2M CO2 BT1)

Part-B

4X12=48M

2. a) State and Prove Baye's Theorem. (6M CO1 BT2)
b) Box A contains 5 red and 3 white marbles and box B contains 2 red and 6 white marbles. If a marble is drawn from each box, what is the probability that they are both of same colour? (6M CO1 BT3)
3. a) Derive the mean and variance of Binomial Distribution. (6M CO2 BT3)
b) Fit a Poisson distribution for the following data and calculate the expected frequencies

x	0	1	2	3	4
f(x)	109	65	22	3	1

(2M CO2 BT3)

4. a) Fit a parabola to the following data

x	1	2	3	4	5
y	10	12	8	10	14

(2M CO3 BT3)

- b) Two horses A and B were tested according to the time to run a particular track with the following results . Test whether the two horses have the same running capacity.

Horse A	28	30	32	33	33	29	34
Horse B	29	30	30	24	27	29	--

(Tab. Value=2.201)

(6MCO3 BT3)

5. a) Use Taylors series method to find the approximate value of y when $x=0.1$, $x=0.2$ given

that $y(0)=1$, $y'=3x+y^2$

(6M CO4 BT3)

- b) Use R-K method to evaluate $y(0.1)$ and $y(0.2)$ given that $y' = x + y$, $y(0) = 1$.

(6M CO4 BT3)

6. a) Define Vector Space, Sub-Space and Give examples.

(6M CO5 BT1)

- b) Show that the vectors $(1, 2, 3)$, $(3, -2, 1)$, $(1, -6, -5)$ form linearly dependent set and hence find its basis.

(6M CO5 BT4)

7. a) A random variable X has the following probability function

(6M CO1 BT3)

$X=x$	1	2	3	4	5	6
$P(x)$	K	$3K$	$5K$	$7K$	$9K$	$11K$

Determine i) k ii) Expectation iii) Variance

- b) For the continuous probability function $f(x) = kx^2 e^{-x}$ when $x \geq 0$, find

i) k ii) Mean iii) Variance

(6M CO1 BT3)

Stanley College of Engineering & Technology for Women (A)

B.E (IT) - III Semester (Main) Examinations-January-2023

Probability & Statistics

Time: 03Hours

Max. Marks-60

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Part-A

6X2=12M

1. a) A Random Variable X has the following probability distribution

X	1	2	3	4
P	1/10	2/10	3/10	4/10

Then find (i) $E(X)$ (ii) $V(X)$ [2M CO1 BTL1]

- b) Determine the B.D for which mean 4 and variance 3. [2M CO2 BTL2]

- c) For an F-distribution determine the following
 (i) $F_{0.05}$ With $v_1 = 7$ and $v_2 = 15$ (ii) $F_{0.01}$ with $v_1 = 24$ and $v_2 = 19$. [2M CO3 BTL2]

- d) Solve $\frac{dy}{dx} = x + y$, $y(1) = 0$ numerically using Taylor's series method up to $x = 1.1$
 with $h = 0.1$ [2M CO4 BTL2]

- e) Define Linearly Independent and dependent vectors in Vector spaces. [2M CO5 BTL2]

- f) Find the singular values of the matrix $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ [2M CO5 BTL2]

Part-B

4X12=48M

2. a) In a bolt factory machines A, B, C manufacture 20%, 30%, 50% of the total of their output and 6%, 3%, 2% are defective. A bolt is drawn at random and found to be defective. What is the probability that it is manufactured by machines A, B and C? [6M CO1 BTL2]

- b) If probability density function $f(x) = \begin{cases} kx^3, & \text{if } 0 \leq x \leq 3 \\ 0, & \text{else where} \end{cases}$

Find the probability between $x = \frac{1}{2}$ and $\frac{3}{2}$. 6M CO1 BTL2]

3. a) Calculate the first four moments of the following distribution about the mean

x	0	1	2	3	4	5	6	7	8
f	1	8	28	56	70	56	28	8	1

And also calculate β_1, β_2

[8M CO2 BTL3]

- b) For the discrete probability distribution

X	0	1	2	3	4	5	6
F	0	2K	2K	3K	K^2	$2K^2$	$7K^2 + K$

Find (i) K (ii) Mean (iii) Variance

[4M CO2 BTL3]

4. a) Find the equation of the least fitting line
- $y = ax + b$
- for the following data

x	5	10	15	20	25
y	16	19	23	26	30

[6M CO3 BTL3]

- b) Find the Regression Co-efficient from the following data.

X	68	64	75	50	64	80	75	40	55	64
Y	62	58	68	45	81	60	68	48	50	70

[6M CO3BTL4]

5. a) Using Runge - Kutta method of fourth order find
- $y(0.1)$
- and
- $y(0.2)$
- given that

$$\frac{dy}{dx} = 1 + xy, y(0) = 2.$$

[12M CO4 BTL4]

6. a) Prove that the set
- $S = \{(1, -1, 0), (1, 1, 0), (1, 1, 1)\}$
- is a basis of
- \mathbb{R}^3

[6M CO5 BTL5]

- b) Find the singular values of the matrix
- $A = \begin{pmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 \\ 1 & 1 & 0 & 0 \end{pmatrix}$

[6M, CO5, BTL5]

7. a) Fit a second degree parabola
- $y = ax^2 + bx + c$
- to the following data

x	0	1	2	3	4
y	1	5	10	22	38

[6M, CO3, BTL3]

- b) Given,
- $\frac{dy}{dx} = x^3 + y, y(0) = 1$
- , compute
- $y(0.2)$
- by Euler's Method taking
- $h = 0.01$

[6M CO4 BTL 4]

Hall Ticket No.

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Stanley College of Engineering & Technology for Women (A)

B.E III Semester (Main) Examinations - January-2023

ECE & EEE-Probability Theory & Stochastic Processes

Time: 03 Hours

Max. Marks-60

- Note:** i). First Question is Compulsory. Answer any Four out of remaining Six questions.
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Part-A

6X2=12M

1. a. Define the Probability? What are the axioms of probability? [2M CO1 BTL1]
- b. Find out the probability of getting a 2 or a 5 when a die is rolled? [2M CO3 BTL1]
- c. State the Central Limit Theorem with an example [2M CO2 BTL2]
- d. Summarize the different measures of Central Tendency [2M CO3 BTL2]
- e. Distinguish between ensemble averages and the time averages of random process? [2M CO4 BTL2]
- f. Write the equations of Wiener-Khinchine relations? [2M CO5 BTL2]

Part-B

4X12=48M

2. a) State and prove the Baye's theorem and Total probability Theorem? [8M CO1 BTL2]
- b) When two dice are thrown, determine the probabilities from axiom 3 for the following events. (i) $A = \{\text{Sum} = 7\}$ (ii) $B = \{8 \leq \text{Sum} \leq 11\}$ (iii) $C = \{10 < \text{Sum}\}$ (iv) $P(B \cap C)$ [4M CO1 BTL3]
3. a) Define the CDF? State and prove its properties [6M CO1 BTL4]
- b) A continuous random variable X defined by probability density function given by $f(x) = 5(1-x^4)/4$ $0 \leq x \leq 1$. Calculate $E[X]$, $E[X^2]$ and variance. [5M CO2 BTL3]
4. a) Explain how Moment generating function generates the moments? State and prove it's properties? [7M CO2 BTL4]
- b) The joint probability density function of $f(x,y)$ is given by $f(x,y) = 8xy$ $0 \leq x \leq 1$, $0 \leq y \leq x$
 - (i) Determine the marginal density of X and Y.
 - (ii) Determine the conditional density functions of X and Y. Verify that whether X and Y are independent. [5M CO2 BTL4]

5. a) Fit a parabola to the following data

X	-2	-1	0	1	2
Y	29	25	22	20	19

[7M CO3 BTL4]

b) Fit a second degree polynomial for the following data by the method of least Squares

x	10	12	15	23	20
y	14	17	23	25	21

[5M CO3 BTL6]

6. a) Categorize random processes into first order, second order, wide-sense and strict-sense stationary based on their characteristics and properties.

[6M CO4 BTL4]

b) Assess whether the random process $X(t) = A \cos(\omega_0 t + \Theta)$ is wide stationary or not, where A , ω_0 are constants and Θ is a uniformly distributed random variable on the interval $(0, 2\pi)$

[6M CO4 BTL5]

7. a) Define and prove any Four properties of PSD of random process. [6M CO5 BTL4]

b) Determine the auto correlation function for the following power density spectrum:

$$S_{xx}(\omega) = \frac{157 + 12\omega^2}{(16 + \omega^2)(9 + \omega^2)}$$

[6M CO5 BTL3]

Hall Ticket No. -

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Stanley College of Engineering & Technology for Women (A)

B.E (CSE,CME&AI&DS) III Semester (Main) Examinations-January-2023

Discrete Mathematics

Time: 03 Hours

Max. Marks-60

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Part-A

6X2=12M

1. a. Summarize: (i) Conjunction (ii) Implication. [2M CO1 L2]
- b. If $A=\{2, 3, 4, 5\}$ and $B=\{0, 1, 2, 3\}$ find $A \cap B$. [2M CO4 L1]
- c. Define Scalar matrix with example. [2M CO2 L1]
- d. Find the characteristic roots of the matrix $A = \begin{bmatrix} 5 & 3 \\ 3 & 4 \end{bmatrix}$. [2M CO2 L1]
- e. Define: (i) Congruence relation (ii) Equivalence relation. [2M CO3 L1]
- f. Summarize (i) Bipartite graph (ii) Complete graph. [2M CO5 L2]

Part-B

4X12=48M

2. a) Explain (i) Tree traversal (ii) Quantifiers. [6M CO3 L2]
- b) Prove that $(p \leftrightarrow q) = (p \rightarrow q) \wedge (q \rightarrow p)$. [6M CO3 L5]
3. a) Define (i) Pigeon hole principle (ii) Permutation (iii) Combination. [6M CO2 L1]
- b) Simplify the boolean expression: $A = XY + X(Y+Z) + Y(Y+Z)$. [6M CO4 L4]
4. Illustrate Cayley-Hamilton theorem for matrix $A = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix}$. [12M CO5 L2]
5. Demonstrate $H = \{0,2,4\}$ is subgroup of the group $(G, +_6)$, where $G = \{0,1,2,3,4,5\}$ [12M CO4 L2]
6. a) If $U = \{2, 4, 6, 8, 10, 12, 14, 16\}$, $A = \{2, 6, 10\}$ and $B = \{4, 8, 10, 12, 14, 16\}$, then find (i) $A - B$ (ii) $B - A$ (iii) $A \cap B$ [6M CO3 L1]
- b) By using contradiction, prove that: $\sqrt{2}$ is irrational. [6M CO4 L2]
7. A bag contains 10 red marbles, 10 white marbles, and 10 blue marbles. What is the minimum no. of marbles you have to choose randomly from the bag to ensure that we get 4 marbles of same color? [12M CO2 L2]

Stanley College of Engineering & Technology for Women (A)

B.E (IT) III Semester (Main) Examinations-January-2023

Discrete Mathematics

Time: 03Hours

Max. Marks-60

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Part-A

6X2=12M

1. a. Define an Equivalence Relation with an example? [2M CO1 BTL1]
- b. State Pigeon hole Principle? [2M CO2 BTL2]
- c. Construct the Truth table of $P \wedge (P \rightarrow Q)$ [2M CO3 BTL3]
- d. Let $G = (1, -1)$. Verify that $\langle G, * \rangle$ is a Group. [2M CO4 BTL4]
- e. Write about Planar graphs with an example? [2M CO5 BTL2]
- f. Differentiate Path and Cycle of a graph? [2M CO6 BTL2]

Part-B

4X12=48M

2. a) Let $A = \{1, 2, 3, 4, 6, 12\}$. On A, define the relation R by aRb if and only if a divides b. Prove that R is a Partial Ordering Relation on A. Draw the Hasse Diagram for this relation. [6M CO1 BTL5]
- b) Consider $A = \{1, 2, 3, 4\}$ and f and g be functions from A to A given by $f = \{(1, 4), (2, 1), (3, 2), (4, 3)\}$ and $g = \{(1, 2), (2, 3), (3, 4), (4, 1)\}$. Prove that f and g are inverse of each other. [6M CO1 BTL5]
3. a) From a group of 10 professors, how many ways can a committee of 5 members can be formed, so that atleast one professor A and professor B will be included? [6M CO2 BTL2]
- b) Suppose that 200 faculty members can speak French and 50 can speak Russian, while only 20 can speak both French and Russian. How many faculty members can speak either French or Russian? [6M CO BTL2]
4. a) Show that $(P \rightarrow Q) \Leftrightarrow (\neg Q \rightarrow \neg P)$ through Truth Table Construction. [6M CO3 BTL2]
- b) List out the Connectives used in Propositional Logic. Explain? [6M CO3 BTL2]

002

Code: R122133

5. a) Let G be the set of all non-zero real numbers and let $a*b = (\frac{1}{2})ab$. Show that $\langle G, * \rangle$ is an abelian group. [6M CO4 BTL6]
- b) How the Disjunctive Normal Form is different from Conjunctive Normal Form. Explain? [6M CO4 BTL5]
6. a) Explain Isomorphism of Graphs with an Example? [6M CO5 BTL6]
- b) Explain Proper Coloring and Chromatic Number of a graph with an example? [6M CO BTL6]
7. a) Explain Euclidean Algorithm with an example? [6M CO1 BTL2]
- b) Find the coefficient of x^{15} in the expansion of $(x - x^2)^{10}$. [6M CO2 BTL2]

