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

G:\logo and QP Template\logo 3 Feb 2018 final.tif

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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code : 17MA1002** |  | **Duration :** | **3hrs** |
| **Sub. Name : CALCULUS AND STATISTICS** |  | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Solve. | CO2 | 10 |
| b. | Using Method of Variation of parameters, solve . | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Solve the simultaneous equations  . | CO2 | 10 |
| b. | Solve . | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | Change the order of integration and evaluate . | CO3 | 10 |
| b. | Calculate  over the area included between the circles  and . | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Calculate the volume of the solid bounded by the planes and . | CO3 | 10 |
| b. | Evaluate . | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | Prove that . | CO1 | 15 |
| b. | Show that ×. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | Express in terms of gamma functions.  Hence evaluate: (i)  (ii) . | CO1 | 15 |
| b. | Express in terms of gamma function. | CO1 | 5 |
|  |  |  |  |  |
| 7. | a. | Form the partial differential equation by eliminating the arbitrary function from . | CO4 | 10 |
| b. | Find the complete solution of the equation | CO4 | 10 |
| (OR) | | | | |
| 8. | a. | Solve . | CO4 | 10 |
| b. | Solve . | CO4 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Calculate mean, median and mode of the following data relating to weight of 120 articles:   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Weight (in gms) | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | | No. of articles | 14 | 17 | 22 | 26 | 23 | 18 | | CO6 | 10 |
| b. | Obtain the regression equations of x on y and y on x from the following data. Also estimate the value of y when .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x | 22 | 26 | 29 | 30 | 31 | 34 | 35 | | y | 20 | 20 | 21 | 29 | 27 | 27 | 31 | | CO5 | 10 |