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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

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| **Code :** | **17MA1001/14MA1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC MATHEMATICS FOR 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, prove that. | CO1 | 10 |
| b. | Resolveinto partial fraction. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Find sin(α+) and cos(α-) , if sinα = and cos =. | CO1 | 5 |
| b. | Expand (2*x* – 3*y*) 6 using binomial theorem. | CO1 | 10 |
| c. | Find the angle between the pair of lines:. | CO1 | 5 |
| 3. | a. | Differentiate with respect to x. | CO2 | 5 |
|  | b. | If , prove that . | CO2 | 10 |
|  | c. | If , find . | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | Evaluate . | CO3 | 10 |
|  | b. | Evaluate . | CO3 | 10 |
| 5. | a. | Use Taylors formula to expand the function defined by  *f(x,y) = x2y2 + 2x2y + 3xy2* in powers of *x +2* and *y -1* upto second degree terms. | CO4 | 10 |
|  | b. | If  and , prove that | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | If and. Evaluate. | CO2 | 10 |
|  | b. | If , prove that . | CO2 | 10 |
| 7. | a. | Show that the lines and are skew lines and find the distance between them. | 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. | Show that the lines  and intersect and hence find the point of intersection. | CO5 | 10 |
|  | b. | Find the vector and Cartesian equation of the plane passing through the points(2,2,-1),(3,4,2) and (7,0,6). | CO5 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Find the eigen values and the eigenvectors of the matrix . | CO6 | 10 |
|  | b. | Solve the system of equations by Cramer’s method  . | CO6 | 10 |

ALL THE BEST