B.E (EEE) III Semester (Main) Examinations-January-2023

Electrical Circuit Analysis

Time: 03 Hours

Max. Marks-60

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Part-A

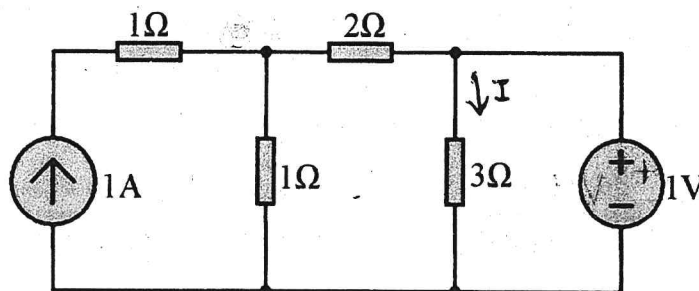
6X2=12M

1. a. Define resonance. [2M CO1_ BTL1]
- b. State Maximum power transfer theorem [2M CO2_ BTL2]
- c. What is time constant? [2M CO3_ BTL2]
- d. List the advantages of Laplace Transform methods compared to differential equations. [2M CO4_ BTL1]
- e. Define driving Point Function and Transfer Function. [2M CO5_ BTL1]
- f. State the Norton's theorem. [2M CO2_ BTL2]

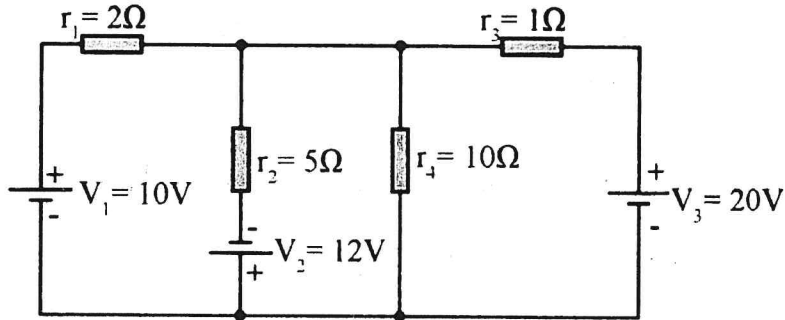
Part-B

4X12=48M

2. a) Explain three phase star and delta connected systems and mention the relation between phase and line values of voltage and currents. [6M CO1_ BTL2]
- b) Explain the concept of series resonance and derive the formula for resonant frequency. [6M CO1_ BTL3]
3. a) Find I in the circuit in 3Ω resistor by using superposition theorem. [6M CO2 BTL3]

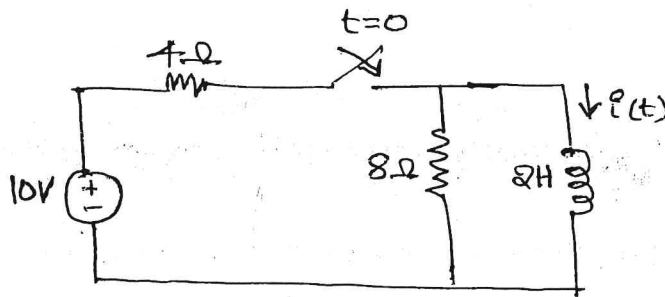


- b) Find the current through the 10Ω resistor using Thevenin's Theorem. [6M CO2 BTL3]



4. a) Find $i(t)$ in an inductor for the circuit shown below.

[6M CO3_BTL4]

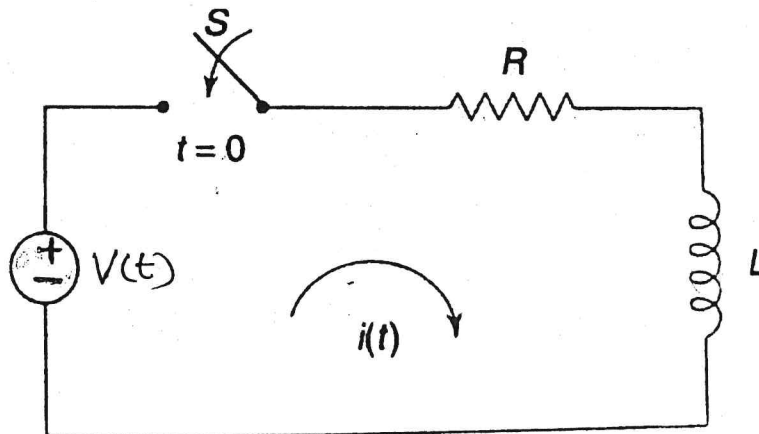


- b) Analyze the RL series circuit with DC excitation and derive the formula for current.

[6M CO3_BTL4]

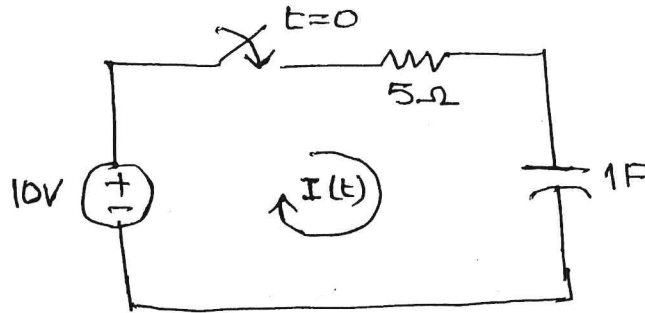
5. a) Find the step response of RL network shown below using Laplace transform method.

[6M CO4_BTL3]



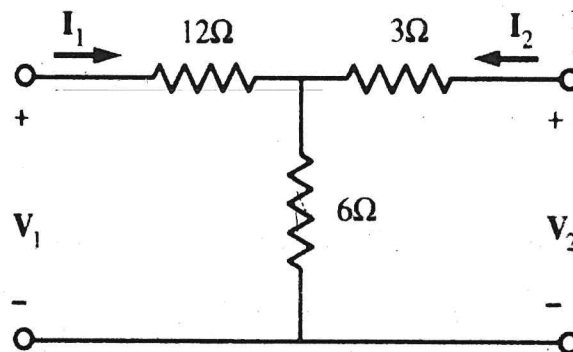
b) Find $I(t)$ for the circuit shown below using Laplace Transform.

[6M CO4_BTL3]



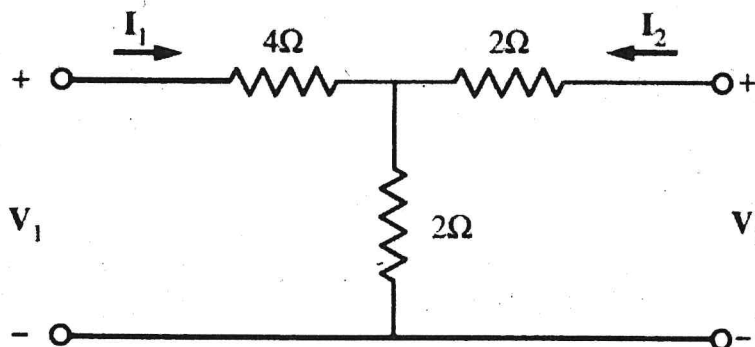
6. a) Determine the z parameters for the circuit in the following figure

[6M CO5_BTL3]



b) Determine the admittance parameters of the network shown below

[6M CO5_BTL3]



7. a) Explain in detail about series and parallel dot convention.

[6M CO1_BTL2]

b) State and explain Reciprocity theorem.

[6M CO2_BTL2]

Hall Ticket No. -

Code: R1223F

Stanley College of Engineering & Technology for Women (A)

B.E (ECE) III Semester (Main) Examinations-January-2023

Managerial Economics and Accountancy

Time: 03 Hours

Max. Marks-60

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Part-A

6X2=12M

1. a. What is time perspective? [2M CO1 BT1]
- b. What is income elasticity of demand? [2M CO2 BT1]
- c. Define isoquants. [2M CO3 BT1]
- d. What is double entry system? [2M CO4 BT1]
- e. Define journal [2M CO4 BT1]
- f. Define payback period with formulae. [2M CO5 BT2]

Part-B

4X12=48M

2. a) Discuss how Managerial Economics is useful to Engineers? [8M CO1 BT5]
- b) Discuss briefly (a) Opportunity cost (b) Discounting Principle [4M CO1 BT5]
3. a) What are the exceptions of Law of demand? [8M CO2 BT3]
- b) What is demand forecasting and explain its qualitative techniques. [4M CO2 BT3]
4. a) Explain Break-even analysis and what are its uses. [8M CO3 BT6]
- b) List out the features of Perfect competition. [4M CO3 BT6]
5. a) Mention advantages and Disadvantages of Ratio analysis. [8M CO4 BT5]
- b) Write importance of Petty cash book? [4M CO4 BT5]

Code: R1223F

6. A firm with cost of capital of 10% is considering two mutually exclusive projects A and B, the details of which are:

[12M CO5 BT4]

	Project – A Rs.	Project – B Rs.
Investment	90,000	90,000
Cash flows Year– 1	12,000	52,000
2	22,000	42,000
3	32,000	22,000
4	42,000	12,000
5	52,000	12,000

Compute Pay Back Period and Net Present Value and suggest which project is acceptable

7. a) List out factors determining the working capital requirements.

[8M CO5 BTL2]

- b) Write about (i) Gross working capital (ii) Networking capital

[4M CO5 BTL2]

Stanley College of Engineering & Technology for Women (A)**B.E (CSE) III Semester (Main) Examinations-January-2023****Computer Organization****Time: 03 Hours****Max. Marks-60**

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Part-A**6X2=12M**

1. a. Define Byte Format for floating point Representation with example. [2M CO1 BTL1]
- b. Differentiate Between Hardwired and Micro Programmed Control Unit. [2M CO2 BTL2]
- c. Define cache & virtual Memory. [2M CO3 BTL1]
- d. Draw pin diagram of 8085. [2M CO4 BTL3]
- e. List the addressing modes of 8051 microcontrollers. [2M CO4 BTL1]
- f. Define hit ratio. [2M CO3 BTL1]

Part-B**4X12=48M**

2. a) Explain Logic micro-operations in detail? [6M CO1 BTL2]
- b) Explain the elements of bus design along with the timing of synchronous and asynchronous bus operations. [6M CO1 BTL2]
3. a) Illustrate about computer instructions in detail? [6M CO2 BTL3]
- b) Illustrate about Input-Output instructions in detail? [6M CO2 BTL3]
4. a) Write about instruction formats in detail. [6M CO3 BTL6]
- b) Write about addressing modes in detail. [6M CO3 BTL6]
5. a) Explain the DMA controller (8257). [6M CO4 BTL2]
- b) Explain the programmable Interrupt Controller. [6M CO4 BTL2]
6. a) Draw and Explain the pin diagram of 8051 microcontroller? [6M CO5 BTL3]
- b) Draw and Explain arithmetic and logical instructions of 8051? [6M CO5 BTL3]
7. a) What is a bus? Explain the structure of the bus along with one or two control lines. [6M CO1 BTL2]
- b) Explain the data transfer types in detail. [6M CO1 BTL2]

Hall Ticket No. -

Code: R122136/1

Stanley College of Engineering & Technology for Women (A)

B.E (CME & AI&DS) III Semester (Main) Examinations-January-2023

Concepts in Computer Organization and Microprocessor

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
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Part-A

6X2=12M

1. a. Design the block diagrams for programming in hardware and software approaches [2M CO1 BTL6]
- b. Define Micro operation. [2M CO2 BTL1]
- c. Illustrate phases of the instruction cycle. [2M CO3 BTL3]
- d. Define hit ratio. [2M CO1 BTL1]
- e. Compare microprocessor and microcontroller. [2M CO3 BTL5]
- f. Classify the addressing modes of 8051 microcontroller [2M CO4 BTL4]

Part-B

4X12=48M

2. a) List and Explain the elements of bus design along with the timing of synchronous and asynchronous bus operations. [6M CO1 BTL1]
- b) Show arithmetic logic shift unit in detail. [6M CO2 BTL1]
3. a) Distinguish the different types of fixed point representation? Explain each with an example. [6M CO3 BTL4]
- b) Discuss floating point representation in detail. [6M CO3 BTL2]
4. a) Describe control memory in CPU. [6M CO2 BTL2]
- b) Summarize input-output and interrupt operation. [6M CO3 BTL2]
5. a) Construct zero, one, two and three address instruction formats in detail. [6M CO2 BTL2]
- b) Elaborate cache memory in detail. [6M CO2 BTL6]
6. a) List Arithmetic and Logical 8085 instructions with examples. [6M CO4 BTL1]
- b) What is DMA? Draw 8257 DMA controller. [6M CO5 BTL1]
7. a) Draw and explain 8051 architecture/block diagram. [6M CO4 BTL2]
- b) How does RS232 work? [6M CO2 BTL1]

B.E (ECE) III Semester (Main) Examinations-January-2023

Digital System Design

Time: 03 Hours

Max. Marks-60

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Part-A

6X2=12M

1. a. What do you understand by the number systems. Enlist the types of number systems with an example for each. [2M CO1 BTL1]
- b. State and Prove Demorgan's Theorem [2M CO1 BTL1]
- c. Describe Minterm. Write all Minterms for 3 Variables [2M CO2 BTL2]
- d. Describe Combinational and Sequential logic circuits. [2M CO3 BTL2]
- e. What do you mean by race around condition, where it occurs and how to avoid it? [2M CO4 BTL1]
- f. Define different modeling styles in Verilog HDL. [2M CO5 BTL1]

Part-B

4X12=48M

2. a) Convert the following
 - i. $(327.89)_{10} = (?)_{BCD}$
 - ii. $(273.11)_{10} = (?)_2$
 - iii. $(1111101.1101)_2 = (?)_8$ [3M CO1 BTL2]
- b) Describe the following with example.
 - i. Excess-3 code
 - ii. Gray code
 - iii. Weighted binary code [3M CO1 BTL2]
- c) Perform the following subtractions using 2's complement method
 - i. $01100-00011$
 - ii. $01000-010011$ [6M CO1 BTL3]
3. a) Given the logic function $f = A\bar{B}D + ABC + A\bar{B}C$
 - i. Make a truth table
 - ii. Simplify using K map
 - iii. Realize using only NAND gates. [6M CO2 BTL5]
- b) Design a BCD to Excess-3 code converter. Realize using basic gates and also using only NAND gates. [6M CO3 BTL5]

