Fourth Semester B.C.A. Degree Examination, September 2020

(CBCS Scheme)

Computer Science

COMPUTER NETWORK AND DATA COMMUNICATION

Time : 3 Hours]   [Max. Marks : 90

Instructions to Candidates : Answer all Sections.

SECTION – A

I.   Answer any **TEN** of the following :   (10 × 1 = 10)

1.   Define Data Communication.

2.   Which topology requires a central hub?

3.   Expand IRTF.

4.   Define TELNET.

5.   Mention the versions of IP.

6.   Mention the two basic approaches to error control.

7.   Mention any two noisy channel protocols.

8.   What are the two different types of routing table?

9.   What is Congestion control?

10.   Mention different types of bridges.

11.   Mention the different types of TDM.

12.   Mention any two wireless transmission protocols.
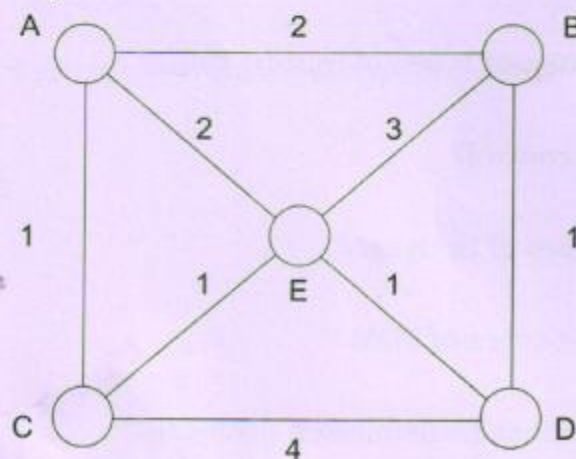
SECTION – B

II. Answer any **FIVE** of the following :   (5 × 3 = 15)

13. Explain components of data communication.

14. Explain elements of protocols.

15. Mention any three difference between FTP & TFTP.

16. Explain different types of frames in HDLC.

17. Explain SONET frame format with diagram.

18. Define flooding. State its advantages and disadvantages.

19. Explain QOS factors.

SECTION – C

III. Answer any **SIX** of the following :   (6 × 5 = 30)

20. Explain different ways of data representation.

21. Explain IPV$_4$ Header format with diagram.

22. Explain Remote logic architecture with diagram.

23. Detect and correct the single error in received Hamming code word 1100111. Assume even parity.

24. Explain 802.5 frame format with diagram.

25. Find the shortest path between node A to node D for the following figure by applying Dijkstra's algorithm.

26. Explain FDM and WDM with diagram.

27. Write any five differences between wired and wireless.

SECTION – D

IV. Answer any **FIVE** of the following : (5 × 7 = 35)

28. Explain Network Models with diagram. (7)

29. (a) Explain OSI Model with diagram.

    (b) Classify the following into their respective IP address classes :

       192.168.5.10, 224.0.0.5, 241.0.0.1, 10.50.13.40 and 130.5.4.77 (5 + 2)

30. (a) What is Cryptography? Explain the terms of Cryptography.

    (b) Mention any two security services of networks. (5 + 2)

31. Generate CRC code for data word 1101011011 using divisor 10011 check if there is any error in the code word. (7)

32. (a) Explain Token bucket algorithm with diagram.

    (b) Mention any four differences between token bucket and leaky bucket. (3 + 4)

33. (a) List any four differences between datagram with virtual circuit.

    (b) What are the goals of routing algorithm? (4 + 3)

34. (a) Explain the generations of wireless communications.

    (b) Define transmitter and receiver. (5 + 2)

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