No. of Printed Pages : 2

MCS-042

MCA (Revised)

Term-End Examination

June, 2015

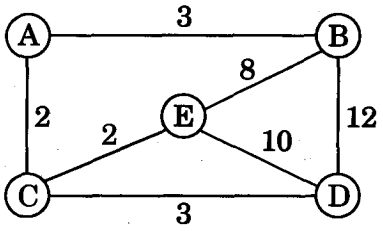
08603

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours *Maximum Marks : 100*

Note : *Question number **1** is **compulsory**. Attempt any **three** questions from the rest.*

1. (a) Consider the following network with the indicated link cost. Use Dijkstra's shortest path algorithm to compute the shortest path from the source node A to the destination node D. *10*



(b) In a Slotted Aloha system, it is observed that the channel is empty for 10% of the time. What is its throughput ? *10*

(c) Explain the Diffie-Hellman method for key exchange, through an example. *10*

(d) Explain why Sliding Window protocol is useful in satellite links. 5

(e) In ISO-OSI reference model, what are the functions of transport layer ? 5

2. (a) Explain the frame format in Ethernet protocol. Why is minimum frame length specified in this protocol ? 10

(b) Compare byte stuffing and bit stuffing. Consider the following data frame. Bit stuff it so that the data does not contain the flag 0111 1110. 10

00011111101001100011111111100

3. (a) Explain the slow-start procedure in TCP. How is threshold set in this ? 10

(b) How is hidden station problem solved in wireless networks ? What is the use of NAV in IEEE 802.11 protocol ? 10

4. (a) Explain the operation of Reverse path forwarding algorithm. What is the purpose of the algorithm ? 10

(b) Explain RSA public key algorithm with an example. 10

5. (a) Draw TCP header format and discuss the use of different flags. 10

(b) Find CRC for data polynomial $x^4 + x^2 + x + 1$ with generator polynomial $x^3 + 1$. 10