4. a) Design and implement a full adder using two half adders and an OR gate. [6M CO3 BTL2]
b) Implement the full subtractor using IC 74138. [6M CO3 BTL6]
5. a) Explain the working of master slave JK flipflop. Convert JK flipflop into T flipflops. [6M CO4 BTL5]
b) Design Mod-6 Asynchronous counter using JK flipflop. [6M CO4 BTL6]
6. a) Explain VLSI design Flow with suitable flow diagram. [4M CO5 BTL5]
b) Write and Explain Verilog code for implementing 8 to 3 encoder. [8M CO5 BTL5]
7. Minimize the following function using Quine-Mc Cluskey Tabular Method
 $F(A, B, C, D) = \sum M(0, 1, 2, 5, 6, 7, 8, 9, 10, 14)$ [12M CO2 BTL5]

Hall ticket No. -

Code: R122138

Stanley College of Engineering & Technology for Women (A)

B.E (CSE & CME) III Semester (Main) Examinations-January-2023

Digital Electronics

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Implement the Boolean function $F = y' + xy + x'yz'$ using basic gates [2M CO1 BTL3]
- b. Write the flow chart for subtracting numbers in signed 2's complement representation [2M CO2 BTL2]
- c. Differentiate between ROM and PAL [2M CO3 BTL4]
- d. What is the difference between Flipflop and Latch [2M CO4 BTL2]
- e. What is the capabilities and limitations of Finite State Machine? [2M CO5 BTL2]
- f. Design 1 bit magnitude comparator [2M CO2 BTL3]

Part-B

4X12=48M

2. a) Find all the prime implicants of the function using Quine-Mccluskey algorithm.
 $f(a,b,c,d) = \sum m (7,9,12,13,14,15) + d(4,11)$ and realize that function using NAND gate. [12M CO1 BTL2]
3. a) Perform subtraction on the given unsigned binary numbers using 2's complement of the subtrahend. Where the result should be negative. Find its 2's complement and affix a minus sign: [6M CO2 BTL3]
 - i. 10011 - 10001
 - ii. 100010 - 100011
 - iii. 1001 - 101000
 - iv. 110000 - 10101

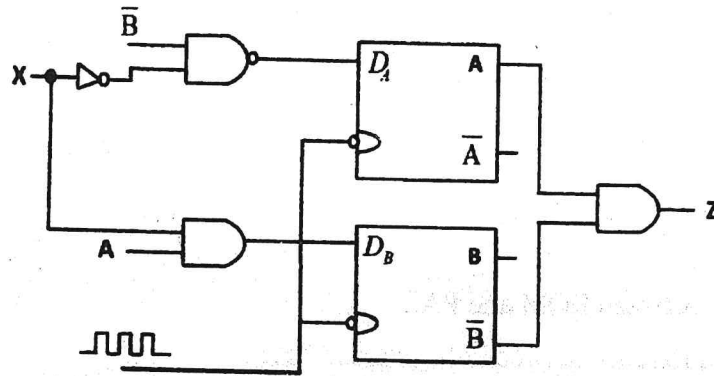
b) Construct a 16 x 1 multiplexer with two 8 x 1 and one 2 x 1 multiplexer and explain its working. [6M CO2 BTL3]
4. a) With diagrams explain the working of PROM, PLA and PAL devices [6M CO3 BTL2]
- b) Realize the following expressions using 3x4x2 PLA [6M CO3 BTL3]
$$f_1(x,y,z) = \sum m (0,1,3,4)$$
$$f_2(x,y,z) = \sum m (1,2,3,4,5)$$

Code: R122138

5. a) Explain the working of a JK flip-flop. What is race around condition? How can it be eliminated? [6M CO4 BTL2]

b) Design Mod-10 Asynchronous counter using T-flip-flops. [6M CO4 BTL3]

6. a) Write the excitation table and state diagram for the sequential circuit shown in Fig. [6M CO5 BTL3]



b) Write the difference between Mealy machine and Moore machine [6M CO5 BTL4]

7. a) Draw the state diagram, state table and ASM chart for the JK flip-flop [6M CO5 BTL3]

b) Implement following Boolean functions using 3:8 decoder and external gates. [6M CO2 BTL3]

i. $F_1(A,B,C) = \sum m(1,3,5,7)$

ii. $F_2(A,B,C) = \sum m(2,3,6,7)$

Hall ticket No. -

Code: R122138

Stanley College of Engineering & Technology for Women (A)

B.E (IT) III Semester (Main) Examinations-January-2023

Digital Electronics & Logic Design

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Construct XOR gate using only NAND Gates [2M CO1 BTL3]
- b. What do you mean by priority encoder? [2M CO2 BTL1]
- c. Define LUT and draw 2 – input LUT. [2M CO3 BTL1]
- d. What are direct inputs in a flip-flop and why they are used? [2M CO4 BTL2]
- e. Compare Moore and Mealy machine? [2M CO5 BTL2]
- f. State De Morgan's Theorem. [2M CO1 BTL1]

Part-B

4X12=48M

2. a) Determine the set of prime implicants and obtain all the minimal expressions for the function $F(w,x,y,z)=\Sigma(0,1,2,5,7,8,9,10,13,15)$ [6M CO1 BTL4]
- b) Simplify the Boolean expression $(x+y)(x'+y')$ to minimum number of literals and implement the logic using universal gates. [6M CO1 BTL4]
3. a) Explain the 3x8 line Decoder with Truth-table and circuit diagram. [6M CO2 BTL2]
- b) Construct a Full Subtractor using 3x8 line decoder. [6M CO2 BTL3]
4. a) Explain the architecture of CPLD. [6M CO3 BTL1]
- b) Build the PAL programming table for the Boolean functions $w=A+BC+BD$, $x=B'C+B'D+BC'D'$, $y=CD+C'D'$, $z=D'$ [6M CO3 BTL6]
5. a) What is a master-slave flip-flop? Explain with block diagram and logic diagram. [6M CO4 BTL1]
- b) Design a T flip-flop using JK flip-flop. Use k-maps for the design. [6M CO4 BTL3]
6. a) List the basic types of shift registers in terms of data movement. [6M CO4 BTL1]
- b) Design a mod 6 ripple counter using T flip-flops [6M CO4 BTL3]
7. a) Convert the following Mealy machine to Moore Machine [6M CO5 BTL4]

PS	NS,Z	
	x=0	x=1
A	C,0	B,1
B	A,1	D,0
C	B,1	A,1
D	D,1	C,0

- b) Explain about the basic elements of ASM charts [6M CO5 BTL2]

Hall ticket No. -

Code: R12231B

Stanley College of Engineering & Technology for Women (A)

B.E (EEE) III Semester (Main) Examinations-January-2023

Analog Electronics

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Distinguish between intrinsic & extrinsic semiconductors. [2M CO1 BTL2]
- b. Differentiate Clippers and clampers. [2M CO2 BTL2]
- c. Draw the small signal model of CE amplifier. [2M CO2 BTL1]
- d. Compare between positive and negative feedback. [2M CO3 BTL2]
- e. List out the types of power amplifier based on conduction angle? [2M CO4 BTL2]
- f. Discuss the concept of virtual ground. [2M CO5 BTL2]

Part-B

4X12=48M

2. a) Describe the construction and working of a full wave rectifier. [6M CO1 BTL2]
- b) Demonstrate the formation of depletion region and barrier potential in PN junction diode. [6M CO1 BTL2]
3. a) Elaborate Input & output characteristics of CE Configuration. [7M CO2 BTL4]
- b) Illustrate the operation of a N-channel JFET. [5M CO2 BTL3]
4. a) Examine current shunt and voltage series feedback amplifiers? [6M CO3 BTL3]
- b) Derive the expression for positive feedback. Explain Barkhausen criterion. [6M CO3 BTL3]
5. a) Discuss about the transformer coupled amplifier in detail. [6M CO2 BTL2]
- b) Derive the frequency of Colpitt's oscillator? [6M CO4 BTL2]
6. a) Describe the working of Wein bridge oscillator. List out its advantages and disadvantages. [6M CO4 BTL3]
- b) Discuss the working of complementary symmetry pushpull power. [6M CO4 BTL3]
7. a) Illustrate how OP-AMP act as an integrator and differentiator. [7M CO5 BTL3]
- b) Discuss the DC characteristics of an OP-AMP. [5M CO5 BTL2]

Hall Ticket No. -

Code: R122135

Stanley College of Engineering & Technology for Women (A)

B.E (IT) III Semester (Main) Examinations-January-2023

Database Management Systems

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Define Instances and schemas of database? [2M CO1 BTL1]
- b. List the aggregate functions supported by SQL? [2M CO2 BTL1]
- c. Demonstrate functional dependency? Give an example? [2M CO2 BTL1]
- d. Define a Transaction? [2M CO4 BTL1]
- e. Discuss about data on External storage? [2M CO5 BTL1]
- f. What is a Sparse index? [2M CO4 BTL1]

Part-B

4X12=48M

2. a) Explain about Database users and Administrators? [4M CO1 BTL1]
- b) Explain about Database Architecture [8M CO1 BTL1]
3. a) Define trigger and explain its three parts? Compare row level and statement level triggers? [6M CO3 BTL3]
- b) Explain Set operations of Relational Algebra with examples? [6M CO2 BTL3]
4. a) State and explain various features of E-R Models [6M CO3 BTL2]
- b) Explain 3NF. What are the steps to be followed to convert a relation in 2NF to 3NF? [6M CO4 BTL2]
5. a) What is an index? Explain sparse index with examples. [6M CO3 BTL3]
- b) How to test serializability of a schedule? Explain with an example. [6M CO5 BTL2]
6. a) Explain in detail about the two-phase locking protocol [6M CO5 BTL3]
- b) Explain in detail about Timestamp-Based Protocols? [6M CO5 BTL3]
7. a) Explain in detail about Lock-Based Protocols [7M CO5 BTL3]
- b) Explain about Buffer Management [5M CO4 BTL3]

Stanley College of Engineering & Technology for Women (A)

B.E (AI&DS) III Semester (Main) Examinations-January-2023

Database Management Systems

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
 ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 iii. Missing data, if any, may be suitably assumed.

Part-A

5X2=10M

1. a. What is the role of DBA? [2M CO1 BTL1]
- b. Difference between view and table. [2M CO2 BTL2]
- c. Define specialization with an example. [2M CO3 BTL1]
- d. What is the Static Hashing? [2M CO4 BTL1]
- e. What are the ACID properties of transaction? [2M CO4 BTL1]
- f. Define lock based protocol. [2M CO5 BTL1]

Part-B

5X10=50M

2. a) Discuss briefly the architecture of a database system. [8M CO1 BTL2]
- b) Difference between file system and DBMS. [4M CO1 BTL2]
3. a) Explain the various operations in relational algebra with examples. [8M CO2 BTL2]
- b) Develop a function for largest of 3 numbers using PL/SQL. [4M CO2 BTL6]
4. a) What is normalization? Explain in detail about 1NF and 2NF. [6M CO3 BTL2]
- b) Explain functional dependency with examples. [6M CO3 BTL3]
5. a) What is an index ? Explain dense index with an example. [6M CO4 BTL3]
- b) Explain conflict serializability. [6M CO4 BTL3]
6. a) Analyze briefly lock based protocol in transactions and its types. [8M CO5 BTL3]
- b) Explain Buffer Management [4M CO5 BTL3]
7. a) What is Join operator in SQL? Explain different Joins in SQL with examples. [6M CO2 BTL3]
- b) Explain Time Stamp based protocol. [6M CO5 BTL3]

Hall Ticket No. -

Code: R122137

Stanley College of Engineering & Technology for Women (A)

B.E (ECE) III Semester (Main) Examinations - January-2023

Electronic Devices and Circuits

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. What is fermi level in N-type semiconductor? [2M CO1 BTL1]
- b. What is Zener breakdown voltage [2M CO1 BTL1]
- c. What is the need of rectifier? [2M CO2 BTL1]
- d. Define operating point. [2M CO3 BTL1]
- e. Compare JFET with BJT. [2M CO4 BTL2]
- f. Sketch a common source MOSFET amplifier [2M CO5 BTL1]

Part-B

4X12=48M

2. a) Draw and explain V-I characteristics of PN diode. [6M CO1 BTL2]
- b) Explain the construction and working of Zener diode [6M CO1 BTL2]
3. a) Draw the diagram of full-wave rectifier with four diodes and explain the operation? [6M CO2 BTL2]
- b) Derive the equation for ripple factor of half wave rectifier with C-filter. [6M CO2 BTL4]
4. a) Give the list of different filters used in rectifier and their merits and demerits. [6M CO2 BTL3]
- b) What is the Hall Effect? Derive an Expression for Hall Coefficient? [6M CO1 BTL5]
5. a) Explain the working of NPN transistor. [6M CO3 BTL2]
- b) Write the differences between CB, CE, and CC Amplifier Configurations. [6M CO3 BTL3]
6. a) Describe the analysis of Transistor Amplifier circuit using h-parameters. [6M CO4 BTL4]
- b) Explain the analysis of BJT amplifiers using exact and approximate model for CE [6M CO4 BTL5]
7. a) Write short notes on Small Signal Model of JFET. [6M CO5 BTL6]
- b) Explain the construction and working of Enhancement MOSFET. [6M CO5 BTL6]



Hall Ticket No. -

Code: R1223D

Stanley College of Engineering & Technology for Women (A)

B.E (EEE) III Semester (Main) Examinations-January-2023

Electromagnetic Fields

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. What are the three orthogonal coordinate systems? Give brief [2M CO1 BTL1]
b. Differentiate between divergence and curl. [2M CO1 BTL1]
c. What are the boundary conditions of perfect dielectric materials? [2M CO3 BTL1]
d. Define electric field intensity and electric flux density. [2M CO2 BTL1]
e. Briefly explain about displacement current. [2M CO4 BTL2]
f. What do you understand by Uniform Plane Waves? [2M CO5 BTL2]

Part-B

4X12=48M

2. a) What are the types of vector multiplications? And explain each with applications. [6M CO1 BTL1]
b) Calculate the cylindrical coordinates from the given Cartesian coordinates $X=5, Y=7, Z=8$. [6M CO1 BTL 3]
3. a) Derive Poisson's and Laplace's equations and write applications. [6M CO2 BTL6]
b) State and prove Gauss's law and write its applications? [6M CO2 BTL2]
4. a) State Biot-Savarts law. Differentiate between scalar and vector magnetic potentials. [6M CO3 BTL1]
b) Define Magnetization. Obtain the expression for magnetic flux density in terms of magnetization. [6M CO3 BTL1]
5. a) Write the point form of Maxwell's equations. Explain their significance. [6M CO4 BTL2]
b) Explain about Faraday's law for Electromagnetic induction. [6M CO4 BTL2]
6. a) State and explain Poynting theorem and what is its significance? [6M CO5 BTL2]
b) Define skin effect and write Maxwell's equation in Phasor form. [6M CO5 BTL2]
7. a) Formulate the expression for electric field due to a line charge. [6M CO2 BTL6]
b) Derive the formula for energy density in electric field. [6M CO2 BTL6]

