BE - III | Communication Systems | INST
09-12-14

**QP Code :12515**

**(3 Hours)** **[ Total Marks :80**

**N.B. :** (1) Question no **1** is **compulsory.**
(2) Solve any **three** questions from the **remaining** questions.
(3) Assume suitable data if required and state it clearly. **20**



1. Solve any **five** :—
   (a) Compare AM and FM.
   (b) Derive power relations for A.M. Signals.
   (c) Write note on RF telemetry.
   (d) Explain effect of noise in FM modulation.
   (f) What is modulation? why it is necessary.

2. (a) Explain any one method of F.M. generation with the help of neat diagram and wave forms. **10**
   (b) Explain ASK and PAK methods with suitable block diagrams and equations. **10**

3. (a) Explain multiplexing schemes TDM and FDM in detail and compare them. **10**
   (b) Explain briefly :— **10**
      (i) Voltage Telemetry
      (ii) Current Telemetry
      (iii) Position Telemetry

4. (a) An FM canave is represented by the following:— **10**
   $V_{FM} = 10 \sin [5 \times 10^8 t + 4 \sin 1250t]$
   find - (i) Carrier and modulating frequencies.
   (ii) Modulation index and maximum deviation.
   (iii) Power dissipated by this FM in a 5Ω resistor.
   (iv) Band width of FM using Carlson rule.
   4. (b) Classify and explain various noise sources that affect communication, and derive Friss formula for total noise factor. **10**

5. (a) Explain Differential pulse-code modulation (DPCM) in detail. **10**
   (b) Discuss phase shift method for SSB generation. **10**

6. Write short notes on any **four** :— **10**
   (a) Preemphasis and deemphasis.
   (b) Quntisation noise in PCM.
   (c) Superheterodyne Receivers.
   (d) Sampling techniques.
   (e) Delta modulation.

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**GN-Con.:10584-14.**