Ref No. –Ex/CE/5/T/203/2025

BACHELOR OF ENGINEERING (CIVIL ENGINEERING) SECOND YEAR FIRST SEMESTER EXAM 2025

SUBJECT: COMPUTER PROGRAMMING-II.

Time: Three hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

No. of Question	PART – I	Marks

1	What will be the printed output, at the end of the following program segment?
	i) `# include <stdio.h>`
	`int main ()`
	`{`
	`int i=5;`
	`while (i<1)`
	`{`
	`printf("%d\n",i);`
	`i--;`
	`}`
	`return 0;`
	`}`
		2

	ii) `# include <stdio.h>`
	`int main ()`
	`{`
	`int i=3; int *j;`
	`j=&I;`
	`printf("%u\n",&i);`
	`printf("%u\n",j);`
	`printf("%u\n",&j);`
	`printf("%d\n",*(&i));`
	`printf("%d\n",*j);`
	`return 0;`
	`}`
	Let address of i – 65524 and j – 65522.
		2

[Turn over

No. of Question		
2.	Write short notes on **any two** of the following. a) Use of pointer in C program b) Structure type Variable. c) Recursive function	2x2=4
3	Write step-wise Algorithm and draw the flow chart to find out big number from given N number series.	3
	Answer any three questions.	
4	a) Write a C program to print ascending order form given input as N number integer b) Write a C program to interchange the element of two diagonal of two squire matrix.	7+6=13
5	a) Write a C program to obtain the factorial of given integer number using recursive function. b) Write a C program, to add Matrices [A] and transpose of Matrices [B], both of size (nxn), and store the result in a separate matrix [C].	6+7=13
6	a) Write a C program to find out value of using Trapezium rule. Given no. of division (k) as an input. b) Write a C program to the reactions of both supports of a simply supported beam having span L as input, due to every place of unit load @0.2L from left to right support.	7+6=13
7	a) Create a structure to specify data about employee. The data to be stored its name, Age, Basic pay and ID no. Assumed maximum 100 no employee. Write a C program to print the details of an employee, if give an ID no. as input. b) Write a C program, to find biggest value from diagonal element of 3x3 matrixes as input	7+6=13

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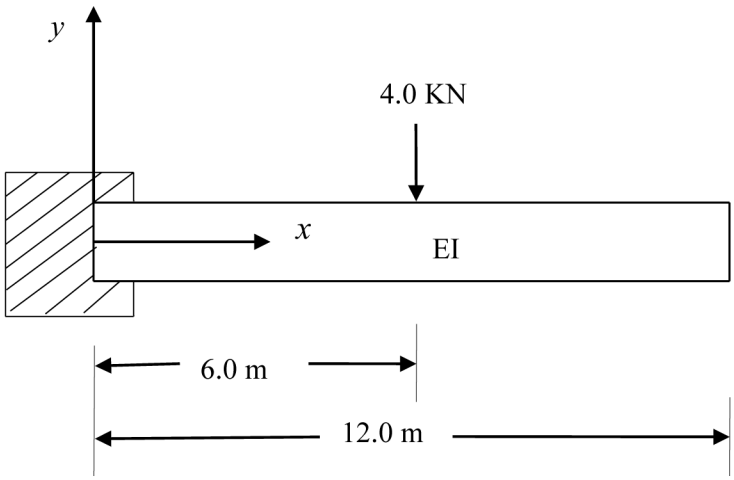
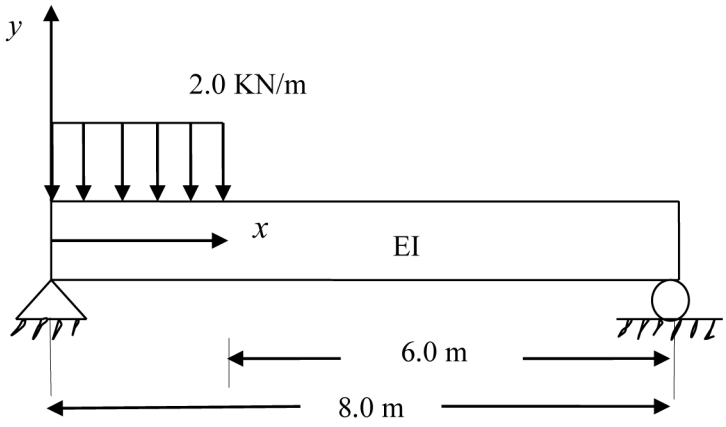
BACHELOR OF ENGINEERING (CIVIL ENGINEERING) SECOND YEAR FIRST SEMESTER EXAM – 2025

SUBJECT : COMPUTER PROGRAMMING- II

Time: Three Hours | Full Marks 100 (50 marks for each part)

Use a separate Answer-Script for each part.

Answer any **Five** Questions.

No. of questions	Part II	Marks
1.	Find the deflection for the cantilever beam at 3.0m, 6.0m, 9.0m and 12.0m from the fixed end using finite difference method. 	10
2.	Compute the deflection at mid-point and quarter points of the beam shown in figure below using finite difference method. 	10

No. of questions	Part II	Marks
3.	a) Derive Composite Trapezoidal rule using the first two terms of Newton-Gregory forward formula.	8
	b) What is the basic difference between Simpson's one-third rule and Gauss quadrature rule?	2
4.	a) Using three-point Gauss quadrature rule, estimate the integral. $\int_1^5 (x^2 - x)\,dx$ Also, find the absolute relative true error.	6
	b) Using the Simpson's 1/3 rule with no. of segments(n) = 4, evaluate the integral. $\int_{-1}^{1} \exp(x)dx$	4
5.	Using polynomial method, determine the Eigen values and corresponding Eigen vectors for the matrix. $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$	10
6.	a) Explain briefly power and inverse power method in connection with the Eigen value problems.	3
	b) Find the Eigen values and corresponding Eigen vectors using power and inverse power method, using two iterations, for the matrix $B = \begin{bmatrix} 5 & -3 \\ -6 & 2 \end{bmatrix}$	7
7.	a) Define Eigen value and Eigenvector.	2
	b) Derive the finite difference equation for $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ by Taylor series expansion.	4
	c) Write an algorithm to compute the value of a definite integral using Simpson's 1/3 rule.	4