Hall Ticket No. -

Code: R122134

Stanley College of Engineering & Technology for Women (A)

B.E (IT) III Semester (Main) Examinations-January-2023

OOPS Using JAVA

Time: 03 Hours

Max. Marks-60

- Note:**
- First Question is Compulsory. Answer any Four out of remaining Six questions.
 - Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 - Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

- Illustrate the concept of type conversion and casting. [2M CO1 BTL3]
 - Explain the usage of java packages. [2M CO2 BTL2]
 - Describe how we can create a thread [2M CO3 BTL2]
 - List any two classes from java.lang package with their importance. [2M CO4 BTL1]
 - Explain any two adapter classes along with their usage. [2M CO5 BTL2]
 - Define String Buffer Class. [2M CO1 BTL1]

Part-B

4X12=48M

- Describe the benefits and applications of object-oriented programming. [6M CO1 BTL2]
 - Define class, method and object? Show the syntax to define these in java. [6M CO1 BTL1]
- State and explain various types of constructors. [6M CO1 BTL2]
 - What is Package? Demonstrate creating a package in java with example. [6M CO2 BTL3]
- Explain the concept of serialization in I/O Streams. [6M CO4 BTL2]
 - Illustrate the member access mechanism in inheritance with an example. [6M CO2 BTL4]
- Define Daemon threads. Explain with an example. [6M CO3 BTL1]
 - Demonstrate the exception handling mechanism of Java. [6M CO3 BTL3]
- Explain the Java collection framework. [6M CO4 BTL2]
 - Describe any two from the following with a simple example.
 - Autoboxing [3M CO5 BTL2]
 - Java Annotations [3M CO5 BTL2]
 - String Tokenizer [3M CO4 BTL2]
- Explain the difference between AWT and Swing. [6 M CO5 BTL2]
 - Write a java program to implement Border Layout. [6M CO5 BTL3]

Stanley College of Engineering & Technology for Women (A)

B.E (CSE, CME & AI&DS) III Semester (Main) Examinations-January-2023

OOPS Using JAVA

Time: 03 Hours

Max. Marks-60

- Note:**
- First Question is Compulsory. Answer any Four out of remaining Six questions.
 - Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
 - Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

- Define Type Casting and give an example. [2M CO1 BTL1]
 - What is overriding in Java? [2M CO2 BTL1]
 - List out the built-in Exceptions in Java. [2M CO3 BTL1]
 - What is a Wrapper Class? [2M CO4 BTL1]
 - What are the sources of Event? [2M CO5 BTL1]
 - What is a package? List out built-in packages of Java. [2M CO3 BTL1]

Part-B

4X12=48M

- What is a Constructor? Discuss types of constructor with the examples. [6M CO1 BTL2]
 - Explain String Buffer and String Builder with an example program. [6M CO1 BTL2]
- How to design and implement an interface in Java? Give an example. [6M CO2 BTL5]
 - Explain the process of defining and creating a package with suitable examples. [6M CO2 BTL3]
- Write a java program that illustrates the application of multiple catch statements. [6M CO3 BTL4]
 - Differentiate multiprocessing from multithreading. Explain the different ways to create a thread in Java. [6M CO3 BTL2]
- Compare and contrast Array List and Linked list. Explain. [6M CO4 BTL2]
 - Describe Iterator and List Iterator. Explain different ways to iterate over a list. [6M CO4 BTL5]
- Describe each of the mouse and keyboard events handling methods [6M CO5 BTL2]
 - Explain MVC architecture with the diagram. [6M CO5 BTL4]
- Write short notes on the following.
 - Final Keyword usage [4M CO1 BTL2]
 - Serialization [4M CO4 BTL2]
 - Lambda Expressions [4M CO5 BTL2]

Hall Ticket No. -

Code: R122139

Stanley College of Engineering & Technology for Women (A)

B.E (ECE) III Semester (Main) Examinations - January-2023

Electromagnetic Theory and Transmission Lines

Time: 03Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. State Gauss law for electric fields. [2M CO1 BTL2]
- b. Explain Biot-Savart's law. [2M CO1 BTL5]
- c. Define skin depth. [2M CO3 BTL1]
- d. Explain about inductance. [2M CO2 BTL5]
- e. Define phase velocity and group velocity. [2M CO4 BTL1]
- f. What are the applications of Smith Chart? [2M CO5 BTL2]

Part-B

4X12=48M

2. a) State and prove Coulomb's law. [7M CO1 BTL1]
- b) Point charges 1mc and -2mc are located at $(3, 2, 1)$ and $(-1, 4)$ respectively. Calculate the electric force on a 10nc charge at $(0, 3, 0)$ and the electric field intensity at that point. [5M CO1 BTL3]
3. a) Write Maxwell's equations in point form and integral form. [8M CO2 BTL4]
- b) State Faraday's law of electromagnetic induction. [4M CO2 BTL1]
4. a) Derive the wave equation for conducting medium. [8M CO3 BTL2]
- b) Discuss about polarization. [4M CO3 BTL6]
5. a) State and prove Poynting theorem. [8M CO3 BTL1]
- b) Define Brewster angle and critical angle. [4M CO3 BTL1]
6. a) Define primary and secondary constants. [7M CO4 BTL1]
- b) Distinguish between open and short circuited transmission lines. [5M CO4 BTL4]
7. a) Define the reflection coefficient and Standing wave ratio. [6M CO5 BTL1]
- b) Calculate reflection coefficient and VSWR for a 50Ω line terminated with Matched load, Short circuit and Open circuit. [6M CO5 BTL3]

Hall Ticket No. -

Code: R1223E

Stanley College of Engineering & Technology for Women (A)

B.E (EEE) III Semester (Main) Examinations-January-2023

Signals and Systems Analysis

Time: 03Hours

Max. Marks-60

- Note: i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Define and sketch unit step and unit ramp [2M CO1 BTL1]
- b. Define sampling theorem [2M CO1 BTL1]
- c. State additivity and homogeneity property [2M CO2 BTL1]
- d. List the Fourier transform properties of linearity, time shifting, frequency shifting with expression. [2M CO3 BTL1]
- e. Give the differences between DTFT and DFT [2M CO4 BTL2]
- f. Find the Laplace Transform of $f(t) = 4t^3 + t^2 - 6t + 7$ [2M CO5 BTL2]

Part-B

4X12=48M

2. a) Explain about types of signals. [7M CO1 BTL3]
- b) Discuss how to reconstruct the signal from its samples in detail. [5M CO1 BTL3]
3. a) Explain the properties of Convolution Integral. [6M CO2 BTL4]
- b) Define Linearity, Shift invariance, Causality, Stability of LTI System. [6M CO2 BTL2]
4. Find the Trigonometric Fourier Series representation of a periodic square wave $x(t) = 1$, for the interval $(0, \pi)$ and $x(t) = 0$, for the interval $(\pi, 2\pi)$ [12M CO3 BTL4]
5. a) State and Prove Parseval's Energy Theorem for discrete signals. [7M CO4 BTL5]
- b) Find the discrete time Fourier transform of following $x(n) = (0.5)^n u(n) + 2^{-n} u(-n-1)$ [5M CO4 BTL4]
6. a) Find the inverse Laplace Transform of the following expression $X(S) = \frac{3S^2 + 8S + 6}{(S+2)(S^2+2S+1)}$ [5M CO5 BTL4]
- b) Find the Laplace Transform of the function $f(t) = 3t^4 - 2t^3 + 4e^{-3t} - 2\sin 5t + 3\cos 2t$ [7M CO5 BTL4]
7. a) Define the Z transform and explain ROC of finite duration sequences in detail. [7M CO5 BTL2]
- b) If $x(n) = x_1(n) * x_2(n)$, where $x_1(n) = (1/3)^n u(n)$ and $x_2(n) = (1/5)^n u(n)$. Find $X(z)$ by using convolution property for z-transform. [5M CO5 BTL4]

Hall ticket No. -

Code: SMC901PO

Stanley College of Engineering & Technology for Women (A)

B.E III Semester (MC) Main Examinations-January-2023

Indian Constitution

Time: 03 Hours

Max. Marks-60

- Note:** i. First Question is Compulsory. Answer any Four out of remaining Six questions.
ii. Answer to each question must be written at one place only and in the same order as they occur in the Question paper.
iii. Missing data, if any, may be suitably assumed.

Part-A

6X2=12M

1. a. Define Universal Adult Franchise? [2 M CO1 BTL2]
- b. What are the Qualifications for Election as President of India? [2 M CO2 BTL3]
- c. Explain briefly about Article 19. [2 M CO3 BTL2]
- d. What feature of Indian Constitution deals with Central-State relations? [2 M CO4 BTL4]
- e. What is Finance Commission of India? [2 M CO5 BTL1]
- f. Write a Short note on National Commission for Women. [2 M CO5 BTL3]

Part-B

4X12=48M

2. a) Discuss the following concepts i) Republic ii) Secular iii) Justice iv) Equality? [6M CO1BTL4]
- b) Write an essay on salient features of Indian Constitution. [6M CO1 BTL3]
3. a) Examine the Powers and Functions of President. [8M CO2 BTL2]
- b) Brief about Panchayat Raj Institutions in India. [4M CO2 BTL3]
4. a) Explain in detail about the Liberal-Intellectual Principles of DPSP. [8M CO3 BTL4]
- b) Right against Exploitation –Explain. [4M CO3 BTL2]
5. a) Explain the Composition and Objectives of NITI Aayog. [6M CO4 BTL3]
- b) Discuss the Role and Functions of Finance commission of India. [6M CO4 BTL4]
6. a) Explain the administrative powers of Election Commission of India. [6M CO5 BTL3]
- b) What are the Powers and Functions of NHRC? [6M CO_ BTL2]
7. a) What are the Features of 1935 Act? [6M CO1 BTL1]
- b) Explain about Composition and Functions of Inter State Council. [6M CO4 BTL4]

Hall Ticket No-

Code:S222822

Stanley College of Engineering and Technology for Women(A)

B.E(CSE , CME & AI&DS) II Semester (Backlog) Examinations January-2023

Chemistry

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions(Compulsory)

5 X 2=10M

- 1 Why do we use CaCO_3 as reference for calculating hardness of water? Mention its units. 2 M CO1 L2
- 2 Mention the role of salt bridge in electrochemical cell. 2 M CO2 L4
- 3 Define the terms i) Monomer ii) Functionality of polymer. 2 M CO3 L1
- 4 Define knocking and explain the significance of octane number. 2 M CO4 L1
- 5 Mention any two applications of carbon nanotubes. 2 M CO5 L3

PART-B

Note: Answer all questions

5 X 10= 50M

- 6 a. Illustrate water softening by ion – exchange process with the help of neat labeled diagram. 5 M CO1 L3
- b. Discuss the sacrificial anodic protection and impressed current cathodic protection. 5 M CO1 L2
- OR**
- c. Define alkalinity of water. How is it determined? 5 M CO1 L2
- d. Discuss the various factors influencing rate of corrosion. 5 M CO1 L3
- 7 a. Calculate the emf of the following cell at 25°C : $\text{Zn(s)}/\text{Zn}^{2+}(0.001\text{M}) // \text{Ag}^+(0.0001\text{M})/\text{Ag(s)}$. Given E_0 of $\text{Zn}^{+2}/\text{Zn} = -0.76\text{ V}$ and E_0 of $\text{Ag}^+/\text{Ag} = 0.80\text{ V}$. 5 M CO2 L3
- b. Explain the construction and working of methanol-oxygen fuel cell. 5 M CO2 L2
- OR**
- c. Analyze thermodynamic parameters for cell reaction taking place in galvanic cell. 5 M CO2 L4
- d. Discuss the construction and cell reaction of Calomel Electrode. 5 M CO2 L3
- 8 a. Write a note on molecular orbital theory. 5 M CO3 L3
- b. Write the preparation, properties and uses of Polylactic acid. 5 M CO3 L2

OR

- c. Describe the energy level diagram of NO and specify its magnetic property 5 M CO3 L3
- d. Explain the preparation, properties and applications of i) PET and ii) BUNA-S 5 M CO3 L2
- 9 a. Write any four requirements of a good fuel and define HCV. 5 M CO4 L2
- b. Calculate the gross and net calorific value of a coal sample having the following composition; C=80%, H=7%, O=3%, S=3.5%, N=2.1% and ash=4%. 5 M CO4 L4
- OR
- c. Explain the ultimate analysis of coal to ascertain its quality and its significance 5 M CO4 L3
- d. Discuss any three important fractions of crude oil. 5 M CO4 L2
- 10 a. Explain the twelve principles of green chemistry. 5 M CO5 L3
- b. Write a short note on i) nanowires and ii) nanocrystals. 5 M CO5 L2
- OR
- c. Illustrate trans esterification with a suitable example. 5 M CO5 L3
- d. Explain the classification of composites based on their matrix. 5 M CO5 L2

Hall Ticket No-

Code: S22316

Stanley College of Engineering and Technology for Women(A)

B.E(EEE,ECE & IT) II Semester (Backlog) Examinations January-2023

Indian Constitution

Time: 3 hours

Max.Marks:60

PART-A

5 X 2=10M

Note: Answer all questions(Compulsory)

- | | |
|---|------------|
| 1 Who are the members of Drafting Committee? | 2 M CO1 L1 |
| 2 What are Panchayati Raj Institutions?Name them. | 2 M CO2 L2 |
| 3 Explain about Article-19. | 2 M CO3 L2 |
| 4 Why is NITI Aayog Necessary? | 2 M CO4 L1 |
| 5 What is the Composition of National Commission for Women? | 2 M CO5 L3 |

