BCS-041

BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)
Term-End Examination
December, 2018

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BCS-041 : FUNDAMENTALS OF COMPUTER NETWORKS

Time : 3 hours   *Maximum Marks : 100*

Note : *Question no. 1 is* **compulsory**. *Attempt any* **three** *questions from the rest. Use of calculator is allowed.*

1. (a) Assume two prime numbers p and q are 17 and 11 respectively. Calculate private key and public key using RSA algorithm.   *10*

    (b) Draw the format of IP header and explain the significance of each field in this header.   *10*

    (c) Compare between CSMA/CD and token passing methods in Ethernet. Also explain how collisions are handled by CSMA/CD.   *10*

    (d) Explain the working of link state routing. Also compare it with distance vector routing.   *10*

2. (a) Compare Pure ALOHA with Slotted ALOHA. If throughput of Slotted ALOHA is $S = Ge^{-G}$, show that the maximum throughput (S_{max}) is 0·368. *10*

(b) What is Digital Modulation ? Compare and contrast between ASK, PSK and FSK. *10*

3. (a) Explain any five network topologies. Give one advantage and one disadvantage of each topology. *10*

(b) What is windowing ? How are flow control and reliability achieved through windowing at transport layer ? *10*

4. (a) What is IGMP ? Draw the header fields of IGMP and explain the significance of each field. *10*

(b) Compare OSI-reference model with TCP/IP model. *10*

5. Write short notes on the following : *5×4=20*

(a) IP Address Classes

(b) ATM Cell

(c) MD5 Algorithm

(d) POP

(e) IMAP