QUESTION BANK

Subject Name: Computer Networks
Subject Code: 21CS52

Semester: 5th

Module 1: Introduction to networks and Physical Layer

1) Write the Uses of the computer networks?

2) Explain OSI reference model with diagram?

3) Write types of computer networks?

4) Explain TCP/IP reference model with diagram?

5) Explain guided transmission media with diagram?

6) Explain unguided transmission media?

7) Explain the effectiveness of four fundamental characteristics?

8) Discus the components of computer networks?

9) Explain about data representation?

10) Explain metropolitan area network?

11) Explain local area network?

12) Explain wide area network?

13) Discus the types of topologies?

14) Explain data flow in brief?

15) Explain standard protocols?

16) Discuss physical layer in details?

17) Explain Network Topologies.

Module 2: The Data Link Layer and The Medium Access control sublayer

1) Explain 4 types of redundancy detection methods?

   a) Vertical Redundancy Check (VRC)
   b) Longitudinal Redundancy Check (LRC)
   c) CRC d. Checksum

2) Explain datalink layer design issues

   a) services provided to the network layer
   b) framing

3) Explain error control and flow control?

4) Explain Cyclic Redundancy check with example.

5) Describe Error Detection in brief.

6) Explain Elementary data link protocols in detail.

7) Discuss the channel allocation problem with example.

8) Explain multiple access protocols in detail.

9) Explain error detection and correction.

10) Describe error-correcting codes with example.

11) Explain elementary data link protocols.

12) Explain sliding window protocols.

13) Explain protocol using go-back-n.

14) Explain protocol using selective repeat.

15) The following character encoding is used in a data link protocol:

   A: 01000111 B: 11100011 FLAG: 01111110 ESC: 11100000

Show the bit sequence transmitted (in binary) for the four-character frame A B ESC FLAG when each of the following framing methods is used:

   a) Byte count.
   b) Flag bytes with byte stuffing.
   c) Starting and ending flag bytes with bit stuffing.

16) Explain Carrier Sense Multiple Access Protocols (CSMA).

17) Explain THE CHANNEL ALLOCATION PROBLEM.

18) A bit stream 10011101 is transmitted using the standard CRC method described in the text. The generator polynomial is x 3 + 1. Show the actual bit string transmitted. Suppose that the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end. Give an example of bit errors in the bit string transmitted that will not be detected by the receiver.

19) Explain types of MULTIPLE ACCESS PROTOCOLS:

a) Pure Aloha
b) Slotted Aloha

20) Explain CSMA with Collision Detection (CSMA/CD).

21) Explain Collision-Free Protocols.

22) Explain WIRELESS LANS with diagram.

23) Write a note on Ethernet with example.

24) Explain 802.11 Physical Layer and 802.11 MAC Sublayer Protocol.

25) Write a note on BLUETOOTH and Spanning Tree Bridges.

26) Explain RFID (Radio Frequency Identification).

27) Explain Repeaters, Hubs, Bridges, Switches, Routers, and Gateways.

28) Explain Virtual LANs.

29) Explain 802.16 MAC Sublayer Protocol.

30) Explain The 802.11 Frame Structure.

MODULE 3: THE Network Layer

1) Explain Network Layer Design Issues.

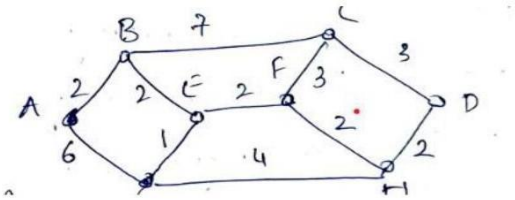
2) Explain Store and Forward Packet Switching.

3) Comparison of Virtual Circuit and Datagram Networks.

4) What is Routing Algorithm? Explain non-adaptive algorithm and Adaptive algorithm with diagram.

5) Explain Optimality principle with DAG. 6) Explain Shortest Path algorithm with an example.

7) Explain Shortest Path algorithm in the figure.

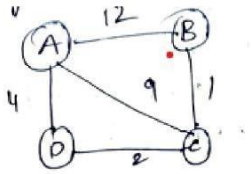


8) Explain Flooding with program.

9) Explain Distance Vector Routing and Count-To Infinity problem.

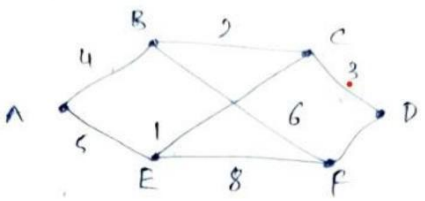
10)Explain Distance Vector Routing algorithm with example given

below.



11) Discuss about Link State algorithm.

12) Explain Link state algorithm for a given figure.



13) Explain Hierarchical Routing and Broadcast Routing.

14) Write a short note on:

a) Routing for mobile host
b) Multicast Routing
c) Routing in Ad HOC network

15) Explain Congestion Control algorithms.

16) Explain Load Shedding.

17) Explain Random Early Detection (RED).

18) Explain Quality of Services.

19) Explain Leaky bucket and token bucket.

20) Discuss about packet scheduling.

21) Describe RSVP – the Resource Reservation protocol.

22) Explain the IP Version 4 protocol and IP version 6.

23) Explain IPV6 header with diagram.

24) Explain ARP – The Address Resolution Protocol.

25) Write a short note on:

a) DSPF b) MPLS c) BGP

26) Explain packet fragmentation and tunnelling.

27) Explain Differentiated services.

MODULE 4: The Transport Layer

1) Explain Transport Service.

2) Describe Berkeley Sockets.

3) Explain Services provided to the Upper layer and Transport Services Primitives.

4) Explain an example of Socket programming.

5) Discuss about elements of Transport protocols.

6) Explain Connection Establishment & Connection Release.

7) Write a note on Error Control & Flow Control.

8) Explain Multiplexing.

9) Explain Crash Recovery.

10) What is Congestion Control? Explain about Congestion Control.

11) Explain the Internet Transport Protocols: UDP.

12) Explain RTP (Real Time Transport Protocol)

13) Explain RTCP (Real Time Transport Control Protocol)

14) Explain the Internet Transport Protocol: TCP

15) Explain TCP Connection establishment.

16) Explain TCP Connection management modelling.

17) Explain TCP Congestion Control.

18) Explain Performance Issues.

19) What is Delay-Tolerant Networking (DTN) and explain in brief.

MODULE 5: Application Layer

1) Explain Principles of Network Applications.

2) Discuss about Network Application Architecture with diagram.

3) Explain TCP services and UDP services.

4) Explain Application layer protocols.

5) What is the web and HTTP with example.

6) Explain HTTP request-response behaviour.

7) Explain HTTP Persistent connection and non-persistent connection.

8) Explain HTTP message format with diagram.

9) Explain HTTP request message format.

10) Explain HTTP response message format.

11) Write a note on Cookie.

12) Explain Web Caching.

13) Explain GET condition.

14) Explain Electronic mail in internet with neat diagram.

15) Explain SMTP with diagram.

16) Explain POP3 and mail access protocols.

17) Write a note on IMAP.

18) Explain DNS- The internet's Directory Service with diagram.

19) Explain DNS Records and messages with diagram.

20) Explain HTTP streaming and DASH.

21) Explain socket programming with UDP.

22) Explain socket programming with TCP.

23) Explain CDN (Content Distribution Network) with neat diagram.

24) Explain peer-to-peer file distribution.