PART-B

5 X 10= 50M

Note: Answer all questions

- | | |
|---|-------------|
| 6 a. Discuss the Significance of Indian Constitution. | 5 M CO1 L4 |
| b. What are the Features of 1935 Act? | 5 M CO1 L1 |
| OR | |
| c. Explain the Philosophical Foundations to the Indian Constitution. | 10 M CO1 L3 |
| 7 a. Examine the Powers and Functions of Prime Minister. | 5 M CO2 L4 |
| b. Explain about Emergency powers of President of India. | 5 M CO2 L2 |
| OR | |
| c. Write about Evolution of Local Government in India. | 10 M CO2 L4 |
| 8 a. Explain the Importance of Fundamental duties. | 5 M CO3 L3 |
| b. Briefly explain about DPSP. | 5 M CO3 L4 |
| OR | |
| c. Explain the features of Fundamental rights. | 5 M CO3 L2 |
| d. Explain the Five Writs in Indian Constitution. | 5 M CO1 L1 |
| 9 a. Explain about Composition of Inter State Council. | 5 M CO4 L3 |
| b. Write an essay on Role and Functions of Finance commission of India. | 5 M CO4 L4 |
| OR | |
| c. Explain about the functions of NITI Aayog. | 5 M CO4 L2 |
| d. Explain about Administrative relations of Union-State. | 5 M CO4 L4 |
| 10 a. What are the Powers and Functions of NHRC? | 10 M CO5 L4 |
| OR | |
| c. What are the Powers and Functions of National Commission for Women? | 10 M CO5 L1 |

Hall Ticket No-

Code: S22325/1

Stanley College of Engineering and Technology for Women(A)

B.E (CSE,CME & AI&DS) II Semester (Backlog) Examinations January-2023

Environmental Science

Time: 3 hours

Max.Marks:60

PART-A

5 X 2=10M

Note:Answer all questions (Compulsory)

- 1 List some major conflicts in sharing water resources between two countries. 2M
- 2 Differentiate renewable and non renewable energy resources. 2M
- 3 Justify the statement "Ecosystem regulates itself". 2M
- 4 Define Photochemical Smog. 2M
- 5 Differentiate between a national park and sanctuary. 2M

PART-B

5 X 10= 50M

Note:Answer all questions

- 6 a. What are dams? What are the benefits and problems? 5M
b. Discuss about soil erosion and desertification. 5M
OR
c. Explain the effects of Fertilizer and Pesticide related problems. 5M
d. Explain the environmental issues related to fossil fuel and nuclear power energy generation. 5M
- 7 a. What are Ecological pyramids? Explain why some of these pyramids are upright while others are inverted in different ecosystems. 5M
b. Explain about types of ecosystems. 5M
OR
c. Define an ecosystem with the help of pond ecosystem, explain the different components of the ecosystem and their functions in ecosystem. 5M
d. Define and classify ecological succession. 5M
- 8 a. Discuss the value of Biodiversity and threats to Biodiversity. 5M
b. Explain about bio geographical classification of India. 5M
OR
c. Write about Endemic and Endangered species of India. 5M
d. Define hotspots of biodiversity. Explain about hotspots in India. 5M
- 9 a. What is Soil Pollution? Mention the causes, effects and remedial measures. 5M
b. Write short notes on forest and wild life acts. 5M
OR
c. Describe about solid waste management. 5M
d. Discuss the salient features of Air Act in detail. 5M
- 10 a. How can one conserve water in a community level and individual level. 5M
b. Explain about Disaster Management Cycle. 5M
OR
c. Describe about infrastructure and development of India. 5M
d. What is global warming? Explain about the responsible parameters for the same. 5M

Hall Ticket No-

Code:22315/1

Stanley College of Engineering and Technology for Women(A)

B.E (ECE, EEE & IT) II Semester (Backlog) Examinations January-2023

Essence of Indian Traditional Knowledge

Time: 3 hours

Max.Marks:60

PART-A

Note:Answer all questions (Compulsory)

5 X 2=10M

- 1 Define Civilization. 2M L1
- 2 What are Brahmanas and Aryankas? 2M L1
- 3 List the Heterodox schools of Indian Philosophy. 2M L1
- 4 Write a short note on Sama Veda. 2M L1
- 5 What were the subjects of study in Ancient India? 2M L1

PART-B

Note: Answer all questions

5 X 10= 50M

- 6 a. Discuss the general characteristics of Culture. 5M L2
b. Explain the uniqueness of Indian Culture. 5M L2
OR
c. Write about ancient India. 5M L1
d. Write an essay on the influence of the English in Modern India. 5M L1
- 7 a. Summarize the developments of South Indian Languages and Literature. 5M L2
b. Explain about the Vedas and Upanishads. 5M L2
OR
c. Discuss the classic Sanskrit literature. 5M L2
d. Discuss the literature of North Indian Languages. 5M L2
- 8 a. Examine the salient features of orthodox schools of Indian Philosophy. 5M L2
b. What is the important role played by the Bhakti and Sufi religious reform movements in India? 5M L2
OR
c. What is Sunyavada of Buddhism?Explain. 5M L2
d. Discuss the Religious reform movements in Modern India. 5M L2
- 9 a. Write an essay on "Ancient Indian Architecture". 5M L2
b. Explain elaborately about the Fine Arts of India . 5M L2
OR
c. Discuss about Indian classical dance forms. 5M L2
d. Justify the statement "Science and technology can solve all the world's problems, and historically it has been shown to make the world better and better." 5M L3
- 10 a. Write about the education system in Medieval India. 5M L1
b. List any five contributions made by Ancient Indian scientists to the world of Science. 5M L1
OR
c. Explain the Gurukula Education system. 5M L2
d. Discuss the role of Education in social change. 5M L1

Hall Ticket No-

Code: R222823

Stanley College of Engineering and Technology for Women(A)

B.E (ECE & EEE) II Semester (Backlog) Examinations January-2023

Engineering Physics

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- 1 A plane transmission grating having 6000 lines per cm is used in normal incidence mode. Calculate the angular separation between the two spectral lines of wavelengths 5890 Å and 5896 Å in second order. 2 M
- 2 Explain the phenomenon of total internal reflection. 2 M
- 3 Define a) Space lattice and b) Unit cell. 2 M
- 4 Calculate the wavelength of an electron accelerated to a potential of 900 V. 2 M
- 5 What is Lenz's law? 2 M

PART-B

Note: Answer all questions

5 X 10= 50M

- 6 a. Explain the Young's double slit experiment to produce the interference pattern and obtain the conditions for maxima and minima. 5 M
b. Discuss intensity expression for N slit diffraction grating. 5 M

OR

- c. Analyze interference of light by division of amplitude and division of wave front with examples. 5 M
d. Classify Fresnel's and Fraunhofer's diffraction patterns. 5 M
- 7 a. Explain the construction and working of semiconductor laser. 5 M
b. Explain the types of optical fibers basing on refractive index profiles. 5 M

OR

- c. Analyze the basic components required for producing laser 5 M
d. Derive an expression for Numerical aperture and acceptance angle of an optical fiber. 5 M
- 8 a. Deduce the equation for the interplanar distance for cubic crystal. 5 M
b. Classify the point defects in a crystal. 5 M

OR

- c. Formulate the expression for the concentration of Schottky defects in ionic crystals. 5 M
d. What are Miller indices? How to obtain them for a set of lattice planes? 5 M
- 9 a. Formulate the Schrodinger's time independent wave equation. 5 M
b. Explain polarization in dielectric materials. 5 M

OR

- c. Summarize the properties of wave function Ψ and explain its significance. 5 M
d. Determine an expression for electric field due to continuous charge distribution. 5 M
- 10 a. Explain the concept of displacement current in dielectrics. 5 M
b. Explain Faraday's law and Lenz's law. 5 M

OR

- c. Obtain Poynting theorem. 5 M
d. Build the Maxwell's equations for static fields. 5 M

Hall Ticket No-

Code: S222824/1

Stanley College of Engineering and Technology for Women(A)

B.E (IT) II Semester (Backlog) Examinations January-2023

Applied Physics

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- 1 Define spontaneous emission and stimulated emission. 2M CO1 L1
- 2 Explain temperature dependence of dielectric polarization 2M CO2 L2
- 3 Distinguish Type - I and Type – II Superconductors 2M CO3 L2
- 4 Write a note on thermistor. 2M CO4 L1
- 5 Mention any four applications of Nano materials. 2M CO5 L3

PART-B

Answer All Questions

5X 10 = 50M

- 6 a Explain fiber drawing process using Double Crucible method with diagram. 5M CO1 L2
 - b Explain in detail the components required for the production of Laser. - 5M CO1 L2
 - c Construct the relationship between Einstein's coefficients of absorption, spontaneous and stimulated emission. 5M CO1 L2
 - d Explain the concept of numerical aperture and acceptance angle and obtain an expression for them. 5M CO1 L4
 - 7 a What is electronic polarizability and obtain expression for electronic polarizability of dielectric materials. 5M CO2 L4
 - b Describe various types of dielectric polarization processes. 5M CO2 L2
- OR**
- c Explain Ferro electricity with reference to Barium Titanate. 5M CO2 L3
 - d Compare soft and hard magnetic materials along with appropriate examples. 5M CO2 L4

- 8 a Outline any five experimentally observed properties of superconductors. 7M CO3 L6
b Explain Josephson Effect in superconductivity. 3M CO3 L2

OR

- c Explain general properties of superconducting materials 7M CO3 L2
d Analyze de-Broglie's concept of matter waves. 3M CO3 L4
- 9 a What are p-type and n-type materials? 5M CO4 L3
b Summarize assumptions and failures of classical free electron theory. 5M CO4 L4

OR

- c Explain the concept of energy band formation using Kronig-Penney model. 6M CO4 L3
d Explain the working of Thermistor. 4M CO4 L2
- 10 a Explain thermal evaporation technique to prepare thin films. 6M CO5 L2
b Discuss any three properties of materials which get affected at reduced size 4M CO5 L2

OR

- c Explain Ball milling method to prepare Nano materials. 6M CO5 L2
d Distinguish bulk thin and Nano materials. 4M CO5 L2

Stanley College of Engineering and Technology for Women (A)

B.E (ECE) II Semester (Backlog) Examinations January-2023

Circuit Theory

Time: 03 Hrs

Max.Marks:60

PART A

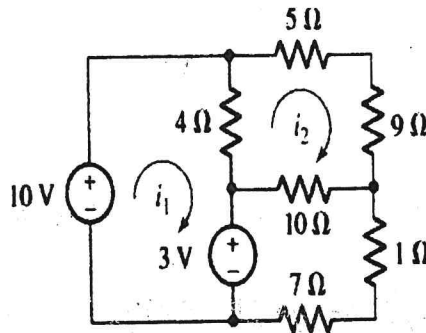
Note: Answer All Questions (Compulsory)

1. Define Kirchoff's voltage and current law. 2M L1
2. Recognize the difference between steady state and transient response. 2M L1
3. Recall condition for symmetry and reciprocity in a two port network. 2M L1
4. At resonance, the current is maximum in a series circuit and minimum in a parallel circuit. Why? 2M L1
5. Describe the difference between active filters and passive filters. 2M L1

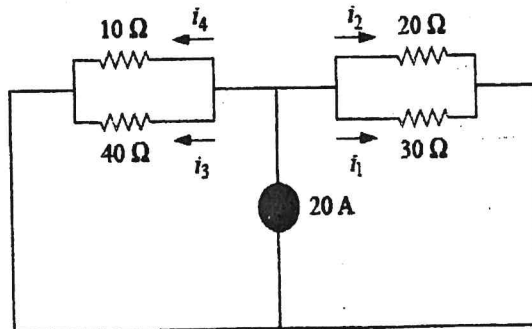
PART-B

Note: Answer all questions

- 6 a. Determine the currents i_1 and i_2 in the circuit shown using mesh analysis. 5M L3

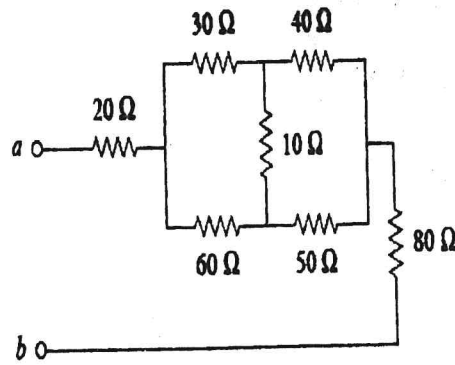


- b. By using current division rule calculate i_1, i_2, i_3 and i_4 in following circuit. 5M L3



OR

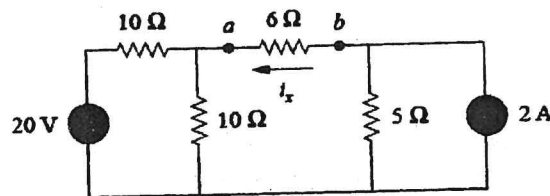
c.



Find the resistance R_{ab} in circuit shown?

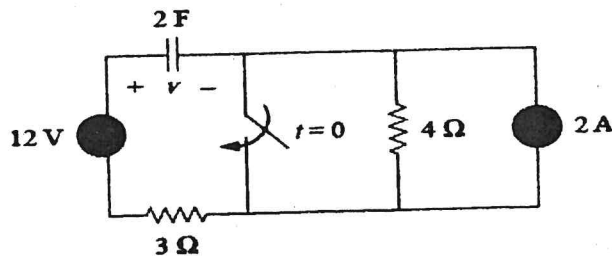
d. Find the Thevenin equivalent looking into terminals a-b in the circuit shown.

5M L3



7 a. Calculate the capacitor voltage for $t < 0$ and $t > 0$ for the circuit shown.

5M L3



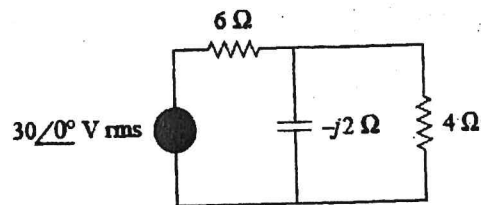
b. Outline a procedure with an example to formulate integro-differential equation for a series RLC circuit.

