

College Code: 09

Rajeev Gandhi Memorial College of Engineering & Technology

Autonomous

NANDYAL-518501

III B.Tech I-Semester Mid-I Examinations

Subject Name: Signals and Systems

Branch(EEE)

Max. Marks: 20

Date: 26 -11-2021

Time: 2 Hours

Note: 1. Answer first question compulsorily. (5 x 1 = 05 Marks)

2. Answer Any *THREE* from 2 to 5 questions. (3 x 5 = 15 Marks)

- Q.1 a) Define even and odd signals with example 1M CO1 BL1
- b) Define Continuous and Discrete time signal 1M CO1 BL1
- c) Find the Fourier transform of the signal $x(t)=e^{2t} u(t)$ 1M CO2 BL3
- d) State the Dirichlet conditions? 1M CO2 BL1
- e) Define the causal and non-causal system 1M CO3 BL1
- Q.2 a) Explain the operations of time shifting, time reversal and time scaling and Amplitude scaling with examples? 3M CO1 BL2
- b) Explain the Analogy between vector and signals? 2M CO1 BL2
- Q.3 a) Find the trigonometric Fourier series of the given signal 3M CO2 BL3
-
- b) Find the relation between trigonometric and exponential Fourier series coefficients? 2M CO2 BL3
- Q.4 a) State and prove the time shifting and time reversal Properties in Fourier transform? 3M CO2 BL1
- b) Find Whether the system is linear or not, causal or non-causal and Time invariant or variant $y(n)=\log(x(n))$ 2M CO3 BL3
- Q.5 a) Identifying whether the signal is Energy or power signal $x(t)=e^{-2t} u(t)$ 2M CO1 BL1
- b) Find the signals are periodic or non-periodic. If the signal is periodic find the fundamental period of the signal.
- i) $x(t)=\sin(6\pi t)+\cos(5\pi t)$
- ii) $x(t)=\sin\left(\frac{2\pi}{3}\right)t + \cos\left(\frac{\pi}{2}\right)t$