Ref. No. Ex/CE/5/T/203/2019(OLD)

BACHELOR OF CIVIL ENGINEERING (EVENING) EXAMINATION 2019(OLD)

(Second Year, First Semester)

SUBJECT: COMPUTER AIDED ANALYSIS & PROGRAMMING

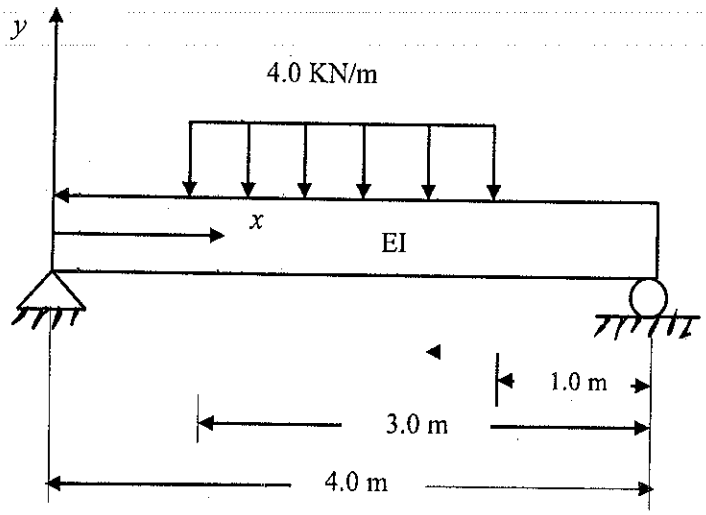
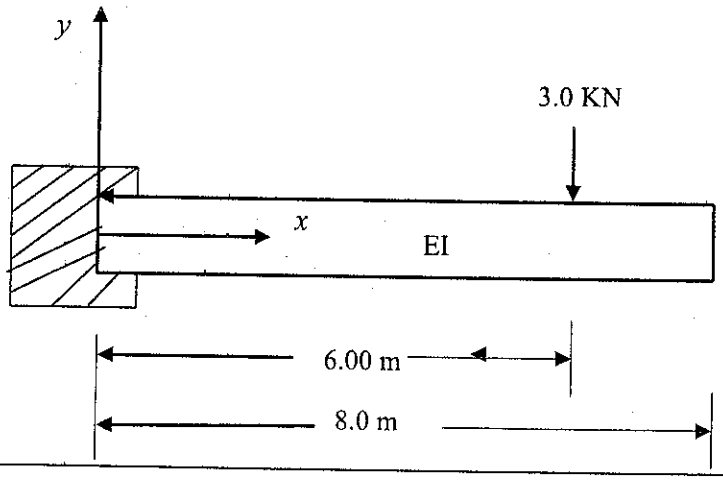
Time: Three Hours

Full Marks 100

(50 marks for each part)

Use a separate Answer-Script for each part

No. of questions	Part I	Marks
	.Answer any **Five** Questions.	
1.	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 $B = \begin{bmatrix} 1 & -2 \\ -5 & 4 \end{bmatrix}$	7
2.	a) Define Eigen value, Eigen vector.	2
	b) Using polynomial method, determine the Eigen values and corresponding Eigen vectors for the matrix $A = \begin{bmatrix} 2 & 1 & 0 \\ 1 & 2 & 1 \\ 0 & 1 & 2 \end{bmatrix}$	8
3.	a) Derive Composite Trapezoidal rule using the first two terms of Newton-Gregory forward formula	6
	b) Use the Simpson's1/3 rule with no. of segments(n)= 4, evaluate the integral. $\int_0^2 (Sin^3 x)dx$	4
4.	a) What is the basic difference between Simpson's one-third rule and Gauss quadrature rule?	2
	b) Using three-point Gauss quadrature rule, estimate the integral. $\int_1^3 (5x^3 - x + 4)dx$ Also, find the absolute relative true error.	8

No. of questions	Part I	Marks
5.	Compute the deflection at mid-point and quarter points of the beam shown in figure below using finite difference method.  	10
6.	Find the deflection for the cantilever beam at 2.0m,4.0m,6.0m and 8.0m from the fixed end using finite difference method.  	10

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Name of the Examinations: BACHELOR OF ENGINEERING (CIVIL ENGINEERING) SECOND YEAR FIRST SEMESTER (Old) - 2019

Subject : COMPUTER AIDED ANALYSIS & PROGRAMMING | **Time :three hr** | **Full Marks :50 each part**

Part II

Instructions : Use Separate Answer scripts for each part

No. of Question	PART – II	Marks
1	Write short notes **any four** of the following. a) Different block if –statement b) Use of pointer in C program c) Rules to be followed in written for-Loop d) Recursive function. e) Structure type Variable	4x2.5=10
		5X8=40
3	**Answer any five questions.**	
	a)Write a C program to find out value of $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} x \sin x \, dx$ using simson's rule. Given no. of division (k) as an input.	
	b) Write a C program, to product of two Matrices [A] and [B], both of size (2x3) and (3X2) respectively and store the result in a separate matrix [C].	
	c) Write a C program to print ascending order form given input as N number integer	
	d) Given four-digit integer number, write a C program to print it in reverse and also find sum of the digits.	
	e) Write a C program to obtain the factorial of given integer number using recursive function. f) 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.	