

Roll No.

Total Pages : 03

BT-4/M-24

44181

BASICS OF COMMUNICATION
ES-IT-202A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the block diagram of communication system and also write application of communication system. 7
- (b) Write short notes on the following : 8
 - (i) Electromagnetic spectrum
 - (ii) Numerical aperture.
2. (a) What are the different bands available in electromagnetic frequency spectrum and give their applications ? 8
- (b) Define Noise. Explain detailed classification of noise. What are the sources of noise ? 7

Unit II

3. (a) Compare amplitude modulation and frequency modulation with reference to following points :
- (i) Definition
 - (ii) Modulation index
 - (iii) Bandwidth
 - (iv) Application. 8
- (b) Explain the generation and detection of amplitude modulation signals using circuit diagrams. 7
4. (a) 10 K watt carrier is amplitude modulated by two sine to a depth of 0.5 and 0.6 respectively. Calculate total power of modulated carrier. 8
- (b) Draw and explain block diagram of Armstrong indirect FM Transmitter. 7

Unit III

5. (a) Draw the practical AM diode detector circuit. Sketch its input and output waveforms. 9
- (b) What do you mean by heterodyning process ? How the Radio frequency (RF) signals are converted into intermediate frequency (IF) signals ? 6
6. (a) Draw the block diagram of AM superheterodyne radio receiver and state the function of each block.

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- (b) A superheterodyne radio receiver with an IF of 455 kHz is tuned to the station operating at frequency 1000 kHz. Calculate the following :
- (i) Image frequency
 - (ii) Local oscillator frequency.

Unit IV

7. (a) Explain the principle of any *two* Photo-detection methods in optical fiber communication. 8
- (b) With block diagram, explain the working of an optical fibre communication system. 7
8. (a) What are the main types of losses that occur in Optical Fiber Communication ? 8
- (b) Explain any *two* detectors used in optical fibre communication. 7

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