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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Test 1 EXAMINATION- September 2017

B.Tech II Semester (Civil Engg.)

COURSE CODE: 10B11MA312 MAX. MARKS: 15

COURSE NAME: NUMERICAL METHODS

COURSE CREDITS: 4 MAX. TIME: 1 Hr

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of scientific calculator is allowed.*

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1. What are elementary matrices? Explain their multiplication effects with a matrix of order 3 with the help of examples. (3)
2. Find the positive root of $x^3 = 2x + 5$ using the method of false position correct up to 3 decimal places. (3)
3. Derive the iteration scheme of Newton – Raphson method and show that the order of convergence is quadratic. (3)
4. Find all the roots of $x^3 - 8x^2 + 9x + 18 = 0$ given that the two of its roots are in the ratio 1 : 2. (3)
5. Find a real root using the iteration method, correct to three decimal places, of the equation (3)

$$2x - 3 = \cos x$$

lying in the interval $\left[\frac{3}{2}, \frac{\pi}{2}\right]$.

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