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**Presidency University**

**Bengaluru**

**SCHOOL OF ENGINEERING**

**MAKEUP EXAMINATION- JAN 2023**

**Course Code**: MAT2001

**Course Name**: Transform Techniques and Partial differential Equations

**Program** : B.Tech – All Programs

**Date**: 20-JAN-2023

**Time**:01.00 PM-04.00 PM

**Max Marks**: 100

**Weightage**: 50%

**Instructions:**

1. *Read the question properly 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 Five marks. (4Qx 5M= 20M)**

1. Find the Laplace transform of 

(CO.No1.)[Comprehension level]

2. Find the Fourier Sine transform of 

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

3. 

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

4. Form the PDE by eliminating the arbitrary functions from .

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

**Part B [Thought Provoking Questions]**

**Answer all the Questions. Each Question carries TEN marks. (5Qx10M=50M)**

5. . Express in terms of unit step function and hence find its

Laplace transform. (C.O. No. 1) [Comprehension]

6. Evaluate using convolution theorem. (C.O. No. 1) [Comprehension]

7. Find the Fourier transform of  , hence evaluate 

(C.O.NO 2) [Comprehension level]

8. Solve , given that when .

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

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

**Part C [Problem Solving Questions]**

**Answer all the Questions. Each Question carries FIFTEEN marks. (2Qx15M=30M)**

10. Apply Laplace transform technique to solve with & . (C.O. No. 1) [Application]

11. Using Z-Transform solve the difference equation.

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