Total No. of Questions : 8]

PA-1196

SEAT No. :

[Total No. of Pages : 2

[Max. Marks : 70]

[6]

[5925]-218

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

Time : 2¹/₂ Hours]

Instructions to the candidates:

- Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 1) 2) Near diagrams must be drawn wherever necessary.
- Figures to the right indicate full marks. 3)
- Use of logarithmic tables slide rule, Mollier charts, electronic pocket 4) calculator and steam tables is allowed.
- Assume suitable data, if necessary. 5)
- Explain with the help of neat block diagram Armstrong method of FM *Q1*) a) generation. [6]
 - Differentiate between NBFM and WBFM. [6] b)
 - Explain Pre-emphasis and De-emphasis in detail. c)

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

OR

- With neat phasor diagram explain balanced slope detector in FM. b)
- c)

With neat phasor diagram explain balanced slope detector in FM. [6]
A frequency modulated signal is given by [6]

$$x_c(t) = 10 \cos \{ [2\pi \times 10^8 t] + s \sin [2\pi \times 200t] \}$$

Determine :
i) The carrier frequency.
ii) Peak frequency deviation
iii) The modulation Index [6]
Discuss PWM generation and detection in detail. [6]
Distinguish between PAM, PWM and PPM. [5]
What is aliasing? How can it be avoided. [6]
OR PT.O.

- **03)** a)
 - b)
 - c)

| Q4) a) | Explain Flat-top sampling with waveforms. | [6] |
|----------------|---|---------------|
| b) | State and explain the sampling theorem in detail when $fs > 2fm$, $fs = 2fm$. | 2fm, [5] |
| c) | Distinguish between Ideal sampling, Natural sampling and Flat- sampling. | Top [6] |
| Q5) a) | Describe with suitable block diagram pulse code modulation transm | itter. [6] |
| b) | Explain need of digital communication. | [6] |
| c) | Describe compading methods μ-law and A - law. OR | [6] |
| Q6) a) | Draw and explain PCM Receiver. | [6] |
| b) | Distinguish between DM and ADM. | [6] |
| c) | Explain in detail distortion in delta Modulation. | [6] |
| Q 7) a) | Draw and explain CCITT hierarchy of multiplexing. | [6] |
| b) | Draw line code formats for 10110100. | [6] |
| c) | i) Rz Unipolar ii) Rz polar Draw and explain frame synchronizer. OR | [5] |
| Q8) a) | What is an eye diagram? Explain the use of eye diagram to measure | ISI. |
| | | [6] |
| b) | Explain scrambling and unscrambling with diagram in detail. | [6] |
| () | Discuss the properties of line codes. | [5] |
| | 000000000000000000000000000000000000000 | |
| [5925]-2 | 2 | |