

S.Y.B.Sc. (Computer Science) Electronics
Semester III Examination
USCSEL-232 Digital Communication and Networking

Time: 2:00 Hours]

[Marks: 35

Instructions to candidate:

1. All questions are compulsory.
2. Draw neat labeled diagrams wherever necessary
3. Figure to the right indicate full marks

Q.1 Answer any FIVE of the following

[5X1=5]

- a) What is modulation?
- b) State Shannon theorem
- c) Define data rate and baud rate.
- d) Which techniques are used for error correction?
- e) State the two types of serial communication.
- f) Give two features of QAM.
- g) List different types of network topologies.

Q.2 Answer any FIVE of the following. (Short answers)

[5X3=15]

- a) What is the need of modulation?
- b) With the help of block diagram, explain FSK transmitter.
- c) Explain with block diagram electronic communication system.
- d) What is MAC? Name Random access protocols of MAC.
- e) What are advantages of spread spectrum technology? State any two types of spread spectrum technology.
- f) Differentiate between baseband and broadband communication.
- g) With the help of diagram, explain QPSK demodulator.

Q.3 Answer any THREE questions of the following. (descriptive answers) [3X5=15]

- a) State function of following network devices:
1. Repeaters 2. Switch 3. Router 4. Bridge 5. Hub
- b) Explain FDM with neat block diagram.
- c) What are the steps for construction of Hamming code? Construct Hamming code for data 1001 for even parity.
- d) i. Find SNR in dB if receiver has an input signal power of $1.2 \mu\text{W}$ and noise $0.1 \mu\text{W}$.
ii. Define noise figure and noise factor
- e) State at least five points of comparison between Serial communication and parallel communication

Handwritten notes in the bottom right corner, including the word "min" and some numbers.