

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2018

Course: S.Y. B. Tech.

Sem: III

Subject Name: NMME

Subject Code: BTMECC404

Max Marks: 20

Date:-

Duration:- 1 Hr.

Instructions: 1. All question are compulsory.

2. Use of nonprogrammable calculator is allowed.

3. Figures to right indicate full marks.

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		(Level/CO)	Marks
Q. 1			6
Do as directed.			
1. Round off the numbers 86767 to four significant digits		Understand/CO1	
2. The number of significant digits in 0.0800 are ____.		Understand/CO1	
3. Well conditioned systems are those where small changes in coefficients results in ____ changes in solution.		Understand/CO2	
a. large b. small c. no change d. none of these			
4. Write sum of 124 and 0.751 with regard to significant figures		Understand/CO1	
5. For $x + 2y = 10$, $1.05x + 2y = 10.4$. Calculate value of x .		Apply/CO2	
6. The root of the equation $e^{-x} - \sin x = 0$ lies between		Understand/CO2	
A. (-1, 0) B. (0, 1) C. (1, 2) D. none of these			
Q. 2			6
Solve Any <u>Two</u> of the following.			
(A) A body travels uniformly a distance of $(13.8 \pm 0.2)m$ in a time $(4.0 \pm 0.3)sec$. Compute the velocity with error limits. What is the percentage error in velocity?		Apply/CO1	
(B) Compute one root of $3 \sin x - 2x + 5 = 0$ correct to four decimal places by Newton Raphson method.		Apply/CO2	
(C) Find one root of $x^3 - 2x - 5 = 0$ correct to three decimal places by bisection method.		Apply/CO2	
Q. 3			8
Solve Any <u>One</u> of the following.			
(A) Explain III-conditioned system and well-conditioned system? Given the system $\begin{aligned} x + y - z &= -3 \\ 6x + 2y + 2z &= 2 \\ -3x + 4y + z &= 1 \end{aligned}$ Solve by naive Gauss elimination with partial pivoting. Show all the steps of computations.		Apply/CO2	
(B) Compute one root of $x \sin x + \cos x = 0$ correct to four decimal places by Newton Raphson method.		Apply/CO2	
*** End ***			