Code : 105315

2013 (A)

COMPUTER NETWORKS

Time : 3 hours
Full Marks : 70

Instructions :

(i) *The marks are indicated in the right-hand margin.*

(ii) *There are TEN questions in this paper.*

(iii) *Attempt any FIVE questions.*

1. (a) What are the three criteria necessary for an effective and efficient network?

   (b) Assume that 6 devices are arranged in a mesh topology. How many cables and ports are needed for each device? 7+7

2. (a) How do the layers of the Internet model correlate to the layers of the OSI model?

   (b) How are OSI and ISO related to each other? 7+7

3. (a) What are the differences among a port address, a logical address and a physical address?

   (b) Name three types of transmission impairment. Explain each of them in brief. 7+7

(Turn Over)

4. (a) List the functions performed by the physical layer of 802.3 standards.

   (b) The transport layer creates the connection between source and destination. What are the three events involved in the connection? 7+7

5. (a) Explain the two techniques for implementing Ethernet switches.

   (b) What is IP addressing? How is it classified? How is subnet addressing performed? 7+7

6. (a) Write about the possible services that can be offered by a link-layer protocol.

   (b) Write a short note on the components of a router. 7+7

7. (a) Explain connection establishment in transport protocol.

   (b) Explain the concept of classful IP addresses and subnet masking in network layer. 7+7

8. (a) Explain various fields in TCP header and UDP header with neat diagrams.

   (b) Write about 802.11 data frame structure. 7+7

(Continued)

9. (a) What are the network support layers and the user support layers?

(b) What are headers and trailers, and how do they get added and removed? 7+7

10. Give a brief account on services provided by DNS. Draw the DNS message format and write down the semantics of various fields in a DNS message. 14

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