Form A: Paper –Setting Blank

Ref No. –Ex/CE/5/T/203/2018(old)(s)

B. CIVIL ENGG.(EVENING) 2ND YEAR 1ST SEM. EXAM. 2018(old)

(~~1st Semester / Repeat /~~ Supplementary ~~/ Annual / Bianual~~)

SUBJECT: COMPUTER AIDED ANALYSIS & PROGRAM.

Time: ~~Two hours~~/Three hours/~~Four hours/ Six hours~~

Full Marks 100

(50 marks for each part)

Use a separate Answer-Script for each part

No. of Question	PART – 1	Marks

1	What will be the printed output, at the end of the following program segment?
	a) # include <stdio.h>
	int main ()
	{
	int k=3; int *m;
	m=&k;
	printf("%u\n",&k);
	printf("%u\n",m);
	printf("%u\n",&k);
	printf("%d\n",*(&k));
	printf("%d\n",*m);
	return 0;
	}
	Let address of i: 66524 and j : 66522.
	b) # include <stdio.h>
	# include <string.h>
	int main ()
	{
	char arr[]="good day";
	arr=strupr(arr);
	printf("%c\n",arr);
	return 0;
	}
		2
		
		1

No. of Question		Marks
2	Write short notes on **any three** of the following. a) String variable. b) Use of pointer in C program c) Structure type Variable. d) Difference between While loop & Do-While loop	3X4=12
	Answer any five questions.	
3	a) What is recursive function? 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]. c) Write a C program to find out value of $\int_{\frac{\pi}{2}}^{\pi} x \sin x \, dx$ using Trapezium rule. Given no. of division (k) as an input. d) Write a C program to the sum of following series for the first N terms, using function subprogram. $y = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} \ldots\ldots\ldots\ldots$ e) 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. f) Write a C program, to find biggest value from diagonal element of NxN matrixes as input.	7x5=35

Use a separate Answer-Script for each part

No. of questions	Part II	Marks
	.Answer any **Five** Questions.	
1.	a) Using three-point Gauss quadrature rule, estimate the integral. $\int_3^7 (5x^2+4x+2)dx$ Also, find the absolute relative true error.	7
	b) Use the Trapezoidal rule with no. of segments (n) = 4, evaluate the integral. $\int_2^6 (x^3+2x-1)dx$	3
2.	a) Derive Composite Simpson's one-third's rule using the first three terms of Newton-Gregory forward formula.	8
	b) What is the basic difference between Simpson's one-third rule and Gauss quadrature rule?	2
3.	Using polynomial method, determine the Eigen values and corresponding Eigen vectors for the matrix $A=\begin{bmatrix} 4 & 6 & 10 \\ 3 & 10 & 13 \\ -2 & -6 & -8 \end{bmatrix}$	10
4.	a) Define Characteristic polynomial.	2
	b) Find the Eigen values and corresponding Eigen vectors using power and inverse power method, using two iterations, for the matrix $B=\begin{bmatrix} 4 & 5 \\ 6 & 5 \end{bmatrix}$	8

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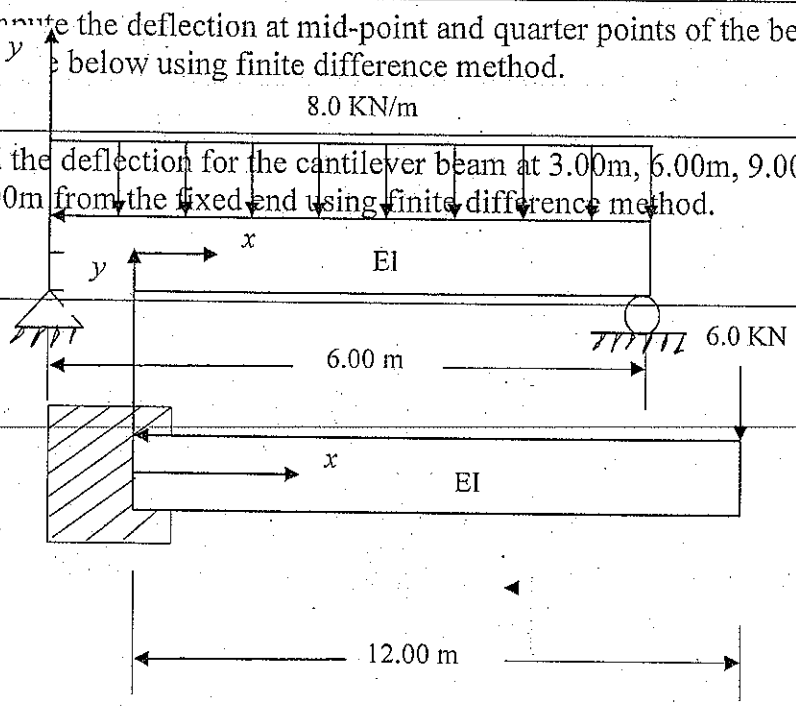
No. of questions	Part II	Marks
5.	a) Write an algorithm to compute the value of a definite integral using Trapezoidal rule.	4
	b) Derive the finite difference equation for $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$.	4
	c) What is the basic difference between an initial-value problem and a boundary-value problem?	2
6.	Compute the deflection at mid-point and quarter points of the beam shown in below using finite difference method. 	10
7.	Find the deflection for the cantilever beam at 3.00m, 6.00m, 9.00m and 12.00m from the fixed end using finite difference method.	10