

Assignment 2

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Code - 230MC102

Part(A) - Multiple Choice Questions

- Ques 1 : (d) 65535
Ques 2 : (d) ordering and reassembling the different segments of a message.
Ques 3 (c) None (c) to send the packets to the uplink
Ques 4 (a) addressing
Ques 5 (a) datagram
Ques 6 (d) routing
Ques 7 (c) to increase # available IP addresses
Ques 8 (b) Node to Node delivery of data
Ques 9 (c) contention
Ques 10 (d) quantization

Part(B) Descriptive Questions

Ques 1 (Round Trip Time) {RTT}

Round Trip Time (RTT) is the duration in milliseconds (ms) it takes for a network request to go from a starting point to a destination and back again to the starting point. RTT is an important metric in determining the health of a connection on a local network or the larger Internet.

RTT can be measured/estimated using the ping utility which sends a test packet to a destination and measures the time it takes to receive the response.

Ques 2

Forwarding is process of collecting data from one device and sending it to another device. Some popular forwarding devices include router, switches and hubs. There are different types of forwarding methods used in networking such as:

(i) Next Hop Method : Simplest technique, sends packet received in router to the next gateway in direction of destination.

(ii) Store & Forward : Device stores entire packet until it has been completely received & then forwards it.

(iii) Cut through method : Device forwards the packet as soon as it reads the destination address, without waiting for entire packet to be received.

Ques ③ Dynamic Host Configuration Protocol (DHCP)

DHCP is a network management protocol that automatically assigns IP addresses and other communication parameters to devices connected to the network using a client-server architecture. The DHCP architecture consists of following components:

- ① **DHCP server**: This holds the IP configuration & addresses & provides them to the client.
- ② **DHCP client**: Device that request for config info.
- ③ **DHCP relay**: This is device between DHCP clients & servers that are on different networks.
- ④ **IP address pool**: Range of IP addresses that can be allocated.
- ⑤ **Subnet**: Small portion of IP network that is partitioned to keep network under control.
- ⑥ **Lease**: Duration for which valid (config) provided by DHCP server.

Ques ④ Hop count is the number of routers or devices that a packet passes through from the source to the destination. Hop count is used as a metric in some routing algorithms to determine the best path for a packet. For example Routing Information protocol (RIP) uses hop count as the only metric & selects path with lowest hop count. Although hop count doesn't consider other factors such as bandwidth, delay, or reliability of links which may affect the performance of the network.

Ques ⑤ Wireless LANs (Local Area Networks) are networks that use wireless radio signals, infrared beams or lasers to communicate between devices without cables. Some benefits of WLANs are:

- ① Reliable & flexible way of communication
- ② Reduce cost of ownership
- ③ Reduce physical wires, no offer mobility
- ④ High data rate because of small area coverage
- ⑤ Easy to install and maintain.