Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **17MA1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC MATHEMATICS FOR ENGINEERING** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | If, prove that . | CO1 | 10 |
| b. | Resolve into partial fractions. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Using binomial theorem, expand . | CO1 | 10 |
| b. | Prove that | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Differentiate with respect to x. | CO2 | 10 |
| b. | If , find. | CO2 | 5 |
| c. | If , find . | CO2 | 5 |
| **(OR)** | | | | |
| 4. | a. | Evaluate . | CO3 | 10 |
| b. | Integrate | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | Expand ex cos y about (0, π/2) upto the third term using Taylor’s Series. | CO4 | 10 |
| b. | Find Taylor’s series to represent the function . | CO4 | 10 |
| **(OR)** | | | | |
| 6. | a. | If, verify that . | CO4 | 10 |
| b. | If , prove that . | CO4 | 10 |
|  |  |  |  |  |
| 7. | a. | Show that the following two lines are skew lines and hence find the distance between them  and | CO5 | 10 |
| b. | Find the vector and Cartesian equation of the plane passing through (2,-1, 1) and (1,4,5) and parallel to the vector . | CO5 | 10 |
| **(OR)** | | | | |
| 8. | a. | Find the Cartesian equation of a plane passing through the point (-1, 3, 2) and parallel to the vectors + + and + +. | CO5 | 10 |
| b. | Show that the lines  and intersect and hence find the point of intersection. | CO5 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Find the Eigen values and Eigen vectors of A= | CO6 | 10 |
| b. | Solve the system of equations by Cramer’s method.  . | CO6 | 10 |