Printed Pages: **Mid Semester Test-I** **UID No:** 23BCBIC081

Academic year Semester 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 2nd

Subject Title: 23SMT-128

Subject Code: Statistical Methods

Time: 1 Hour **Maximum Marks: 20**

Instructions: Attempt all questions

Scientific calculator is allowed

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Elaborate sampling with finite and infinite Population.	CO1
2	Difference between Null hypothesis and Alternative hypothesis.	CO1
3	Write down the algorithm of one-way ANOVA	CO2
4	If $R_{1.23} = 1$ then prove that $R_{2.13} = 1$	CO2
5	Full form of ANOVA and why we use it.?	CO1
	Section B 2 x 5 = 10 marks	
6	Calculate rank correlation coefficient of the following data: X 68 65 75 50 64 80 75 40 55 64 Y 62 58 68 45 81 60 68 48 50 70	CO2
7	Given that $r_{12} = 0.7$; $r_{13} = 0.61$; $r_{23} = 0.4$ find the values of (i) $r_{12.3}$ (ii) $r_{13.2}$ (iii) $r_{23.1}$	CO2

Printed Pages: **Mid Semester Test-I** **UID No:** 23BCB10021

Academic year Semester 2023 – 2024

Program Name/Code: Bachelor of Engineering (CSBS)

Semester: 2nd

Subject Title: 23CSH-105

Subject Code: DATA STRUCTURE AND ALGORITHMS

Time: 1 Hour **Maximum Marks: 20**

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Differentiate linear and Nonlinear data Structures.	CO1
2	Discuss complexity. How to measure complexity of an algorithm	CO1
3	Consider an array marks[100], the base address is 100 , word length is 4, find the address of marks[25] and Marks[45].	CO1
4	Mention Worst case complexity of linear and binary search.	CO2
5	State Sparse Matrix. How Sparse matrix is represented using arrays	CO3
	Section B 2 x 5 = 10 marks	
6	Design an algorithm for linear search in an array. Compute time complexity of linear search for all the possible cases.	CO2
7	44, 68, 37, 83, 82 , 191, 45 , 158 ,130 , 76 , 153 , 39 ,25 Consider the above list and sort the no of elements with the help of selection sort and write down the complexity of selection sort.	CO3

Printed Pages: **Mid Semester Test-I** **UID No:** 10084

Academic year Semester 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 2nd

Subject Title: 23SMT-127

Subject Code: Linear Algebra

Time: 1 Hour **Maximum Marks: 20**

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Define skew symmetric matrix with an example.	CO1
2	If $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find k so that $A^2 = kA - 2I$.	CO1
3	If A is a 3 × 3 matrix, $\lvert A\rvert \neq 0$ and $\lvert 3A\rvert = K\lvert A\rvert$, then write the value of K.	CO2
4	Verify that the matrix $A = \begin{bmatrix} \cos\theta & 0 & \sin\theta \\ 0 & 1 & 0 \\ \sin\theta & 0 & \cos\theta \end{bmatrix}$ is orthogonal or not.	CO1
5	Define Eigen values and Eigen vectors of a matrix.	CO1
	Section B 2 x 5 = 10 marks	
6	Show that the following system of equations have unique solution: $x + y + z = 3$, $x + 2y + 3z = 4$, $x + 4y + 9z = 6$ by rank method.	CO3
7	Using elementary row transformations find the inverse of $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$	CO2

Printed Pages: **Mid Semester Test-I** **UID No:** 10081

Academic year Semester 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 2nd

Subject Title: Environmental Science

Subject Code: 23CET-107

Time: 1 Hour **Maximum Marks: 20**

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Enlist the four major global environmental issues.	CO2
2	How is food chain different from food web?	CO2
3	Outline the advantages and disadvantages of In-situ conservation method of biodiversity.	CO1
4	Enlist the various effects of noise pollution on marine life.	CO1
5	State the features of Air prevention & control of pollution Act.	CO1
	Section B 2 x 5 = 10 marks	
6	India is a mega-diversity nation. Highlight and explain the various threats to biodiversity.	CO2
7	Explain the impact of noise pollution on both the environment and human health.	CO2

