V Semester B.C.A. Examination, November/December 2018
(CBCS) (F+R)
(2016 – 17 & Onwards)
COMPUTER SCIENCE
BCA – 501 : Data Communication and Networks

Time : 3 Hours
Max. Marks : 100

Instruction : Answer all Sections.

SECTION – A

I. Answer any ten questions. Each question carries two marks. (10 x 2 = 20)

1) Mention four network topologies.

2) What is telnet? How it differs from FTP?

3) What is meant by protocol and internet protocol suite?

4) Define encoding and decoding.

5) What is piggybacking? What is its purpose?

6) What is the difference between ethernet and fast ethernet?

7) Define bit rate and baud rate.

8) What do you mean by Nyquist signalling rate? Explain.

9) What is CSMA and CSMA/CD?

10) What do you mean by IEEE 802.11 standards?

11) What do you mean by flooding? Explain.

12) Define datagram and packet.

P.T.O.
SECTION – B

II. Answer any five questions. Each question carries five marks. \((5 \times 5 = 25)\)

13) Explain circuit switching.
14) How many layers are there in TCP/IP model? Mention the function of each layer.
15) Explain twisted pair cable as transmission medium.
16) Describe FDDI.
17) Explain 2-d parity check for error detection.
18) Explain HDLC frame structure.
19) Explain the differences between connection and connectionless services.
20) Explain the role of the following network devices:
   i) Hub
   ii) Switch
   iii) Bridge
   iv) Router
   v) Repeater.

SECTION – C

III. Answer any three questions. Each question carries fifteen marks. \((3 \times 15 = 45)\)

21) a) Explain digital representation of information.
    b) Write a note on polynomial code with suitable example. \((7+8)\)

22) a) Explain optical fibre as transmission medium.
    b) Explain different types of bridges in computer networks. \((7+8)\)

23) a) Explain stop and wait ARQ with a neat diagram.
    b) Explain ALOHA and Slotted ALOHA. \((7+8)\)
24) a) Explain frequency division multiple access and time division multiple access.

   b) Explain sliding window method of flow control. \((8+7)\)

25) a) Explain LLC and MAC sublayers of data link layer.

   b) What do you mean by peer-to-peer protocol? Compare PPP with HDLC. \((8+7)\)

SECCTON – D

IV. Answer any one question. Each question carries ten marks. \((1 \times 10 = 10)\)

26) Explain OSI reference model in detail.

27) Explain any two routing algorithms.
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BCA – 501 : DATA COMMUNICATION AND NETWORKS

Time : 3 Hours
Max. Marks : 100

Instruction : Answer all the Sections.

SECTION – A

Answer any ten questions. Each question carries two marks. (10×2=20)

1. Define SNR.
2. What is modem?
3. What is FTP ?
4. What do you mean by IP utility? Give an example.
5. What is Network Topology? List out any two network topologies.
6. Define attenuation.
7. Write any two differences between analog and digital signals.
8. What is cellular telephone network?
9. What is reservation?
10. What do you mean by centralized polling?
11. Define Ethernet.
12. What is flooding?

SECTION – B

Answer any five questions. Each question carries five marks. (5×5=25)


P.T.O.
15. What is multiplexing? Explain TDM.
16. Differentiate connectionless and connection oriented services.
17. Explain the structure of HDLC frames.
18. Illustrate CSMA.
19. Describe FDDI.
20. Write Bellman Ford Algorithm.

SECTION – C

Answer any three questions. Each question carries fifteen marks. \(3 \times 15 = 45\)

21. a) Explain OSI reference model with a neat diagram. 8
   b) Illustrate polynomial code with an example. 7
22. a) Describe twisted pair cable. 8
   b) Explain SONET. 7
23. a) What is a bridge? Explain the various types of bridges. 7
   b) Explain FDMA, TDMA and CDMA. 8
24. a) What is digital modulation? Explain the types of digital modulation techniques. 7
   b) Describe selective repeat ARQ. 8
25. a) Illustrate the two sublayers of data link layer. 7
   b) Illustrate openloop congestion control. 8

SECTION – D

Answer any one question. Each question carries ten marks. \(1 \times 10 = 10\)

26. Explain TCP/IP model with a neat diagram.
27. Illustrate polar line encoding scheme.
(CBCS) (16-17 and Onwards)
COMPUTER SCIENCE
BCA-501 : Data Communication and Networks

Time : 3 Hours
Max. Marks : 100

Instruction : Answer all the Sections.

SECTION – A

Answer any ten questions. Each carries 2 marks.

1. Write any two examples of data communication modes.
2. Expand NIC and TCP.
3. What are the two types of LAN standards?
4. What is a switch?
5. Write any two differences between analog and digital signals.
6. Define multiplexing.
7. Expand HDLC and PPP.
8. What is framing?
9. What is the use of repeaters?
10. Expand FDDI and CSMA.
11. What is ethernet?
12. What is meant by choke pocket?

SECTION – B

Answer any five questions. Each carries 5 marks.

13. Explain the types of transmission modes.
15. Explain the concept of checksum.
16. Explain the types of errors.

P.T.O.
17. Write short notes on piggybacking.
18. Explain the channelization method of CDMA.
19. Differentiate datagrams with virtual circuits.
20. Explain the flooding algorithm.

SECTION – C
Answer any three questions. Each question carries 15 marks. (3x15=45)
21. a) Explain the types of networks.
    b) Explain the function of OSI model layers.
22. Explain the following:
    a) Pulse Code Modulation
    b) SONET multiplexing
    c) Coaxial cable.
23. Explain the following:
    a) CRC method
    b) Stop-and-Wait-ARQ algorithm.
24. a) Write short notes on ALOHA protocols.
    b) Explain CSMA protocols.
25. Explain the following:
    a) Dijkstra's algorithm
    b) Token bucket algorithm.

SECTION – D
Answer any one question: (1x10=10)
27. Explain the following:
    a) Modems
    b) Congestion control.