8390

B.Tech. (CSE) VIth Semester Examination, 2023

COMPUTER NETWORK

Paper : CS-602

Time : 3 Hours] [*M.M. : 70*

Note :– Answer any *five* questions. All questions carry equal marks.

1. Discuss about pros and cons of the following network topologies :

   (i) Mesh topology

   (ii) Star topology

   (iii) Ring topology

   (iv) Bus topology 14

2. Explain the functions of different layers of OSI Model in detail. 14

3. Explain various types of delay in computer network. Consider two hosts X and Y connected by a single direct link of rate 10^6 bits/sec. The distance between the two hosts is 10,000 km and the propagation speed along the link is 2×10^8 m/sec. Host X sends a file of 50,000 bytes as one large message to host Y continuously. Calculate the transmission and propagation delay. 14

4. Explain Go back N ARQ sliding window protocol. Consider A sender uses the stop and wait ARQ protocol for reliable transmission of frames. Frames are of size 1000 bytes and the transmission rate at the sender is 80 kbps. Size of an acknowledgement is 100 bytes and the transmission rate at the receiver is 8 kbps. The one way propragation delay is 100 msec. Assuming no frame is lost, what will be the sender throughput ? 14

5. Explain pure-ALOHA and slotted-ALOHA systems. Give the expression for efficiency for each, clearly explaining the various terms. Consider a pure aloha system generating 200 bits frames and connected through a shared 20 kbps channel. What is the requirement to make this frame collision free? Also find throughput of the system. (Assuming channel load is 1/2) 14

6. Explain concepts of classful addressing. Which of the following address does not belong to the same network (no subnetting) ? Explain why ?

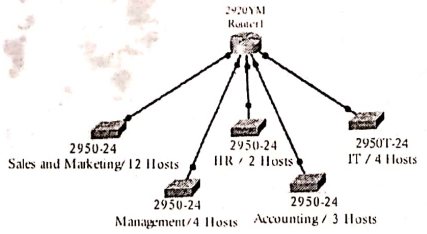
   (i) 130.31.23.31

   (ii) 130.31.24.22

   (iii) 130.32.23.21

   (iv) 130.31.21.23 14

7. Suppose you have been assigned the duty of subnetting a network for an orgnization's branch office. The headquarter's IT manager said that you need to use the network address 192.168.12.0 with the default subnet mask (255.255.255.0). The number of hosts is shown in the diagram below. Calculate Subnet addresses, subnet mask, subnet broadcast address and range of host addresses for each of the department. 14



8. Explain TCP three way handshaking connection establishment proecss in detail. 14

9. Distinguish between TCP and UDP. Which protocol used for live streaming ? Justify your answer. 14

10. Explain the following protocols :

    (i) HTTP

    (ii) FTP

    (iii) DNS

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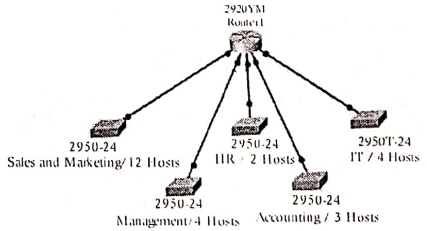

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UNIVERSITY OF LUCKNOW
Mid-Term Examination - 1
B.Tech. SEMESTER – VI, 2022-23

Student's Name & Roll No. .....

Subject Code: CS-602 **Subject: Computer Networks**
Time: 1 Hrs. **Max. Marks: 20**
Instruction: Attempt all sections. **Branch: CSE**

SECTION A

1. Attempt all parts **(1X5 = 5)**

a) Define Half and Full duplex communication.

b) A television broadcast is an example of simplex transmission justify.

c) Point out the different types of delays in network communication.

d) Mention the responsibilities of data link and Transport layer in OSI model.

e) A 2 km long broadcast LAN has 10^7bps bandwidth which is shared among multiple hosts and uses 1000B frames in slotted ALOHA. The signal travels along the wire at 70 percent of speed of light. Calculate vulnerable time in medium access control protocol.

SECTION B

Answer any THREE questions. **(5X3 = 15)**

2. Efficiency of slotted ALOHA is double of pure ALOHA justify.
3. Explain fibre optics guided communication medium.
4. Explain ISDN and its features.
5. Differentiate pure and slotted ALOHA protocol.

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