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

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**End Semester Examination – Nov/Dec – 2018**

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

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
|  | **PART-A(20X1=20 MARKS)** | | |
| 1. | The equation of the line with gradient 2 and passing through (1,4) is\_\_\_\_\_\_\_\_\_. | CO1 | 1 |
| 2. | =\_\_\_\_\_\_\_\_\_. | CO1 | 1 |
| 3. | Angle between two lines is \_\_\_\_\_\_\_\_\_\_\_\_\_\_. | CO1 | 1 |
| 4. | Write the binomial expansion for . | CO1 | 1 |
| 5. | \_\_\_\_\_\_\_\_\_\_\_\_. | CO3 | 1 |
| 6. | Find if . | CO2 | 1 |
| 7. | Evaluate | CO3 | 1 |
| 8. | =\_\_\_\_\_\_\_\_. | CO3 | 1 |
| 9. | Write the Taylor’s series expansion of a function about the point x=a. | CO4 | 1 |
| 10. | State any one property of Jacobian. | CO2 | 1 |
| 11. | If and then find | CO2 | 1 |
| 12. | Taylor’s series of a function f (x) about x = 0 is called \_\_\_\_\_\_\_\_\_\_\_. | CO4 | 1 |
| 13. | Three vectors  are co-planar if \_\_\_\_\_\_\_\_\_\_\_\_\_. | CO5 | 1 |
| 14. | Find the projection of the vector 7on | CO5 | 1 |
| 15. | What is the magnitude of the vector | CO5 | 1 |
| 16. | Find if the position vectors of A and B are and | CO5 | 1 |
| 17. | What is the rank of a null matrix. | CO6 | 1 |
| 18. | =\_\_\_\_\_\_\_\_. | CO6 | 1 |
| 19. | Write any one property of a determinant. | CO6 | 1 |
| 20. | Diagonal matrix whose diagonal elements are all equal is called a \_\_\_\_\_\_\_\_ matrix. | CO6 | 1 |

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| **PART B(10 X 5= 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | Expand (2*x* – 3*y*) 6 using binomial theorem. | CO1 | 5 |
| 22. | Find the center and radius of a sphere whose equation is . | CO1 | 5 |
| 23. | Differentiate . | CO2 | 5 |
| 24. | Evaluate . | CO3 | 5 |
| 25. | Evaluate . | CO3 | 5 |
| 26. | If .where and , find . | CO2 | 5 |
| 27. | Expand as a Maclaurin series about . | CO4 | 5 |
| 28. | Find the Cartesian equation of a plane passing through the point (-1, 3, 2) and parallel to the vectors + + and + +. | CO2 | 5 |
| 29. | If find . | CO2 | 5 |
| 30. | Prove that . | CO1 | 5 |
| 31. | Find the matrix A if . | CO6 | 5 |
| 32. | If , compute AB and BA and show that . | CO6 | 5 |

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| **PART C(2 X 15= 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
| 33. | a. | Resolve  into partial fractions. | CO1 | 10 |
| b. | Prove that . | CO1 | 5 |
|  |  |  |  |  |
| 34. |  | Expand about upto the third term using Taylor Series. | CO4 | 15 |
|  |  |  |  |  |
| 35. |  | Find the Eigen values and Eigen vectors of the matrix . | CO6 | 15 |