5M L4

OR

c. Calculate the average power delivered by source in following figure

5M L3



d. Illustrate with an example the complete response in a RC network.

5M L4

8 a. Create a two port network that satisfies following two equations.

5M L6

$$V_1 = 6V_2 - 4I_2$$

$$I_1 = 7V_2 - 2I_2$$

- b. Measure transmission parameters of a two port network whose z parameters are $Z_{11}=6$ $Z_{12}=4$ $Z_{21}=4$ $Z_{22}=6$ 5M L5

OR

- c. Develop a two port network that realizes the following z parameters. 5M L6

$$Z_{11}=20$$

$$Z_{12}=20$$

$$Z_{21}=5$$

$$Z_{22}=10$$

- d. Two two-port networks are connected in cascade. Recommend type of parameters such that the overall parameter matrix is the product of individual transmission parameter matrices and prove it. 5M L5

- 9.a. Explain concept of resonant frequency series RLC circuit 5M L2

- b. Analyze the concept of pole zero cancellation in impedance functions 5M L4

OR

- c. Explain admittance function with an example 5M L2

- d. Outline the differences between series and parallel resonant circuits 5M L4

10. a. Explain the Design of a m-derived low pass filter 5M L2

- b. Explain pass band, stop band and attenuation 5M L2

OR

- c. Explain the design of K-type band pass filters 5M L2

- d. Differentiate between constant K filters and m derived filters 5M L2

Stanley College of Engineering and Technology for Women(A)

B.E(CSE , CME , AI&DS) II Semester (Backlog) Examinations January-2023

Basic Electrical and Electronic Circuits

Time: 3 hours

Max.Marks:60

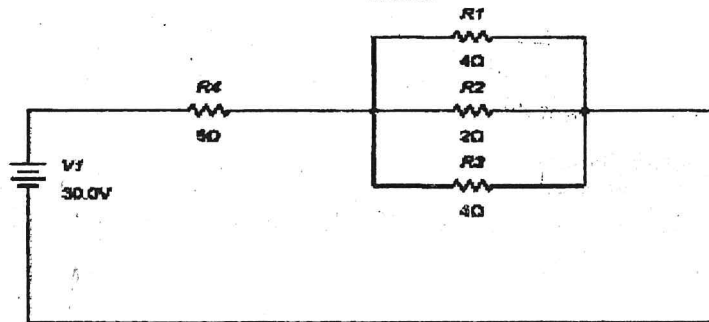
PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

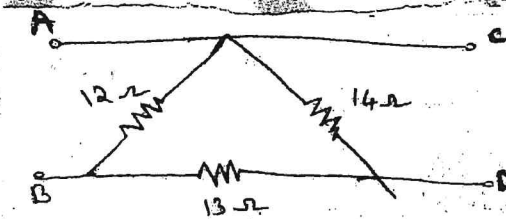
1. Determine the total current in the circuit shown

2



2. Obtain star connected equivalent circuit for the delta connected circuit shown.

2



3. Find the total current flowing through a germanium diode at room temperature when voltage across the diode is 0.2V and reverse saturation current is 20mA.
4. List any two advantages of h-parameter model of BJT.
5. For the circuit shown below:

2

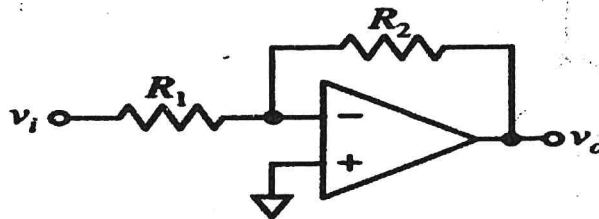
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2

$$R_1 = 27 \text{ k}\Omega$$

$$R_2 = 39 \text{ k}\Omega$$

Assuming the OpAmp is ideal and input voltage is $v_i = 4 \text{ V}$, what is the output voltage v_o ?



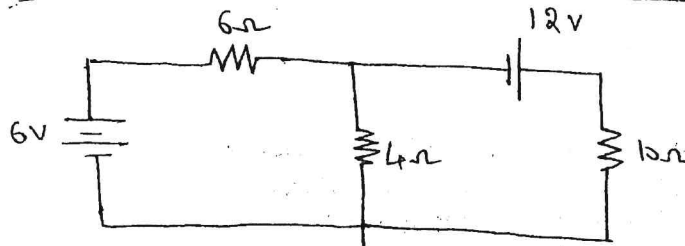
PART-B

Note: Answer all questions

5 X 10 = 50M

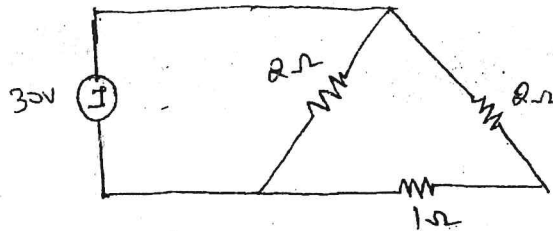
6. a. What is the voltage across $4\ \Omega$ resistor in the circuit shown below?

5



- b. Determine the current delivered by the source in the circuit shown below.

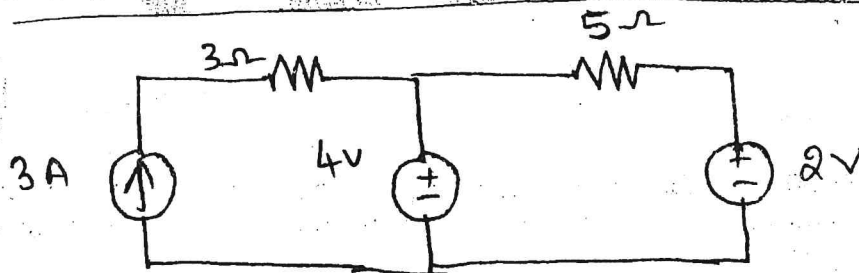
5



OR

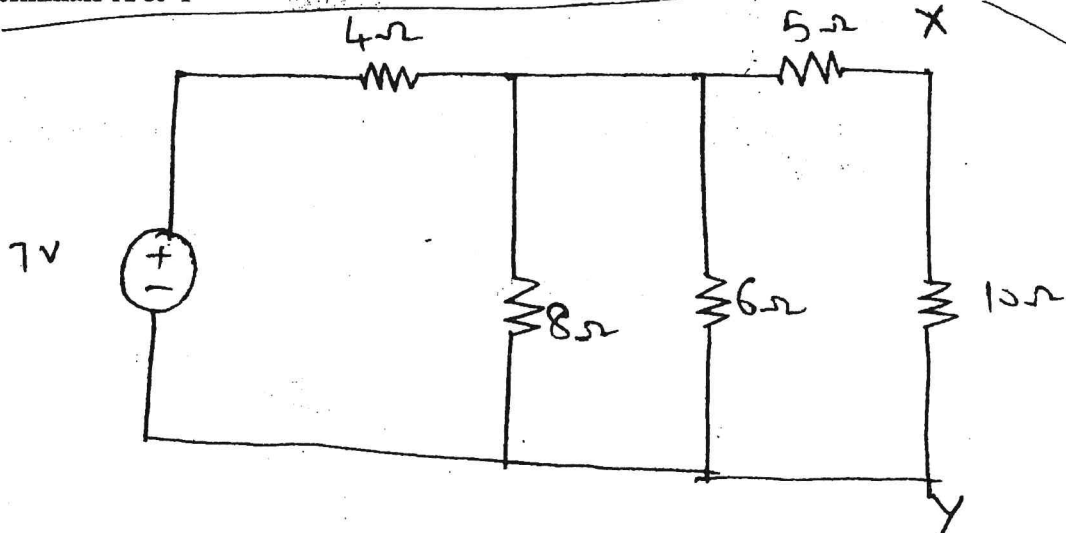
- c. Using superposition theorem, determine the current through the $5\ \Omega$ resistor.

5



- d. Using Thevenin's theorem, determine the Thevenin's equivalent circuit across the terminals X & Y

5



7. a. Derive the expression for current, phase angle, power factor and power for R-L-C series circuit. 5
- b. Derive the voltage and current relations in a star connected three phase balanced circuit. 5
- OR**
- c. Derive the expression for current, phase angle, power factor and power for RL series circuit. 5
- d. Derive the voltage and current relations in a delta connected three phase balanced circuit. 5
8. a. Explain the working of Full wave Rectifier with a neat circuit diagram along with necessary graphs and derive expression for its efficiency and ripple factor 6
- b. Explain the working principle of zener diode regulator. 4
- OR**
- c. Explain the construction and working principle of half wave rectifier with capacitor filter. 5
- d. Differentiate between avalanche and zener breakdown mechanisms of a PN junction diode (mention five primary differences) 5
9. a. Draw the common emitter circuit and sketch the input and output characteristics. Also explain active region, cutoff region and saturation region by indicating them on the characteristic curve. 4
- b. Sketch the h-parameter model of a BJT. Derive the equations for current gain and input impedance. 6
- OR**
- c. Derive the relationship between α , β and Y .s 4
- d. Explain one construction and working principle of n-channel JFET. 6
10. a. Derive the equations for gain and output impedance for current shunt feedback amplifier. 4
- b. Explain how Op-Amp can be used as: 6
- i) Adder
- ii) Subtractor and
- iii) Integrator
- OR**
- c. Draw the circuit diagram of RC- phase shift Oscillator and explain its working. Write the equation for frequency of oscillations. 5
- d. Draw the circuit diagram of crystal oscillator and explain its operation. Write the equation for frequency of oscillations. 5

Hall Ticket No-

Code: S222825

Stanley College of Engineering and Technology for Women (A)
B.E (CSE, CME, AI&DS & IT) II Semester (Backlog) Examinations January-2023

Data Structures with C

Time: 3 hours

Max.Marks:60

Part-A

Note: Answer all questions (Compulsory)

5 X 2 = 10M

1. List the examples for linear and non linear data structures? 2MCO8 L1
2. List the applications of stack? 2MCO8 L1
3. What is sparse matrix and give its purpose? 2MCO7 L1
4. Write the recursive procedure to perform pre-order traversal of a Binary Tree? 2MCO2 L2
5. Define binary search tree? 2MCO9 L1

Part-B

Note: Answer all questions

5 X 10 = 50M

6. a) Explain binary search algorithm. Compute its time complexity. 10M CO1, 6 L2
OR
c) Distinguish between quick sort and heap sort with a suitable example. 10M CO4 L2
7. a) Explain the procedure to evaluate postfix expression. Evaluate the following postfix expression $7\ 3\ 4\ +\ -\ 2\ 4\ 5\ /+\ *\ 6\ /7\ +?$ 10M CO8 L2
OR
c) Explain the operations performed on simple queue with an example. 10M CO8 L2
8. a) Write an algorithm to delete an element anywhere from doubly linked list. 10M CO7 L1
OR
c) Write applications of single linked list to represent polynomial expressions. 10M CO7 L1
9. a) What traversals can be performed on binary trees and how binary tree can be represented using Array and Linked list. 10M CO9 L1
OR
c) Illustrate breadth first search graph traversal algorithm with a suitable example. 10M CO9 L4
10. a) Write an algorithm for insert and delete an element from AVL Tree. Explain with suitable examples. 10M CO7 L1
OR
c) Demonstrate various resolution techniques in Hash table with suitable examples. 10M CO9 L3

Stanley College of Engineering and Technology for Women (A)**B.E(ECE,EEE & IT) II Semester (Backlog) Examinations January-2023****English**

Time : 3 hours

Max.Marks : 60

PART-A**Note : Answer all questions (Compulsory)**

5 X 2=10M

- 1 Select the appropriate answer and fill in the blanks . (1/2m x 4 = 2 M) 2 M BL1 CO1
- She does all her work _____ great care. (with/ by)
 - I saw myself _____ the mirror. (in/on)
 - The necklace was _____ present from her parents. (a/an/the)
 - They were going to _____ concert. (Article) (a/ an/ the)
- 2 Use the appropriate tense forms of the given verbs and fill in the blanks.(1/2 m x4 = 2M) 2 M BL1 CO2
- How have you been _____ ? (do)
 - He was badly wounded and _____ (bleed) profusely.
 - I usually _____ (teach) Chemistry, but I _____ (teach) Biology this year.
 - She _____(finish) her breakfast and went to school.
- 3 Select the correct answer. (1/2m x 2 = 1 M) 2 M BL4 CO3
- A study of coins. _____ (numismatics/balistics)
 - Handwriting which is difficult to read. _____ (legible/illegible)
- Rewrite as directed.(1/2m x 2 = 1 M)
- Lavanya said, " We painted the house yesterday (Indirect speech)."
 - She said, "I gave the key to my roommate (Indirect Speech)."
- 4 Select the appropriate word and fill in the blanks. (1/2mx 2 = 1M) 2 M BL1 CO4
- Let us _____ to the auditorium. (precede, proceed)
 - The bus _____ (fare/fair) increased drastically.
- Change the voice. (1/2m x 2 = 1M)
- The students have paid the fees.
 - She was congratulated by her friends.
- 5 Rewrite the sentences correctly (1/2m x 4 = 2 M) 2 M BL3 CO5
- I will look forward to see you soon.
 - Please don't repeat the mistake again.
 - The water is very hot to drink.
 - Harsha don't know Hindi.

PART-B**Note : Answer all questions**

5 X 10= 50M

- 6 a. Summarize " On the Conduct of Life" by William Hazlitt briefly. 5 M BL2 CO1
- b. Use the following hints to write a paragraph, give it a title and a moral. 5 M BL3 CO1
- Hints : The King of Scotland was defeated six times-----hid himself in a cave saw a spider trying to climb up to the roof of the cave the spider fell six times and then succeeded- the king was encouraged - tried again to defeat his enemies and succeeded.