Printed Pages: **Mid Semester Test-I** **UID No:** 23BKD021

Academic year Semester 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 2nd

Subject Title: 23ECH-104

Subject Code: Principles of Electronics

Time: 1 Hour **Maximum Marks: 20**

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Discuss about crystalline material with its mechanical properties in your own words.	CO1
2	What is meant by rectifier? Write its applications also.	CO1
3	Differentiate between minority and majority carriers in a semiconductor.	CO1
4	Give the difference between PN junction diode and zener diode.	CO2
5	Describe the advantages and disadvantages of using a bridge rectifier.	CO2
	Section B 2 x 5 = 10 marks	
6	Draw and explain the working of PN junction diode in reverse biased with its characteristics.	CO3
7	Explain the concept of regulation of rectifier. Also discuss the significance of line regulation and load regulation.	CO4

Printed Pages: **Mid Semester Test-I** **UID No:** 23BCB10081
Academic year Semester 2023 – 2024
Program Name/Code: Bachelor of Engineering
Semester: 2nd
Subject Title: 23CST-106
Subject Code: Fundamentals of Economics

Time: 1 Hour **Maximum Marks: 20**
Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Demystify the concept of price effect.	CO1
2	Discuss the limitation of law of demand.	CO1
3	Elucidate the qualitative characteristics law of DMU.	CO1
4	Construct an illustration for law of Demand.	CO1
5	Create a short note on fashion influencing demand.	CO1
	Section B 2 x 5 = 10 marks	
6	Demystify the concept of real income.	CO2
7	Because of percentage increase in price by 26%, demand changes. If Ed= 0.5, calculate percentage change in quantity.	CO2

Printed Pages: **Mid Semester Test-I** **UID No:** 23BCB10081
Academic year Semester 2023 – 2024
Program Name/Code: Bachelor of Engineering
Semester: 2nd
Subject Title: 23PCH-103
Subject Code: Business Communication and Value Science-II
Time: 1 Hour **Maximum Marks: 20**
Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	List the differences between Skimming and Scanning. Give example for each.	CO3
2	Read the statement or passage and then choose the best answer to the question. Answer the question based on what is stated or implied in the statement or passage. In the words of Thomas DeQuincey, "It is notorious that the memory strengthens as you lay burdens upon it." If, like most people, you have trouble recalling the names of those you have just met, try this: The next time you are introduced, plan to remember the names. Say to yourself, "I'll listen carefully; I'll repeat each person's name to be sure I have it, and I will remember." You'll discover how effective this technique is and probably recall those names for the rest of your life. Q. The writer believes people remember names best when they a. meet new people b. are intelligent c. decide to do so d. are interested in people	CO3
3	An Executive Summary is like the trailer of a movie". Define Executive Summary.	CO4
4	What should an individual keep in mind while preparing and planning for a project proposal ?	CO4
5	Choose the correct form of tenses: 1)The teachers _____ (plan) to dance to all the latest songs on Childrens Day.(Present Continous Tense) 2)We_____(eat) our breakfast at 9 a.m.(Simple Past Tense) 3)Vinita _____ (walk) around for hours.(Future Perfect Continous Tense) 4)How long _____ you _____ (stand) there to meet the manager?(Past Perfect Continous Tense)	CO3
	Section B 2 x 5 = 10 marks	
6	Write a concise executive summary (200-250 words) for a report on the impact of artificial intelligence on the job market.	CO4
7	A. Fill the correct word from the given choices: 1. The singer's lyrics were quite lovely, but her vocal tone was extremely _____ (harsh/ melodious). 2. Raman was so anncyed with his publicist that he repeatedly _____ (praised/ lambasted) him in public. 3. Because Maria had the reputation of being a mediocre cook, most believed her chances of winning the bake-off were _____ (good/ slim). 4. Despite the fact that the racehorse's performance in recent competitions had been disappointing, the odds makers were predicting a _____ (win/ disappointment) at the Derby. 5. Many felt the rules for the scholarship competition had been unfair and, furthermore, the judges were _____ (biased/ fair).	CO3