INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech IV Semester End Examinations (Regular) - May, 2018

Regulation: IARE – R16

COMPUTER NETWORKS

Time: 3 Hours (Common to CSE | IT) **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Describe the structure how the message will be encapsulated in the OSI layered approach with example. **[7M]**

   (b) What is transmission media Distinguish guided and unguided transmission media in detail with an example. **[7M]**

2. (a) Consider a point-to-point link 50 km in length. At what bandwidth would propagation delay (at a speed of 2×10^8 m/s) equal transmit delay for 100-byte packets? What about 512-byte packets? **[7M]**

   (b) Discuss the importance of circuit switching with an example. **[7M]**

UNIT – II

3. (a) Propose a mechanism that connect N switches supporting K VLAN groups, so that min switching and max connectivity could be achieved. Justify. **[7M]**

   (b) Calculate the UDP checksum for
      i. 0101110001100101110110100 01100101.
      ii. 1110011001100110110101010101010101.

   In what case checksum fails to detect error? Explain by taking one above example. **[7M]**

4. (a) Discuss the various Data Link Control(DLC) services with a neat sketch. **[7M]**

   (b) Draw User Datagram Protocol header format. The following is a dump of a UDP header in hexadecimal format. **[7M]**
   0632000DOO lCE217
      i. What is the source port number?
      ii. What is the destination port number?
      iii. What is the total length of the user datagram?
      iv. What is the length of the data?
      v. Is the packet directed from a client to a server or vice versa?
      vi. What is the client process?

UNIT − III

5. (a) Discuss the design issues of network layer. Explain the IP packet format with a neat sketch.

   [7M]

   (b) An organization is granted the block 130.34.12.64/26. The organization needs four subnetworks, each with an equal number of hosts. Design the subnetworks and find the address allocation information about each network. **[7M]**

6. (a) Describe the working of Open Shortest Path First(OSPF) protocol with an example. **[7M]**

   (b) What is Border Gateway Protocol(BGP)? Explain the functioning of BGP with neat sketch.

   [7M]

UNIT − IV

7. (a) Consider the three way handshake in TCP connection setup. **[7M]**

   i. Suppose that an old SYN segment from station arrives at station B, requesting a TCP connection. Explain how the three way handshake procedure ensures that the connection is rejected.

   ii. Now suppose that an old SYN segment from station arrives at station B, followed a bit later by an old ACK segment from A to a SYN segment from B. Is this connection request also rejected?

   (b) Describe the mechanism of TCP connection management. Illustrate with a sequence of message with an example. **[7M]**

8. (a) What is congestion? Describe the different iterations, when the congestion has taken place of n number of senders with finite buffers. Mention its impact on the throughput and delay. **[7M]**

   (b) What is multiplexing and de-multiplexing and why it is required? Discuss the working with respect to connection oriented and connectionless with an example. **[7M]**

UNIT − V

9. (a) Discuss the block diagram of FIFO client-server model. Demonstrate how client and server communicate using UDP. **[7M]**

   (b) Describe the importance of SNMP in network management standard. **[7M]**

10. (a) Describe the structure of HTTP. Identify the components used in cookies with an example.

    [7M]

    (b) Discuss with an example how the naming convention is resolved in DNS. **[7M]**

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