Seat No.	

SQ - 18

Total No. of Pages : 4

S.Y.B.Tech. (Part – II) (Semester – III)
Examination - May 2025
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
(Analog Communication)
Sub. Code : 73246/77808

Day and Date : Tuesday, 06/05/2025 **Total Marks : 70**

Time : 10.30 am to 01.00 pm

Instruction : 1) All questions are compulsory.
2) Use suitable assumptions if required.
3) Draw necessary figures on right side of answer sheet.

Q.1. Attempt following Multiple Choice Questions. **[14]**

1) Modulation is done in ……
   a) Transmitter
   b) Radio receiver
   c) Between transmitter and radio receiver
   d) None of the above
2) The major advantage of FM over AM is ……
   a) Reception is less noisy
   b) Higher carrier frequency
   c) Smaller bandwidth
   d) Small frequency deviation
3) The process of recovering information signal from received carrier is known as ……
   a) Detection
   b) Modulation
   c) Demultiplexing
   d) Sampling

4) Sensitivity is defined as ……

a) Ability of receiver to amplify weak signals

b) Ability to reject unwanted signals

c) Ability to convert incoming signal into Image Frequency

d) ability to reject noise

5) The standard value for Intermediate Frequency (IF) in double conversion FM receivers is ……

a) 455 KHz b) 580 KHz c) 10.7 MHz d) 50 MHz

6) Sampling theorem finds application in ……

a) FM b) PAM c) AM d) PM

7) The modulation index of FM is given by ……

a) μ = frequency deviation / modulating frequency

b) μ = modulating frequency / frequency deviation

c) μ = modulating frequency / carrier frequency

d) μ = carrier frequency / modulating frequency

8) In an AM wave, useful power is carried by ……

a) Carrier b) Sidebands

c) Sidebands and carrier d) None of these

9) In India, …… modulation is used for radio Transmission.

a) Frequency b) Amplitude

c) Phase d) None of these

10) Over modulation (Amplitude) occurs when signal amplitude is …… than carrier amplitude.

a) Equal to b) Greater than

c) Less than d) None of these

11) As the modulation level is increased, the carrier power……

a) is increased b) is decreased

c) Remains the same d) None of these

12) In amplitude modulation, bandwidth is …… the audio signal frequency.

a) Thrice b) Four times

c) Twice d) none of these

13) Amplitude limiters in FM receivers are used to ……

a) Remove amplitude variations due to noise

b) Filteration

c) Demodulation

d) Amplification

14) A 100 MHz carrier is frequency modulated by 5 kHz wave. For a frequency deviation of 100 kHz, calculate the carrier swing of the FM signal.

a) 2000 kHz b) 100 kHz

c) 105 kHz d) 200 kHz

Q. 2. Attempt any Two. **[14]**

1) Explain need of Modulation.
2) Describe Direct method of FM generation.
3) Explain shot noise and thermal noise.

Q. 3. Attempt any Two. **[14]**

1) Describe TRF receiver. Comment on limitations.
2) Comment on pre-emphasis and de-emphasis used in FM.
3) Compare PAM and PPM.

Q. 4. Attempt any Two. **[14]**

1) Explain applications of PWM
2) Explain double conversion FM receiver.
3) Explain demodulation of SSB.

Q. 5. Attempt any Two. **[14]**

1) Compare AM with FM.
2) Explain AM detection using simple and practical diode detector.
3) Explain with block diagram, double conversion FM receiver.
