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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023**

Semester : Semester III - 2022

Course Code : EEE2001v02

Course Name : Sem III - EEE2001 v02- Signals and

Systems Program : B.TECH

Date : 30-OCT-2023

Time : 2:00PM - 3:30PM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. A system is said to be linear system, if it satisfies some properties. Summarize the properties.
(CO1) [Knowledge]
2. Discuss about the classification of signals based on magnitude and duration.
(CO1) [Knowledge]
3. Compute the area of impulse signal
(CO1) [Knowledge]
4. Explain the Fourier series representation of a discrete-time periodic signal.
(CO2) [Knowledge]
5. What is the impulse response of a continuous-time linear time-invariant (LTI) system?
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

6. An odd+ Half wave symmetric square Signal with time period T can be represented by fourier series expansion
 - a) Identify the fourier coefficients that will be existing
 - b) Compute the fourier coefficients

(CO2) [Comprehension]

7. An Even Cosine Signal with time period T can be represented by fourier series expansion
- Identify the fourier coefficients that will be existing
 - Compute the fourier coefficients

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. Two signals $u(t)$ and $\sin(t)u(t)$ has been used for the analysis of the energy and Power of these two signals. To compute the energy, it is important to identify whether the signals are energy or power signals. After identifying the nature of the signals compute the Energy and power of the signals and show all the steps properly.

(CO1) [Application]