YTIET/LIB/ENGG/BM/SEM-V/CBGS/PCE/18-11-14

TE (Biomed) SEM-I CBGS PCE

18/11/14

QP Code : **14827**

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

N.B.: (1) Attempt any **four** questions out of **six** questions.
(2) **Figures** to the **right** indicate **full** marks.
(3) Assume **suitable** data whenever **necessary**.
(4) **Draw** diagrams whenever **necessary**.

1. (a) Explain Automatic frequency control. 5
   (b) Explain Pre-emphasis and De-emphasis. 5
   (c) Compare AGC and Delayed AGC. 5
   (d) Compare TDM and FDM. 5

2. (a) A baseband signal of 10kHz with amplitude of 10V is used to modulate a carrier of 500kHz and amplitude of 20V. Calculate. 10
      (i) Modulation Index
      (ii) Side band frequencies and amplitude of each side band
      (iii) Bandwidth
      (iv) Total power delivered to the load of 500Ω.
      (v) Expression of modulated wave.
   (b) Explain PWM detection in detail with neat block diagram and waveforms. 10

3. (a) Explain Armstrong method for FM generation. 10
   (b) Explain ADM with neat block diagram and waveforms. 10

4. (a) Discuss the BFSK transmitter and receiver with proper waveforms and block diagram. 10
   (b) Explain the working of Balanced ring modulator for DSB-SC generation with neat circuit diagram and waveforms. 10

5. (a) Explain the operation of balanced slope detector with neat circuit diagram and response characteristics. 10
   (b) Draw and explain block diagram of superhetrodyne receiver with neat block diagram and waveforms. 10

6. (a) Thermal noise and thermal voltage 5
   (b) Two point tracking 5
   (c) Companding technique 5
   (d) Simple diode detector 5
   (e) Selectivity and sensitivity. 5

GN-Con. 5607-14.