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**Presidency University**

**Bengaluru**

**SCHOOL OF ENGINEERING**

**MAKE UP EXAMINATION – JAN 2023**

**Course Code**: MAT1002

**Course Name**: Transform Techniques, Partial Differential

 Equations and Their Applications

**Program** : B. Tech – All Programs

**Date**: 20-Jan-2023

**Time**: 01:00PM to 04:00PM

**Max Marks**: 100

**Weightage**:50%

 Instructions:

1. *Read the all questions carefully and answer accordingly.*
2. *Question Paper consists of 3 parts.*
3. *Scientific and non-programmable calculators are permitted.*

**Part A [Memory Recall Questions]**

**Answer all the Questions. Each question carries TWO marks. (10Qx 2M = 20M)**

1. If and , then verify whether the product is even or odd? (C.O.No.1) [Knowledge]
2. Find the value of . (C.O.No.1) [Knowledge]
3. Find . (C.O.No.2) [Knowledge]
4. Find . (C.O.No.2) [Knowledge]
5. Find . (C.O.No.3) [Knowledge]
6. Find . (C.O.No.3) [Knowledge]
7. Find . (C.O.No.3 ) [Knowledge]
8. Find . (C.O.No.3) [Knowledge]
9. Find the order and degree of the partial differential equation .

 (C.O.No.4) [Knowledge]

1. An equation of the form is termed as \_\_\_\_\_\_ partial differential equation. (C.O.No.4 ) [Knowledge]

**Part B [Thought Provoking Questions]**

**Answer all the Questions. Each question carries TEN marks. (5Q x 10M = 50M)**

1. Obtain the Fourier series of defined in the interval by means of the table of values given below. Find the series up to the second harmonics. (C.O.No.1) [Comprehension]

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1. Apply Laplace transform method to solve with and

 (C.O.No.2) [Comprehension]

1. Find the Fourier cosine transform for the function (C.O.No.2) [Comprehension]
2. Find the Z-transform of: (C.O.No.3) [Comprehension]
3. Solve: (C.O.No.4) [Comprehension]

**Part C [Problem Solving Questions]**

**Answer all the Questions. Each question carries FIFTEEN marks. (2Q x 15M = 30M)**

1. Solve with using Z-transform method.

 (C.O.No.3) [Comprehension]

1. Solve by the method of separation of variables.

 (C.O.No.4) [Comprehension]