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**D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**Set-: II**

**Q. Paper Code:**

**23SYCE201301**

**KASABA BAWADA KOLHAPUR-416006**

**(An Autonomous Institute)**

**S. Y. B. Tech. Civil (Semester-III)**

**END SEMESTER EXAMINATION, Dec.- 2022-23**

COURSE NAME: **APPLIED MATHEMATICS** COURSE CODE: **201CEL201**

Seat No:

**Day and Date: Monday, 16.01.2023**

**Time: 2.00 pm to 4.00pm Max. Marks- 50**

***Instructions:***

1. *All Questions are compulsory.*
2. *Figure to the right indicate full marks.*
3. *Give suitable general Instructions*
4. *Any other Course Specific Instructions.*

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| --- | --- | --- | --- | --- |
| **BT** | **CO’s** | **Q.No.** |  | **Marks** |
|  |  | **Q.1** | **Attempt the following** | **20** |
| **3** | **CO201.1** | **a** | Solve | **5** |
| **3** | **CO201.2** | **b** | Find a, b, c if the vector is irrotational | **5** |
| **3** | **CO201.3** | **c** | From 8 observations the following results were obtained:  , Find the equation of the line of regression of x on y and the coefficient of correlation. | **5** |
| **3** | **CO201.3** | **d** | Fit a parabola to the following data:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | 0 | 1 | 2 | 3 | 4 | | y | 1.0 | 1.5 | 1.5 | 2.5 | 3.5 | | **5** |
|  |  | **Q.2** | **Attempt any TWO of the following** | **10** |
| **3** | **CO201.4** | **a** | From the box containing 100 transistor20 of which are defective, 10 are selected at random. Find the probability that i) all will defective, ii) all are non-defective. | **5** |
| **3** | **CO201.4** | **b** | The marks obtained by 1000 students in an examination are found to be normally distributed with mean 70 and S.D. 5. Estimate the no. of students whose marks will be between 60 and 75.(The area between z=0 to z=2 is 0.4772 and area from z=0 to z=1 is 0.3413) | **5** |
| **3** | **CO201.4** | **c** | A random variable X has the following probability distribution   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | X | -2 | -1 | 0 | 1 | 2 | 3 | | P(X=x) | 0.1 | k | 0.2 | 2k | 0.3 | 3k |   Find i) k ii) iii) | **5** |
|  |  | **Q.3** | **Attempt any TWO of the following** | **10** |
| **3** | **CO201.5** | **a** | Find ] | **5** |
| **3** | **CO201.5** | **b** | Find | **5** |
| **3** | **CO201.5** | **c** | Using Laplace transform solve the differential equation | **5** |
|  |  | **Q.4** | **Attempt any TWO of the following** | **10** |
| **3** | **CO201.6** | **a** | Find the value of the integral dx, using Trapezoidal rule. | **5** |
| **3** | **CO201.6** | **b** | Evaluate by using Simpson’s (3/8)th rule. | **5** |
| **3** | **CO201.6** | **c** | Using Weddle’s rule, evaluate . | **5** |
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