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PRN. No.	
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PAPER CODE	0114-3103 (Backlog)
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Dec 2024 (Backlog) EXAM Sem-I

F.Y. (INFORMATION TECHNOLOGY)

(PATTERN 2023)

COURSE NAME: PROGRAMMING AND PROBLEM SOLVING - I**COURSE CODE: IT11236****Time: [2Hr]****[Max. Marks: 60]****Instructions to candidates:**

- 1) Use of scientific calculator is allowed
- 2) Use suitable data where ever required
- 3) All questions are compulsory. Solve any **THREE** sub questions from **EACH** question

Que. No.	Question Description	Max. Marks	CO mapped	BT Level
Q1.	Solve any three sub questions from the following			
	A) Evaluate the following equations given A = 5, B = 4, C = 3, D = 12: 1. $E = A * B + D / C$ 2. $E = D \text{ MOD } A * B$ 3. $E = 5 * A \setminus D * 1B + 12$ 4. $E = D / B * 11A + 42 \setminus 1C + 122$ 5. $E = A + B - C * D$	[5]	CO1	2
	B) Evaluate the following equation i) $R = \text{NOT}(A \&\text{lt; } B) \text{ AND } (C \text{ OR } D)$ if A=4, B=2, C=True & D= False ii) $R = \text{NOT}(A \text{ AND } B) \text{ OR } \text{NOT}(D \text{ AND } C)$ if A=False, B=True, C=False, D=True	[5]	CO1	2
	C) Evaluate the following equation i) $R = \text{NOT}(A < B) \text{ AND } (C \text{ OR } D)$ if A=4, B=2, C=True & D= False ii) $R = \text{NOT}(A \text{ AND } B) \text{ OR } \text{NOT}(D \text{ AND } C)$ if A=False, B=True, C=False, D=True	[5]	CO1	2
	D) Write a truth table for the following equation: $R = A \text{ AND } B \text{ OR } \text{NOT } C$	[5]	CO1	2
Q2.	Solve any three sub questions from the following			
	A) Create a calling module name and parameters for the following(* indicate call by reference) a. Process Print(Average, Count) b. Process Calc(AGeSum, Count, *Average)	[5]	CO2	2
	B) Discuss decision logic structure with an example.	[5]	CO2	2
	C) Design two different algorithms and flowcharts for calculating a student's letter grade given the following.	[5]	CO2	2

	90-100=A 80-89=B 70-79=C 60-69=D Below 60=F			
	D)Write a pseudocode that reads characters from the keyboard until a period is received. Also draw the flowchart.	[5]	CO2	2
Q3.	Solve any three sub questions from the following			
	A) What is garbage collection, and how does it work? What is finalize()?	[5]	CO3	2
	B) Differentiate between Procedural oriented and object-oriented programming language.	[5]	CO3	2
	C)Describes the Principles of Object-oriented programming language.	[5]	CO3	2
	D)Using two separate statements, show how to declare an object called counter of a class called MyCounter.	[5]	CO3	2
Q4.	Solve any three sub questions from the following			
	A)Differentiate between operator overloading and function overloading	[5]	CO4	2
	B) Explain friend function concept with example.	[5]	CO4	2
	C) Discuss different types of inheritance with an example.	[5]	CO4	2
	D)Explain Virtual function concept with example.	[5]	CO4	2