

Faculty of Engineering and Technology

Third Semester B.E. (Information Technology)

(C.B.S.) Examination

DATA COMMUNICATION

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) Describe the five components of a data communication system with a suitable diagram.

7

(b) What are four basic topologies possible ? Explain their advantages and disadvantages. 6

OR

(c) Write short notes on :

(i) Radio waves

(ii) Microwaves

(iii) Infrared.

6

11. (a) Define and explain in short about :

(i) Hub

(ii) Switches

(iii) Gateways.

6

(b) Explain the concept of Backbone network.

7

OR

12. (a) Explain wide area network in detail with neat block diagram.

7

(b) Write short notes on :

(i) LAN

(ii) MAN

(iii) Bridges.

6

2. (a) Explain various types of data representation techniques. 6
- (b) What is the difference between half-duplex and full duplex transmission modes ? 3
- (c) What are the advantages of a multipoint connection over a point-to-point connection. ? 4
3. (a) Explain OSI model of data communication. 10
- (b) Explain physical addresses with suitable example. 4

OR

4. (a) Explain the concept of TCP/IP protocol suite with a suitable diagram. 9
- (b) What are the responsibilities of data link layer ? Explain. 5
5. (a) Distinguish between :
- (i) Analog and Digital signal
- (ii) Baseband and broadband transmission. 6
- (b) State and explain three causes of impairment. 7

OR

6. (a) What is line coding ? State the characteristics of line coding. 7

- (b) What are the differences between parallel and serial transmission ? 3
- (c) Compare and contrast PCM and DM. 3
7. (a) What are the types of analog-to-analog modulation ? Explain any one method in detail. 7
- (b) Explain the concept of ASK, PSK and FSK with the help of waveforms. 6

OR

8. (a) Differentiate between TDM and FDM. 3
- (b) What is switching ? Differentiate between circuit switching and packet switching. 7
- (c) Draw the waveforms for ASK, FSK and PSK for the digital data sequence 110010110. 3
9. (a) What are the different types of Transmission media ? Explain in detail. 10
- (b) Name the advantages of optical fiber over twisted-pair and coaxial cable. 4

OR

10. (a) What is the difference between omnidirectional waves and unidirectional waves ? 4
- (b) Differentiate between UTP and STP cables. 4

NTK/KW/15/7334

Faculty of Engineering and Technology

**Third Semester B.E. (Information Technology)
(C.B.S.) Examination**

DATA COMMUNICATION

Note :—MSS say Paper-V, but not mentioned on Envelope.
Press has followed Envelope. Please check.

NTK/KW/15/7334

Faculty of Engineering and Technology

**Third Semester B.E. (Information Technology)
(C.B.S.) Examination**

DATA COMMUNICATION

Note :—MSS say Paper-V, but not mentioned on Envelope.
Press has followed Envelope. Please check.

NTK/KW/15/7334

Faculty of Engineering and Technology

**Third Semester B.E. (Information Technology)
(C.B.S.) Examination**

DATA COMMUNICATION

Note :—MSS say Paper-V, but not mentioned on Envelope.
Press has followed Envelope. Please check.

NTK/KW/15/7334

Faculty of Engineering and Technology

**Third Semester B.E. (Information Technology)
(C.B.S.) Examination**

DATA COMMUNICATION

Note :—MSS say Paper-V, but not mentioned on Envelope.
Press has followed Envelope. Please check.