Printed Pages: Mid Semester Test-2 UID No: 23BCB1

Academic year 2023 – 2024

Program Name/Code: Bachelor of Engineering (Computer Science and Engineering) (Computer Science and Business Systems) (In association with TCS)

Semester: 1st

Subject Title: Principles of Electrical Engineering

Subject Code: 23ELH-102

Time: 1 Hour Maximum Marks: 20

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Explain properties of an electrostatic field.	CO1
2	Since a capacitor stores a charge just like a lead acid battery it can be used at least theoretically as an electrostatic battery. Determine the value of capacitance of 15 V electrostatic battery which is having the same capacity as a 30 Ah, 15 V lead acid battery.	CO2
3	Explain purpose of magnetic materials in a magnetic circuit.	CO3
4	Discuss transformer turns ratio in your own terms.	CO4
5	How can we overcome eddy current losses in a transformer?	CO4
	Section B 2 x 5 = 10 marks	
6	Consider a force of 6 Newton is acting on the charge of 6 micro coulomb at any point. Then determine the electric field intensity at that point. Also mention the unit of electric field.	CO1
7	Demonstrate the construction and working principle of transformer in detail.	CO5

Printed Pages: Mid Semester Examination

Academic year 2023 – 2024

UID No: 23BCB10...

Program Name/Code: Bachelor of Engineering

Semester: 1st

Subject Title: Business Communication & Value Science - I

Subject Code: 23PCH-102

Time: 1 Hour

Maximum Marks: 20

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	What are the characteristics of an ethical communicator?	CO4
2	Is it ethical to withhold certain information if it's believed to protect someone from distress? Why or why not?	CO4
3	Draw the block format of a business letter and specify the placement of all its components.	CO5
4	Choose the correct form of the verb given in the bracket. 1. The politician, along with the newsmen,____(is/are) expected shortly. 2. One of the passengers .....(was/were) injured in the accident. 3. Now that everyone .....(has/have) come, let's get going. 4. The Irish .....(is/are) famous for their sense of humor.	CO2
5	Put the verbs in brackets into suitable tense form i) I_____(wait) for my friend for two hours. ii) When he _____ (wake up), his mother _____(already prepare) breakfast.	CO2
	Section B 2 x 5 = 10 marks	
6	The water supply will be suspended for eight hours (10 am to 6 pm) on the 6th of October for cleaning of the water tank. Write a notice in about 50 words advising the residents to store water for a day. You are Karan Kumar/Karuna Bajaj, Secretary, Janata Group Housing Society, Palam Vihar, Karnal.	CO5
7	Write a Memo to an employee who proceeded on a leave without prior permission of the concerned authorities. Give strict warnings to refrain from such activities. Invent all other necessary details.	CO5

Printed Pages: Mid Semester Test-2
Academic year 2023 – 2024
UID No: 23BCB10081

Program Name/Code: Bachelor of Engineering
Semester: 1st
Subject Title: Discrete Mathematics
Subject Code: 23SMT-123

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

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Solve the recurrence relation: $S(k) - 4S(k-1) - 11S(k-2) + 30\,S(k-3) = 0$	CO1
2	What is recurrence relation. Give an example.	CO3
3	Explain Validity of an argument with example.	CO4
4	What are the variations in conditional statements.	CO3
5	Solve the recurrence relation for $F_n = F_{n-1} + F_{n-2}$, subject to $F_1 = F_2 = 1$	CO1
	Section B 2 x 5 = 10 marks	
6	Find the complete solution of $a_n = -3a_{n-1} - 2a_{n-2}$ with initial condition $a_1 = -2, a_2 = 4$	CO3
7	Prove that $((p \to q) \wedge (q \to r)) \to (p \to r)$ is tautology	CO3

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Academic year 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 1st

Subject Title: Statistics, Probability and Calculus

Subject Code: 23SMT-124

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	The mean of Binomial distribution is dependent on the parameters. Comment on it	CO2
2	A and B are two events such that P(A) = 0.4 and P(A ∩ B) = 0.2 Then P(A ∩ B) is equal to _____	CO1
3	Define Random variables and also write down types of random variables.	CO2
4	Two dices are thrown simultaneously then find the probability that sum on faces of dice is at most 5.	CO4
5	Define Null and alternative hypothesis.	CO4
	Section B 2 x 5 = 10 marks	
6	In a book of 520 pages, 390 typo-graphical errors occur. Assuming Poisson law for the number of error per page, find the probability that a random sample of 5 pages will contain no error.	CO3
7	X is normal variate with mean 30 and S.D. 5. Find the probabilities that (i) $26 \leq X \leq 40$ (ii) $X \geq 45$	CO4

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Academic year 2023 – 2024

Program Name/Code: Bachelor of Engineering (Computer Science and Engineering) (Computer Science and Business Systems) (In association with TCS)

Semester:1st

Subject Title: Fundamentals of Computer Science

Subject Code: 23CSH-104

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

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	Write the syntax of while loop statement by making use of an example.	CO3
2	Write a C program to print the numbers from 1 to 10 using a for loop?	CO3
3	Explain the concept of arrays in C and provide an examples of their declaration and initialization?	CO2
4	Explain the concept of string storage in C, including null-terminated strings?	CO2
5	Difference between function declaration and function definition?	CO2
	Section B 2 x 5 = 10 marks	
6	Write a program in C to find out the factorials of 1 to 10 using recursion in tabular form.	CO3
7	Write a C program to Search a value in an array.	CO2

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Academic year 2023 – 2024

Program Name/Code: Bachelor of Engineering

Semester: 1st

Subject Title: Physics For Computer Science

Subject Code: 23SPH-142

Time: 1 Hour Maximum Marks: 20

Instructions: Attempt all questions

Q. No	Statement	CO mapping
	Section A 5 x 2 = 10 marks	
1	State and explain Brewster's law.	CO2
2	How circularly and elliptically polarized light produced?	CO2
3	Describe wave-particle duality. Write an expression for de-Broglie wavelength.	CO3
4	Green light has a wavelength of about 550 nm. Calculate frequency and energy of photon.	CO3
5	Using Heisenberg principle find the momentum of the electron if position of the electron is 1 Angstrom.	CO1
	Section B 2 x 5 = 10 marks	
6	Name the devices producing polarized light. What is the application of Polaroid?	CO3
7	Explain Heisenberg's Uncertainty principle and explain why electron can not exit inside the nucleus?	CO1