DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2018

Course: S.Y. B. Tech.   **Sem: III**

Subject Name: NMME   **Subject Code: BTMEC404**

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.

		(Level/CO)	Marks
Q. 1	Do as directed.		**6**
	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. a. large b. small c .no change d. none of these	Understand/CO2	
	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 A. (-1 ,0) B. (0 , 1) C. (1 , 2) D. none of these	Understand/CO2	
Q.2	**Solve Any <u>Two</u> of the following.**		**6**
(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	**Solve Any <u>One</u> of the following.**		**8**
(A)	Explain Ill-conditioned system and well-conditioned system? Given the system $$x + y - z = -3$$ $$6x + 2y + 2z = 2$$ $$-3x + 4y + z = 1$$ Solve by naïve 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 ***		