

2026

COMPUTER SCIENCE — MDC

Paper : CC-7

(Data Communication and Networking)

Full Marks : 75

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group – A

1. Answer **any five** questions :

2×5

- (a) What do you understand by half duplex communication?
- (b) What is Telnet?
- (c) What is baud rate?
- (d) Define bit-rate.
- (e) What is the function of physical layer?
- (f) What is the role of USB?
- (g) Why is coaxial cable superior to twisted pair cable?
- (h) What is Shannon's capacity?

Group – B

Answer **any three** questions.

5×3

- 2. Draw the TCP/IP protocol layer and define the different layers, briefly stating their functions.
- 3. Compare and contrast among LAN, MAN and WAN.
- 4. Differentiate between TDM and FDM with examples.
- 5. What is modulation? What are the different types of analog modulations?
- 6. What are the advantages and disadvantages of STAR topology?

Please Turn Over

(6341)

Group – C

Answer *any five* questions.

7. (a) State the differences between OSI and TCP/IP protocol suite.
(b) Which layer is responsible for routing? How does it work? 5+5
8. (a) What is MAC? Which layer is responsible for MAC address?
(b) What is the difference between static and dynamic routing? 5+5
9. (a) How is WDM implemented?
(b) Draw the diagram for an optical fiber cable and explain different parts. 3+7
10. (a) Encode the bit pattern 01011100 using the following :
(i) Manchester
(ii) Differential Manchester.
Draw the appropriate diagram.
(b) Differentiate between serial and parallel transmission. 6+4
11. (a) What is PCM?
(b) Differentiate between ASK and PSK. 5+5
12. (a) What are the main differences between router and switch?
(b) Differentiate between circuit switching and packet switching. 5+5
13. (a) What is DNS?
(b) A digital signal has a bit rate of 2000 bps. What is the duration of each bit (bit interval)?
(c) Differentiate between analog and digital signals. 2+5+3
14. Write short notes on (*any two*) : 5×2
(a) QAM
(b) HTTP
(c) ALOHA
(d) CRC.
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