CLASS: BTECH   SEMESTER: III
BRANCH: MECH   SESSION : MO/2019

SUBJECT : EC205 SIGNALS AND SYSTEMS
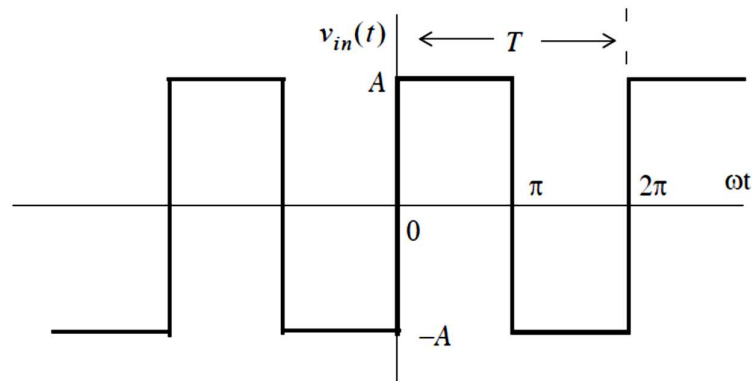
TIME: 2 HOURS   FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

Q1 (a) Write the properties of the Dirac Delta function.   [2]

Q1 (b) Determine whether $x(t) = rect\left(\dfrac{t}{10}\right)\cos \omega_o t$ is an energy signal or power signal.   [3]

Q2 (a) Explain convolution for LTI System.   [2]

Q2 (b) Explain the concept of state, state variable and state model for continuous time system   [3]
         with suitable examples.

Q3 (a) Define Linear System. Show that the straight-line equation represents the linear system   [2]
         model.

Q3 (b) Find the condition under that the sum of discrete time sequences and continuous time   [3]
         signals will be periodic. Comment over periodicity.

Q4 (a) Write the Dirichlet's Conditions.   [2]

Q4 (b) Obtain the expression of Fourier transform for continuous time signal. What is the   [3]
         difference between Fourier Series and Fourier Transform?

Q5 (a) Explain Gibb's Phenomenon.   [2]

Q5 (b) Obtain the exponential Fourier series for the given waveform. Also draw the Frequency   [3]
         spectrum.

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