SEAT No. :

PA-4963

[6008]-208

S.E. (E&TC/Electronics/Electronics & Computer) (Insem)
PRINCIPLES OF COMMUNICATION SYSTEMS
(2019 Pattern) (Semester-II) (204193)

Time : 1 Hour]   *[Max. Marks : 30*

Instructions to the candidates:
1) *Answer Q.1 or Q.2, Q.3. or Q.4.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Assume suitable data if necessary.*

Q1) a) State and prove linearity property. **[5]**

b) Find the fourier transform of $x(t) = e^{-at} . \mu(t)$ **[5]**

c) Explain negative frequency concept. **[5]**
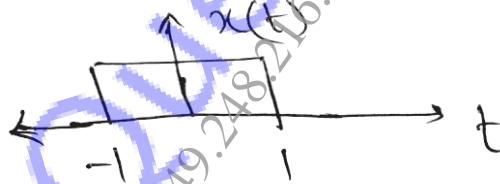
OR

Q2) a) Explain what are different types of signal. **[5]**

b) Find whether the following signals are energy or power signals **[5]**

    i) $x(t) = \cos(t)$

    ii) $x(t) = \text{rect}(t)$ for $t = -1$ to 1

c) Draw & explain block diagram of communication system. **[5]**

Q3) a) An audio frequency signal $20 \sin 2\pi (500t)$ is used to amplitude modulate the carrier of $50 \sin 2\pi (10^3 t)$ calculate. **[5]**

    i) Modulation index

    ii) Side band frequencies

P.T.O.

iii) Amplitude of each side band

iv) Band width

v) Total power delivered to load of 600Ω

b) Compare DSBFC, DSBSC, and SSB. **[5]**

c) Explain VSB transmission with spectrum. **[5]**

OR

Q4) a) What are different types of distortions that occurs in diode detecter circuit. **[5]**

b) Draw & Explain the block diagram of super heterodyne receiver. **[5]**

c) Explain phase shift method of SSB generation. **[5]**

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