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



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **13MA201** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC MATHEMATICS TO ENGINEERING** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | If n is a positive integer, prove that  + =. | CO1 | 8 |
| b. | Resolve into partial fractions. | CO1 | 7 |
| c. | Find the fifth term of the expansion of (3w – 2z)10. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | If A + B + C = 180o, prove that cosA + cosB + cosC = 1 + 4sinsinsin | CO1 | 8 |
| b. | Find the angle between the lines joining the points (– 1, 2) ,(3, – 5) and (– 2,3),(5,0). | CO1 | 7 |
| c. | Find the center and radius of the circle having the following equation: *4x2 + 4y2 – 16x – 24y + 51 = 0.* | CO1 | 5 |
| 3. | a. | Find  for y = | CO1 | 5 |
|  | b. | If , prove that | CO1 | 10 |
|  | c. | If  find | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Evaluate | CO1 | 8 |
|  | b. | Integrate | CO1 | 8 |
|  | c. | Evaluate | CO1 | 4 |
| 5. | a. | Expand in powers of x – 1 and y + 2 upto the third term using Taylor Series. | CO1 | 10 |
|  | b. | If prove that | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | If. Verify that | CO1 | 10 |
|  | b. | Expand about the point x = 0 using Taylor Series. | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Show that the following two lines are skew lines and hence find the distance between them and . | CO1 | 10 |
|  | b. | If ,, and ,  Find i.  ii.  iii. iv.**.**. | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Show that the lines  andintersect and hence find the point of intersection. | CO1 | 10 |
|  | b. | Find the vector and Cartesian equation of the plane passing through the points  and | CO1 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Find the eigen values and the eigenvectors of the matrix | CO1 | 10 |
|  | b. | Solve using Cramer’s Method  3x + y + 2z = 3  2x –3y – z = – 3  x + 2y +z = 4. | CO1 | 10 |

ALL THE BEST