OR

1

P.T.O

- c. Summarize the young boy's attitude towards his new school as explained in William Hazlitt's "On the Conduct of Life." 5 M BL2 CO1
- d. Examine the structure of writing an effective paragraph. 5 M BL3 CO1
- 7 a. Outline the central idea of the poem "If." 5 M BL2 CO2
- b. Describe compounding, clipping and blending words with examples. 5 M BL1 CO2
- OR
- c. Outline the poet's views on honesty and fortitude of character from the poem "If." 5 M BL1 CO2
- d. Describe briefly "Recent floods due to continuous rains." 5 M BL2 CO2
- 8 a. Discuss the dream that Martin Luther King envisions for America. 5 M BL2 CO3
- b. Describe your childhood memories. 5 M BL2 CO3
- OR
- c. Discuss "I have a Dream" as a plea for freedom and equality. 5 M BL2 CO3
- d. Describe your views on "Is country life better than city life." 5 M BL2 CO3
- 9 a. Examine the conflict of the Poem "The Road not Taken." 5 M BL3 CO4
- b. Justify the topic "Should the minimum voting age be raised/lowered/kept the same?" 5 M BL5 CO4
- OR
- c. Examine the spirit of regret and longing in the poem "The Road not Taken." 5 M BL3 CO4
- d. Justify the topic "Is online learning effective?" 5 M BL5 CO4
- 10 a. Explain the important features of a blog. 5 M BL2 CO5
- b. Create a blog on the topic "Writing captions on Instagram." 5 M BL6 CO5
- OR
- c. Explain the process of writing "Tweets" and "Instagrams." 5 M BL2 CO5
- d. Create a tweet in response to the proposal of the "New Labour Code.i.e. 4- day work per week, 12 working hours every working day in the week." 5 M BL6 CO5

Hall Ticket No-

Code S222825

Stanley College of Engineering and Technology for Women (A)

B.E (CSE/EEE/ECE/IT/CME/AI&DS) II Semester (Backlog) Examinations January-2023

Mathematics--II

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5X2=10M

- 1 Solve $(x^2 + y^2) dx + 2xy dy = 0$ 2 M L3
- 2 Find the C.F. of $(D^2 + D + 1)y = 0$ 2 M L2
- 3 Define Beta function and Gamma function. 2 M L1
- 4 Find the Eigen Values of the Matrix $A = \begin{pmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{pmatrix}$ 2 M L3
- 5 Find $L\{t^2 \sin at\}$ 2 M L3

PART-B

Note: Answer all questions

5X10=50M

- 6 a. Solve $\frac{dy}{dx} + y \cos x = y^2 \sin 2x$ 5 M L3
b. Find the Orthogonal trajectories of $\frac{x^2}{a^2 + \alpha} + \frac{y^2}{b^2 + \alpha} = 1$, α being the parameter. 5 M L3
- OR**
- c. Solve $(1 + e^{xy}) dx + e^{xy} (1 - \frac{y}{x}) dy = 0$ 5 M L3
d. Solve $p = \sin(y + xp)$. Also find its singular solutions. 5 M L3
- 7 a. Solve $(D^2 + 4)y = e^x + \sin 2x + \cos 2x$ 5 M L3
b. Solve $y'' + y = \sec x$ by the Method of Variation of parameters. 5 M L3
- OR**
- c. Solve $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} + 2y = x \log x$ 5 M L3
d. Solve $(D^2 - 4D + 3)y = 3e^x \cos 2x + 2xe^{3x}$ 5 M L3

- 8 a. State and prove the relation between Beta and Gamma Function. 6 M L4
b. Evaluate $\int_0^2 x^3 \sqrt{2-x} dx$ using Beta And Gamma function. 4 M L5

OR

- c. State and Prove Rodrigue's Formula. 6 M L4
d. Evaluate $\int_0^a x^4 \sqrt{a^2 - x^2} dx$ 4 M L5

- 9 a. Verify Cayley – Hamilton Theorem for the Matrix 6 M L4
 $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$ and also find A^{-1}

- b. Discuss the nature of the Q.F. $x^2 + 4xy + 6xz + 2yz - y^2 + 4z^2$ 4 M L4

OR

- c. Find Eigen Values and corresponding Eigen Vectors of 8 M L3
 $\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$

- d. Using Cayley – Hamilton Theorem, find A^8 if $A = \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix}$ 2 M L3

- 10 a. Find the Laplace Transform of (i) $t e^{2t} \sin 3t$ (ii) $e^{-t} \cos^2 t$ 5 M L3

- b. Find the Inverse Laplace Transform of $\frac{2s+12}{s^2+6s+12}$ and $\frac{s}{(s+2)^2}$ 5 M L3

OR

- c. Find $L \{ t \cos at \}$ 2 M L5

- d. Using Laplace Transform method, solve 8 M L5
 $(D^2 + 1) y = 6 \cos 2t, t > 0$, If $y = 1, Dy = 1$ when $t = 0$.

Stanley College of Engineering and Technology for Women (A)

B.E (CSE/EEE/ECE/IT/CME/AI&DS) I Semester (Backlog) Examinations January-2023

Mathematics-I

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

1. Test the convergence of the series $\sum (1 + \frac{1}{n})^{-n^2}$ 2M
2. Verify Cauchy's mean value theorem for $f(x) = x^2$ and $g(x) = x^3$ in $[1, 2]$ 2M
3. If $u = \frac{x+y}{1-xy}$ and $v = \tan^{-1} x + \tan^{-1} y$ then prove that u and v are functionally dependent. 2M
4. Find grad f if $f = x^2y + y^2x + z^2$ at $(1,1,-2)$ 2M
5. Find the first approximation of the root lying between 0 and 1 of the equation $x^3 + 3x - 1 = 0$ by Newton-Raphson formula. 2M

PART B

Note: Answer all questions

5 X 10 = 50M

6. (a) Discuss the convergence or divergence of $\frac{x}{1.2} + \frac{x^2}{2.3} + \frac{x^3}{3.4} + \dots$ 5M
 - (b) Examine the convergence of the series $1 - \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} - \frac{1}{\sqrt{4}} + \dots$ 5M
- (OR)
- (c) Test the convergence of the series $1 + \frac{2}{5}x + \frac{6}{9}x^2 + \dots + \frac{2^{n-2}}{2^{n+1}}x^{n-1} + \dots$ ($x > 0$) 5M
 - (d) Show that the exponential series $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$ converges absolutely for all values of x. 5M
7. (a) Find the evolute of the parabola $y^2 = 4ax$ 5M
 - (b) Verify Cauchy's Mean value theorem for the functions $f(x)$ and $f^1(x)$ in $(1,e)$ given $f(x) = \log x$ 5M

(OR)

- (c) Prove that $\frac{\pi}{6} + \frac{1}{5\sqrt{3}} < \sin^{-1}\left(\frac{3}{5}\right) < \frac{\pi}{6} + \frac{1}{8}$ 10M
8. (a) If $u = x + y + z$, $y + z = uv$, $z = uvw$ then show that $\frac{\partial(x,y,z)}{\partial(u,v,w)} = u^2v$ 5M
- (b) If $u = x^2 + y^2$, $x = at^2$, $y = 2at$ then find $\frac{du}{dt}$ 5M
- (OR)
- (c) A rectangular box open at the top is to have volume 32 cubic ft. Find the dimensions of the box requiring least material for its construction. 5M
- (d) Find the maximum and minimum values of $f(x,y) = x^3 + y^3 - 3axy$ 5M
9. (a) If $F = (5xy - 6x^2) \mathbf{i} + (2y - 4x) \mathbf{j}$ Evaluate $\int_C \vec{F} \cdot d\vec{r}$ where C is the curve in the xy plane $y = x^3$ from $(1,1)$ to $(2,8)$ 5M
- (b) Find $\text{div } \vec{f}$ when $\vec{f} = \text{grad} (x^3 + y^3 + z^3 - 3xyz)$ 5M
- (OR)
- (c) Verify Green's theorem in the plane for $\oint (3x^2 - 8y^2) dx + (4y - 6xy) dy$ where C is the region bounded by $y = \sqrt{x}$ and $y = x^2$ 10M
10. (a) Solve the following system of equations using Gauss Seidel iteration method 10M
- $$10x + 2y + z = 9, \quad x + 10y - z = -22, \quad -2x + 3y + 10z = 22$$
- (OR)
- (c) Using Newton's divided difference formula evaluate $f(8)$ given that 10M

x	4	5	7	10	11	13
f(x)	48	100	294	900	1210	2028

Stanley College of Engineering and Technology for Women(A)

B.E (CSE,CME & AI&DS) I Semester (Backlog) Examinations January-2023

Essence of Indian Traditional Knowledge

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

- | | | |
|---|---|-----------|
| 1 | What is heritage? | 5 X 2=10M |
| | | 2M L1 CO1 |
| 2 | What are Puaranas? | 2M L1 CO2 |
| 3 | Define religion. | 2M L1 CO3 |
| 4 | Write a short note on Indian Handicrafts. | 2M L1 CO4 |
| 5 | What is value based education? | 2M L1 CO5 |

PART-B

Note: Answer all questions

5 X 10= 50M

- | | | |
|----|---|-----------|
| 6 | a. What is the importance of culture in human life? | 5M L1 CO1 |
| | b. Give a detail account of Indus Valley Civilization. | 5M L1 CO1 |
| | OR | |
| | c. Discuss the salient features of Medieval India. | 5M L2 CO1 |
| | d. Explain the relationship between culture and heritage. | 5M L2 CO1 |
| 7 | a. Summarize the developments of South Indian Languages and Literature. | 5M L2 CO2 |
| | b. What is the role of Sanskrit in the evolution of Indian languages and literature? | 5M L1 CO2 |
| | OR | |
| | c. Write in detail about the four Vedas. | 5M L2 CO2 |
| | d. Discuss the significance of scriptures to the current Indian Society. | 5M L2 CO2 |
| 8 | a. Examine the salient features of Heterodox schools of Indian Philosophy . | 5M L1 CO3 |
| | b. Write about Religious Reform Movements in Modern India. | 5M L1 CO3 |
| | OR | |
| | c. Discuss the relationship between Religion and Philosophy. | 5M L2 CO3 |
| | d. Write an detailed essay on Bakthi Movement and Sufi Movement. | 5M L1 CO3 |
| 9 | a. Explain in detail about the development of Science and Technology in India. | 5M L2 CO4 |
| | b. Discuss about the Indian Architecture of modern India. | 5M L2 CO4 |
| | OR | |
| | c. Discuss important Indian paintings in detail. | 5M L2 CO4 |
| | d. Elucidate the development of science from ancient period to modern period in India | 5M L2 CO4 |
| 10 | a. Examine the role of education in cultural development. | 5M L2 CO5 |
| | b. Write about the modern Indian scientists who contributed to the field of Science and Technology. | 5M L1 CO5 |
| | OR | |
| | c. Discuss the Education system of ancient India. | 5M L2 CO5 |
| | d. Explain the important aspects of National Education Policy (NEP) -2020. | 5M L2 CO5 |

Hall Ticket No-

Code: S222812/1

Stanley College of Engineering and Technology for Women(A)

B.E(ECE & EEE) I Semester (Backlog) Examinations January-2023

Engineering Chemistry

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- | | | | |
|---|-----|----|-----|
| 1 What is cathodic protection? | 2 M | L1 | CO1 |
| 2 Define entropy and enthalpy. | 2 M | L2 | CO2 |
| 3 Calculate the bond order of NO molecule. | 2 M | L3 | CO3 |
| 4 Describe the significance of Octane number and Cetane number of a fuel. | 2 M | L4 | CO4 |
| 5 What are the composite materials? Write its classification. | 2 M | L2 | CO5 |

PART-B

Note: Answer all questions

5 X 10= 50M

- | | | | |
|---|-----|----|-----|
| 6 a. Explain the purification of water by ion exchange process and give its advantages,disadvantages. | 6 M | L2 | CO1 |
|---|-----|----|-----|

- | | | | |
|---|-----|----|-----|
| b. Discuss the various (any three) factors affecting rate of corrosion. | 4 M | L6 | CO1 |
|---|-----|----|-----|

OR

- | | | | |
|--|-----|----|-----|
| c. What are boiler troubles? Explain formation & prevention of scale and sludge. | 6 M | L2 | CO1 |
|--|-----|----|-----|

- | | | | |
|---------------------------------------|-----|----|-----|
| d. Write a short note on galvanizing. | 4 M | L1 | CO1 |
|---------------------------------------|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| 7 a. Explain the physical significance of entropy. | 6 M | L2 | CO2 |
|--|-----|----|-----|

- | | | | |
|---|-----|----|-----|
| b. Derive nernst equation and write its applications. | 4 M | L6 | CO2 |
|---|-----|----|-----|

OR

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|--|-----|----|-----|
| c. Describe the construction and working of calomel electrode with a neat diagram. | 6 M | L5 | CO2 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| d. The efficiency of an engine is 0.42. Calculate the heat that must be withdrawn from the reservoir at higher temperature to produce 203 cal of work. | 4 M | L3 | CO2 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| 8 a. Draw the molecular orbital diagram of N ₂ and find out the bond order. | 6 M | L4 | CO3 |
|--|-----|----|-----|

- | | | | |
|---|-----|----|-----|
| b. Describe the preparation and applications of Poly lactic acid. | 4 M | L2 | CO3 |
|---|-----|----|-----|

OR

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|--|-----|----|-----|
| c. Discuss the preparation,properties and applications of PET and Kevlar | 6 M | L6 | CO3 |
|--|-----|----|-----|

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|--|-----|----|-----|
| d. Analyze the doping mechanism of conduction in poly acetylene(p-doping & n-doping) | 4 M | L4 | CO3 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| 9 a. Explain proximate analysis of coal? How is it carried out ? What is its significance? | 6 M | L1 | CO4 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| b. A sample of coal has the following composition: C=83% ,H=7.5% , S=1.5% , N=0.6% ,O=8.4 % find the gross calorific value using Dulong Formula. | 4 M | L3 | CO4 |
|--|-----|----|-----|

OR

- | | | | |
|--|-----|----|-----|
| c. Explain fractional distillation of petroleum with a neat diagram. | 6 M | L2 | CO4 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| d. Explain the concept of trans esterification of biodiesel. | 4 M | L2 | CO4 |
|--|-----|----|-----|

- | | | | |
|---|-----|----|-----|
| 10 a. What are Lithium ion batteries? Explain the construction,working and applications of Lithium ion batteries. | 6 M | L5 | CO5 |
|---|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| b. Explain the construction and working of CH ₃ OH-O ₂ fuel cell and write its advantages. | 4 M | L2 | CO5 |
|--|-----|----|-----|

