

SRK/KW/14/6964

Faculty of Engineering & Technology
Third Semester B.E. (Information Technology) (CBS)
Examination
DATA COMMUNICATION
Paper—V

Time—Three Hours]

[Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry marks as indicated.
 - (2) Answer SIX questions.
 - (3) Due credit will be given to neatness and adequate dimensions.
 - (4) Assume suitable data wherever necessary.
 - (5) Illustrate your answers wherever necessary with the help of neat sketches.
1. (a) Explain simplex, half duplex and full duplex communication with help of diagram. 7

(b) Explain the communication model with example. 6

OR

2. (a) How can Computer Network be classified based on Transmission Technology and Scale? 7

- (b) Define the terms :
 - (i) Multicast
 - (ii) Broadcast
 - (iii) Unicast. 6

- 3. (a) Differentiate between :
 - TCP/IP vs. OSI MODEL 7
 - (b) State responsibilities of any three layers of the OSI reference model. 6

OR

- 4. ~~(a)~~ Explain the Logical and Physical Addressing. How Addressing is important while designing the layers of the Network ? 7
- (b) Explain the need of Protocol Architecture. 6

- 5. (a) What is the line coding ? Explain its characteristics. Digital Data

10011100 is to be Transmitted. Draw the Resulting waveforms for the following methods :

(i) Polar NRZ-I

(ii) AMI

(iii) Manchester

(iv) Unipolar NRZ

(v) Pseudo Ternary.

8

(b) Differentiate between :

(i) Serial vs. Parallel Transmission

(ii) Analog and Digital Signal.

6

OR

6. (a) The power of a signal is 110mW and the power of the noise is $11\mu\text{W}$. What are the values of SNR and SNRdB ?

6

(b) Explain the following :

(i) Attenuation

(ii) Distortion

(iii) Noise

8

7. (a) Explain in detail the three techniques for Analog to Analog conversion. 7
- (b) Find the Bandwidth, if we modulate an 8 KHz voice signal for each Technique. 6

OR

8. (a) Explain the packet switching and circuit switching with example. 7
- (b) Differentiate between TDM and FDM. 6
9. (a) List and explain the advantages of optical fiber over twisted pair and coaxial cable. 8
- (b) What is the purpose of cladding in an optical fiber? 6

OR

10. (a) Write short notes on :
- (i) Radio wave
- (ii) Satellite communication. 8
- (b) Explain the structure of Twisted Pair Cable. Why is there need of Twisting the Cable? 6

11. (a) Explain the connecting devices of LAN. 7

(b) Explain Bridge, Gateways, & Repeaters. 6

OR

12. (a) Explain the LAN Topologies. 7

(b) What is the difference between Hub and Switch ?

6