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

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**End Semester Examination – Apr/May – 2018**

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| **Code :** | **14MA1002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CALCULUS AND STATISTICS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | **Course Outcome** | **Marks** |
|  | | **PART-A(20X1=20 MARKS)** | | |
| 1. | What is the order and degree of the differential equation + + y = 0 ? | | CO1 | 1 |
| 2. | Find the complementary function of | | CO1 | 1 |
| 3. | Find the particular integral of | | CO1 | 1 |
| 4. | Find the particular integral of (+4)y = cosx | | CO1 | 1 |
| 5. | Evaluate | | CO1 | 1 |
| 6. | Evaluate | | CO1 | 1 |
| 7. | Find the value of | | CO1 | 1 |
| 8. | Sketch roughly the region of integration for | | CO1 | 1 |
| 9. | Show that Г(1) = 1. | | CO1 | 1 |
| 10. | Find the value of Г( | | CO1 | 1 |
| 11. | Evaluate | | CO1 | 1 |
| 12. | Write the relation between beta and gamma function. | | CO1 | 1 |
| 13. | Form the partial differential equation by eliminating arbitrary constants from z = (x+a)(y+b) | | CO1 | 1 |
| 14. | Eliminate the arbitrary function and then form the PDE z = f( | | CO1 | 1 |
| 15. | Define the non linear partial differential equations of the first order | | CO1 | 1 |
| 16. | Solve | | CO1 | 1 |
| 17. | What are the commonly used the measures of central tendency? | | CO1 | 1 |
| 18. | Write the empirical relationship between mean, median and mode. | | CO1 | 1 |
| 19. | Define positive correlation. | | CO1 | 1 |
| 20. | Find the mean of the regression equations: x = 19.13 – 0.87y and y = 11.64 – 0.50x | | CO1 | 1 |

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|  | | **PART B(10 X 5= 50 MARKS)**  **(Answer any ten from the following)** | | |
| 21. | Solve ( | | CO1 | 5 |
| 22. | Solve ( | | CO1 | 5 |
| 23. | Evaluate | | CO1 | 5 |
| 24. | Evaluate | | CO1 | 5 |
| 25. | Evaluate | | CO1 | 5 |
| 26. | Express the following integrals interms of gamma functions | | CO1 | 5 |
| 27. | Evaluate | | CO1 | 5 |
| 28. | Solve the equation x(y-z)p + y(z-x)q = z(x-y) | | CO1 | 5 |
| 29. | Solve the equation ( | | CO1 | 5 |
| 30. | Calculate the standard deviation for the following table   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | f | 3 | 6 | 9 | 13 | 8 | 5 | 4 | | | CO1 | 5 |
| 31. | Ten participants in a contest are ranked by two judges as follows:   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Judge1 | 1 | 6 | 5 | 10 | 3 | 2 | 4 | 9 | 7 | 8 | | Judge2 | 6 | 4 | 9 | 8 | 1 | 2 | 3 | 10 | 5 | 7 |   Obtain the rank correlation coefficient. | | CO1 | 5 |
| 32. | The first four moments about the working mean 28.5 of a distribution are 0.294, 7.144, 42.409 and 454.98. Calculate the first three moments about the arithmetic mean. | | CO1 | 5 |

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|  | | **PART C(2 X 15= 30 MARKS)**  **(Answer any two from the following)** | | | |
| 33. | a. | | Solve ( by the method of variation of parameter. | CO1 | 8 |
| b. | | Change the order of integration and evaluate | CO1 | 7 |
| 34. | a. | | Solve . | CO1 | 8 |
| b. | | Solve | CO1 | 7 |
| 35. | a. | | Find the common between to the parabolas | CO1 | 7 |
| b. | | Obtain the equations of the regressions from the following data   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | Y | 9 | 8 | 10 | 12 | 11 | 13 | 14 | | CO1 | 8 |