

Bachelor of Science (B.Sc.) Semester—V (C.B.S.) Examination**ELECTRONIC COMMUNICATION****Paper—I****(Electronics)**

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat and well labelled diagrams wherever necessary.

EITHER

1. (A) Explain the need for modulation. Why an audio signal cannot be transmitted directly ?
Draw modulated waveform for AM and FM. Draw circuit diagram of AM detector.

5+3+2

OR

- (B) Draw the block diagram of a communication system and explain in brief the role of each element. Compare AM, FM and PM as methods of signal transmission.

5+5

EITHER

2. (A) Describe the layers of ionosphere and its effects on sky wave propagation. Why is signal propagation better at night ? State the advantages of satellite communication.

7+3

OR

- (B) Explain the necessity of impedance matching in the use of antenna. State and explain antenna parameters in the context of a communication system.

4+6

EITHER

3. (A) How does digital communication differ from analogue ? Explain ASK, FSK and PSK techniques for signal modulation. State their relative merits.

2+6+2

OR

- (B) Compare serial and parallel data transmission processes. Draw the block diagram of a digital data transmission channel and explain in brief the role of each block.

5+5

EITHER

4. (A) Draw the block diagram of optical communication system and explain in brief the role of each block. List the advantages and applications of optical fiber communication.

6+4

OR

- (B) Draw a well labelled block diagram of a cellular telephone system and explain the same. State the advantages of cellular network.

7+3

5. Solve any TEN :

- (1) Name the bands of frequency spectrum used for communication.
- (2) Sketch the signal propagation pattern of an em wave.
- (3) State Shannon's Theorem and its utility.
- (4) Draw the structure of stepped index multimode fibre.
- (5) Enlist the sources of noise in a communication channel.
- (6) Define half wave antenna.
- (7) State the range of data frequencies in an FSK modem.
- (8) What is hand-off in cellular communication process ?
- (9) Sketch the waveform of a phase modulated signal.
- (10) Define antenna efficiency.
- (11) What is baud rate ?
- (12) State the applications of FAX.

1×10=10