Total No. of Questions : 8]

SEAT No. :

PD4069

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

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain pre-emphasis in FM with circuit diagram and frequency Response. **[6]**

b) Compare frequency modulation with phase modulation. **[6]**

c) The maximum deviation allowed in FM broadcast system is 75KHz. If modulating signal in single tone sinusoidal of 8KHz Determine bandwidth of FM signal. What will be bandwidth when modulating signal frequency is doubled. **[6]**

OR

Q2) a) With the help of block diagram explain superheterodyne FM Receiver. **[6]**

b) Differentiate between NBFM and WBFM. **[6]**

c) A single tone FM is represented by voltage equation as $V(t) = 12 \cos (6 \times 10^8 t + 5 \sin 1250t)$ **[6]**

Determine

i) Carrier frequency

ii) Modulating frequency

iii) Modulation index

iv) Maximum deviation

v) Dissipated power in 10Ω resister

Q3) a) With the help of neat diagram, describe Generation of pulse width Modulation. **[6]**

b) Explain the types of sampling with waveform. **[6]**

c) Compare pulse Amplitude Modulation and pulse position Modulation. **[5]**

OR

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Q4) a) State sampling theorem in time domain. Explain sampling process with block diagram. **[6]**

b) State types of multiplexing. Explain time division multiplexing (TDM) in detail. **[6]**

c) With the help of neat diagram explain detection of PPM. **[5]**

Q5) a) Compare Analog and Digital communication. **[6]**

b) State types of quantization. Explain uniform quantization with neat diagram. **[6]**

c) With the help of neat diagram, explain transmitter of pulse code Modulation. **[6]**

OR

Q6) a) Explain working of Adaptive Delta Modulation with block diagram. **[6]**

b) Describe A law and μ law companding. **[6]**

c) What are the Drawbacks of Delta Modulation? Explain in detail. **[6]**

Q7) a) State different synchronization technique and explain any one in detail. **[6]**

b) What is scrambling? Explain working principle of scrambling and unscrambling. **[6]**

c) What is eye diagram? Explain the use of eye diagram to measure ISI. **[5]**

OR

Q8) a) Describe concept of multiplexer and Demultiplexer with necessary diagram. **[6]**

b) What is Intersymbol Interference. Explain its causes and remedies to avoid it. **[6]**

c) Define Equalizer. Explain Adaptive equalization with block diagram. **[5]**

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