MSE (SEM-III)

KOLHAPUR INSTITUTE OF TECHNOLOGY'S,
COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR
(AN AFFILIATED TO SHIVAJI UNIVERSITY,KOLHAPUR)

Second Year B.Tech. (Computer Science Engineering)

MID SEMESTER EXAMINATION, SEPTEMBER 2018

COMPUTATIONAL MATHEMATICS (UCSE0301)

Day and Date: Wednesday, 19/09/2018
Time: 09:30 AM to 11:30 AM

PRN No. :

Max Marks- **50**

Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

i) All questions are compulsory.
ii) Figure to the right indicates full marks.
iii) Assume suitable data wherever necessary.

		Marks	CO's	Blooms Level	PO
Q.1	**Attempt any three**	**18**	CO5	III	PO4
A	Apply Gauss Jordon method to solve the equations: $2x + 5y + 7z = 52$; $2x + y - z = 0$; $x + y + z = 9$	**6**			
B	Apply Factorization method to solve the equations: $10x + y + z = 12$; $2x + 10y + z = 13$; $2x + 2y + 10z = 14$	**6**			
C	Solve the system of non-linear equations: $x^2 + y = 5$, $y^2 + x = 3$ with intial approximation $x_0 = 3$ and $y_0 = -1$	**6**			
D	Determine the largest eigen value and the corresponding eigen vector of the following matrix using the power method: $A=\begin{bmatrix} 4 & 1 & -1 \\ 2 & 3 & -1 \\ -2 & 1 & 5 \end{bmatrix}$	**6**			
Q.2	**Attempt any two**	**16**	CO1	I	PO2
A	By using the bisection method, find an approximate root of the equation $x^3 - 4x - 9 = 0$ correct to three decimal places.	**8**			
B	By using Newton's iterative method, find the real root of $3x - \cos x = 1$.	**8**			
C	Evaluate $\int_0^{0.6} e^{-x^2} dx$ by taking seven ordinates and by using i) Simpson's 1/3 rd rule, ii) Simpson's 3/8 th rule. iii) Weddle's rule	**8**			

Q.3 Attempt any two **16** CO4 III PO2

A a) State Multiplication Law. Two candidates A and B appear in an interview for two vacancies in the same post. The probability of A's selection is 1\7 and that of B's selection is 1\5. What is the probability that i) both of them will be selected. ii) None of them will be selected. **8**

B Fit a Binomial Distribution to the following data: **8**

x:	0	1	2	3	4
f:	21	18	7	3	1

C In a post office, three clerks are assigned to process incoming mail. The first clerk A, processes 40 per cent; the second Clerk B, processes 35 per cent; and the third clerk C, process 25 per cent of the mail. The first clerk has an error rate of 0.04, the second has an error rate of 0.06, and the third has an error rate of 0.03. A mail selected at random from a day's output is found to have an error. The postmaster wishes to know the probability that it was processed by clerk A? **8**

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