OR

- | | | | |
|--|-----|----|-----|
| c. Illustrate the principles of green chemistry. | 6 M | L3 | CO5 |
|--|-----|----|-----|

- | | | | |
|--|-----|----|-----|
| d. Make the use of Nanotechnology write a short note on the following a) Carbon nano tubes b) Nano crystals. | 4 M | L3 | CO5 |
|--|-----|----|-----|

- 8 a. Outline the synthesis of silicone rubber. Mention its properties and applications. 5 M CO3 L4
- b. Illustrate the molecular orbital energy level diagram of O₂. 5 M CO3 L4
- OR
- c. What is PET? How is it prepared from its monomers? Write its properties and uses. 5 M CO3 L1
- d. Explain the importance of biodegradable polymers with an appropriate example along with its preparation, properties and applications. 5 M CO3 L2
- 9 a. Calculate the gross, net calorific value and the volume of air at STP, required for the complete combustion of 2 Kg of the fuel having the following composition. 78% carbon, 8 % hydrogen, 2.1 % sulfur, 1.6% nitrogen and 4% ash. 5 M CC L3
- b. What is the necessity and significance of elemental analysis of coal? How can you analyze coal with the help of ultimate analysis? 5M CO4 L1,4
- OR
- c. Classify fuels and give appropriate examples. Enumerate the requisites of a good fuel. Write the composition and uses of LPG, CNG. 5M CO4 L1,6,4
- d. Explain about knocking. How do you rate the quality of petrol and diesel? 5 M CO4 L2
- 10 a. Composite materials have superior properties compared to conventional materials. Substantiate. 5 M CO5 L5
- b. Give an overview of trans esterification. Enlist the applications of biodiesel. 5 M CO5 L1
- OR
- c. Enumerate the applications of nano materials. 4 M CO5 L2
- d. What is green chemistry? Explain the principles of green chemistry. 6M CO5 L1,2



Hall Ticket No-

Code: S222822/1

Stanley College of Engineering and Technology for Women(A)

B.E (IT) I Semester (Backlog) Examinations January-2023

Chemistry

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- 1 Differentiate between anodic and cathodic coatings. 2 M CO1L2
- 2 Give the use of photovoltaic cells in harnessing the solar energy. 2 M CO2 L1
- 3 Outline the preparation of Kevlar, mention any two properties. 2 M CO3 L4
- 4 Define HCV and LCV. 2 M CO4 L1
- 5 Explain any two examples of clean technology. 2 M CO5 L2

PART-B

Note: Answer all questions

5 X 10= 50M

- 6 a. Explain the principle of estimation of hardness of water by complexometric titration. 6 M CO1 L2
- b. 100 ml of a standard hard water containing 0.2 mg/ml of pure CaCO_3 consumes 25 ml of EDTA. 100 ml of test water sample consumes 35 ml of same EDTA before boiling and 20 ml after boiling. Calculate the temporary, permanent and total hardness of water sample. 4 M CO1 L3
- OR
- c. With a neatly labeled diagram, explain demineralization of water by ion exchange method. Enlist the advantages and limitations. 6 M CO1 L2
- d. Discuss about galvanizing process. 4 M CO1 L2
- 7 a. Illustrate the construction and working of quinhydrone electrode. 5 M CO2 L4
- b. Demonstrate the determination of pH of a solution by using this electrode with a diagram. 5 M CO2 L3
- OR
- c. Illustrate the electrochemistry of Lead acid battery. Write its merits and applications. 5 M CO2 L4
- d. Define fuel cell. Explain the construction and working of methanol-oxygen fuel cell. 5 M CO2 L1

Stanley College of Engineering and Technology for Women(A)

B.E(CSE,CME & AI&DS) I Semester (Backlog) Examinations January-2023

Applied Physics

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- | | | | |
|---|---|----|--------|
| 1 | List any four applications of optical fibers. | 2M | CO1 L3 |
| 2 | Distinguish between soft and hard magnetic materials. | 2M | CO2 L2 |
| 3 | What is meant by a wave function? Give its physical significance. | 2M | CO3 L2 |
| 4 | What are the limitations classical free electron theory? | 2M | CO4 L1 |
| 5 | Write a note on surface to volume ratio at nano scale. | 2M | CO5 L1 |

PART-B

Note: Answer all questions

5 X 10= 50M

- | | | | |
|-----------|--|----|--------|
| 6 | a. With the help of neat sketch elaborate the construction and working of He-Ne laser. | 5M | CO1 L3 |
| | b. Construct the relationship between Einstein's co-efficient of absorption, spontaneous and stimulated emission. | 5M | CO1 L4 |
| OR | | | |
| | c. Discuss various types of optical fibers with necessary illustrations. | 5M | CO1 L2 |
| | d. Calculate (a) numerical aperture (b) acceptance angle and (c) fractional change of index of an optical fiber with following specifications: refractive index of core is 1.36 and refractive index of cladding is 1.326. | 5M | CO1 L3 |
| 7 | a. How do you determine dielectric constant of a given material using capacitance bridge method? | 5M | CO2 L3 |
| | b. Explain ionic polarizability of a dielectric material and give examples. | 5M | CO2 L3 |
| OR | | | |
| | c. Describe Weiss molecular field theory of ferro magnetism and hence deduce expression for Curie Temperature. | 5M | CO2 L2 |
| | d. Draw and Explain Hysteresis curve of a ferromagnetic material. | 5M | CO2 L2 |
| 8 | a. Examine various types of superconductors with examples. | 5M | CO3 L1 |
| | b. The critical magnetic field and critical temperature of superconducting lead (Pb) respectively are 6.37×10^4 A/m and 7.2K. Calculate critical field of lead at 5K. | 5M | CO3 L3 |

OR

Code: S122824

- c. Analyse using Schrodinger wave equation the energy levels of a particle confined to one dimensional box. 5M CO3 L4
- d. Write a note on de Broglie Matter waves. Calculate wavelength associated with an electron moving with a velocity equal of 1/15 of speed of light. 5M CO3 L3
- 9 a. Appraise the classification of materials based on Energy bands in solids with suitable examples. 5M CO4 L4
- b. List the significant conclusions of Kronig-Penney model. 5M CO4 L2
- OR**
- c. Deduce an expression for the carrier concentration in an intrinsic semiconductor. 5M CO4 L2
- d. State Hall effect and mention its applications. 5M CO4 L3
- 10 a. Illustrate working of Electron beam evaporation method to prepare a thin film. 5M CO5 L2
- b. Compare between bulk, thin films and nanomaterials. 5M CO5 L5
- OR**
- c. Elaborate the properties of carbon nanotubes. 5M CO5 L1
- d. Explain the preparation on nanomaterials by sol-gel method. 5M CO5 L2

Stanley College of Engineering and Technology for Women(A)**B.E(EEE & ECE) I Semester Backlog Examinations-January-2023****Fundamentals of Electrical Engineering**

Time: 3 hours

Max.Marks:60

Part-A**Note: Answer all questions (Compulsory)****5 X 2=10M**

- | | | |
|---|--|-----|
| 1 | State Kirchhoff's current law. | 2 M |
| 2 | Define Reactive Power and Apparent Power. | 2 M |
| 3 | What are the differences between statically induced emf & dynamically induced emf? | 2 M |
| 4 | Why single-phase induction motor is not self-starting? | 2 M |
| 5 | Mention any two components of LT Switchgear. | 2 M |

Part-B**Note: Answer all questions****5 X 10= 50M**

- | | | |
|---|---|-----|
| 6 | a. Formulate the expressions for equivalent resistance if 'n' number of resistances is connected in series and parallel combinations. | 5 M |
| | b. Explain Thevenin Theorem with one example. | 5 M |
| | OR | |
| | c. Explain Norton Theorem with one example. | 5 M |
| | d. What is Superposition Theorem, Justify with an example? | 5 M |
| 7 | a. Derive the expressions for resistances when a network is converted from star to delta. | 5 M |
| | b. The equation of an alternating current is $I=42.42 \sin 628t$. Determine (i) its maximum value (ii) Frequency (iii) RMS value (iv) Average value and (v) Form Factor. | 5 M |
| | OR | |
| | c. Explain the behavior of a pure inductor when connected across a single-phase ac supply. | 5 M |
| | d. Show that the line voltage is $\sqrt{3}$ times the phase voltage in a star connected 3- ϕ system. | 5 M |
| 8 | a. Explain the principle of operation of a three-phase Induction Motor. | 5 M |
| | b. A 10 KVA, 500/250V single phase transformer has the following results
i) O.C. Test : 250V , 0.8A, 200W
ii) S.C. Test : 120V, 20A, 500W
Calculate the Efficiency at Full load with 0.8P.F. lagging | 5 M |

OR**1****P.T.O**

- c. Explain the principle of operation of a Transformer. 5 M
- d. Discuss in detail about the Rotating Magnetic Field in a 3-phase Induction Motor. 5 M
- 9 a. With a neat circuit diagram, Discuss about the Split-phase type Induction Motor 5 M
- b. Derive an expression for the EMF Equation of a DC Generator. 5 M
- OR**
- c. A 6-pole machine has an armature with 90 slots and 8 conductors per slot, the flux per pole is 0.05 wb and speed at 1000 rpm. Determine induced emf if winding is (i) lap connected and (ii) wave connected. 5 M
- d. Draw a neat sketch of a DC Machine and explain the function of various parts. 5 M
- 10 a. Explain the concept of earthing. 5 M
- b. Clearly illustrate types of wires and cables. 5 M
- OR**
- c. Explain in detail MCB and ELCB. 5 M
- d. Mention methods of power Factor improvement. 5 M

Stanley College of Engineering and Technology for Women(A)

B.E (CSE/EEE/ECE/IT/CME/AI&DS) I Semester (Backlog) Examinations January-2023

Programming for Problem Solving

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)**5 X 2=10M**

- | | |
|--|-----|
| 1 Define implicit type casting with example. | 2 M |
| 2 Differentiate between 'break' and 'continue' statements. | 2 M |
| 3 Compare call by value and call by reference. | 2 M |
| 4 What are the bit fields in C? | 2 M |
| 5 What is the use of fseek() function in files. Write its syntax? | 2 M |

PART-B

Note: Answer all questions**5 X 10= 50M**

- | | |
|--|-----|
| 6 a. Discuss about different computer languages with examples. | 5 M |
| b. What is an operator? List and explain various types of operators. | 5 M |
| OR | |
| c. Explain about the basic data types in c language with example. | 5 M |
| d. Draw the flowchart and write a C program to compute simple interest. | 5 M |
| 7 a. Explain the for loop and nested for loop with suitable examples. | 5 M |
| b. Write a C program to find the sum of first and last digit of a number. | 5 M |
| OR | |
| c. Explain switch statement with syntax and example. | 5 M |
| d. Implement a C program to find the reverse of an integer number and check whether it is palindrome or not. | 5 M |
| 8 a. What is an array? What are the different ways of initializing the arrays? | 5 M |
| b. Explain different string handling functions with syntaxes. | 5 M |
| OR | |
| c. Explain how arguments are passed to a function using references? | 5 M |
| d. Demonstrate storage classes available in C language with examples. | 5 M |
| 9 a. What is Structure? Explain initialization and accessing structures. | 5 M |
| b. What are enumeration? Give an example to explain the same. | 5 M |
| OR | |
| c. Explain the concept of Nested structures with a sample C program. | 5 M |
| d. What is dynamic memory management? Explain different dynamic memory management functions available in C language. | 5 M |
| 10 a. Explain command line arguments with an example. | 5 M |
| b. Write a program to perform Linear Search operation. | 5 M |
| OR | |
| c. Demonstrate file types and file opening modes. | 5 M |
| d. Explain bubble sort operation with an example | 5 M |

Hall Ticket No-

Code: S22325

Stanley College of Engineering and Technology for Women(A)

B.E (ECE,EEE & IT) I Semester Backlog Examinations-January-2023

Environmental Science

Time: 3 hours

Max.Marks:60

PART-A

Note: Answer all questions (Compulsory)

5 X 2=10M

- | | | | |
|---|--|----|----|
| 1 | List the effects of deforestation on tribal people. | 2M | L1 |
| 2 | Discuss the two channel energy flow in an ecosystem. | 2M | L5 |
| 3 | List the various bio geographical zones in India. | 2M | L1 |
| 4 | List the salient features of air act. | 2M | L1 |
| 5 | Define global warming. | 2M | L1 |

PART-B

Note: Answer all questions

5 X 10= 50M

- | | | | |
|----|--|----|----|
| 6 | a. Discuss the various ill-effects of modern agriculture. | 5M | L5 |
| | b. Relate soil erosion impact desertification and fertility. | 5M | L1 |
| | OR | | |
| | c. Discuss soil erosion and desertification. | 5M | L5 |
| | d. Explain problems of Dam. | 5M | L3 |
| 7 | a. Discuss the function of an ecosystem. | 5M | L5 |
| | b. Explain about desert ecosystem. | 5M | L3 |
| | OR | | |
| | c. Analyze the structure of Ecosystem. | 5M | L4 |
| | d. Explain about Types of Ecological pyramids. | 5M | L4 |
| 8 | a. Explain about endangered and endemic species of India. | 5M | L3 |
| | b. Describe the conservation of biodiversity. | 5M | L5 |
| | OR | | |
| | c. Write the major threats to biodiversity. | 5M | L1 |
| | d. Relate the Values of Biodiversity. | 5M | L1 |
| 9 | a. Explain the causes of water pollution. | 5M | L1 |
| | b. Write about Wildlife Act and Forest conservation Act. | 5M | L1 |
| | OR | | |
| | c. Explain about Environmental Legislation. | 5M | L1 |
| | d. Discuss effects and control measures of Air pollution. | 5M | L5 |
| 10 | a. Analyze mitigation measures for Ozone layer depletion. | 5M | L4 |
| | b. Explain about disaster management of India. | 5M | L1 |
| | OR | | |
| | c. Explain about Acid rains. | 5M | L2 |
| | d. Categorize Types of Disasters. | 5M | L3 |
