

MCA 2nd Semester Examination, 2023

MCA

(Computer Network)

PAPER – MCA-203

Full Marks : 100

Time : 3 hours

*The figures in the right hand margin indicate marks
Candidates are required to give their answers in their
own words as far as practicable*

GROUP – A

Answer the following questions any **five** : 2×5

1. Write the necessary components of data communication.
2. What is the difference between half-duplex and full-duplex transmission mode ?

(Turn Over)

3. For n devices in a network, what is the number of cable links required for a mesh, ring, bus and star topology ?
4. What are bit rate and baud rate ?
5. Distinguish between a low-pass channel and a band-pass channel
6. What is wavelength ? How do we represent wave length ?
7. Why we do bit stuffing ? Give an example.
8. How does a single-bit error differ from a burst error ?

GROUP – B

Answer the following questions any **four** : 15×4

9. What is network model ? Describe different types of network model. What are the differences between twisted pair cable, coaxial cable and fiber-optic cable ?

2 + 7 + 6

10. Compare LAN, MAN and WAN ? Explain data rate limits for noiseless channel and noisy channel. What are the differences between parallel and serial transmission ? 6 + 6 + 3
11. What is bandwidth ? Draw the graphs of the NRZ-L and Manchester schemes using each of the data streams, 01010101 and 00110011. The attenuation of a signal is -10 dB. What is the final signal power if it was originally 5 W ? 2 + 10 + 3
12. Describe ASK and FSK sampling technique with proper diagram. Given the data word 1010011110 and the divisor 10111, show the generation of the codeword at the sender site (using binary division) and show the checking of the codeword at the receiver site (assume no error). 8 + 7
13. Differentiate between FDM and TDM with proper diagram. A receiver receives the code 10110101101. Using the hamming coding algorithm, what is the original code ? 8 + 7
14. Define framing and the reason for its need. Explain the mechanism for data lost and ACK lost in stop

and wait ARQ technique. Describe the frame format of HDLC. 7 + 2 + 6

15. Describe the procedure of CSMA/CD with proper flow chart. Explain the frame format of the MAC sublayer in standard ethernet. 8 + 7

16. What is logical address ? Explain Classful addressing. Find the range of block of following addresses. 2 + 5 + 8

(i) 123.56.77.32/26

(ii) 17.34.16.0/22

[Internal Assessment – 30 Marks]
