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BCS-041

BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

December, 2021

BCS-041 : FUNDAMENTALS OF COMPUTER NETWORKS

Time : 3 Hours *Maximum Marks : 100*

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

1. (a) Differentiate between parallel and serial communication. Give an example of each. 5

   (b) Discuss the importance of DHCP and SNMP at the application layer of TCP/IP model. 5

   (c) Compare POP and IMAP. 5

   (d) What are Quality of Services (QoS) of network ? List any ***two*** techniques to improve QoS. 5

   (e) What is CRC ? Calculate CRC, if the message is $x^7 + x^5 + 1$ and the generator polynomial is $x^3 + 1$. 10

   (f) What is classful addressing ? How is it different from classless addressing ? How does classless addressing result in the decrease of the table size ? 10

2. (a) Differentiate between pure ALOHA and slotted ALOHA. If the throughput of pure ALOHA is $S = Ge^{-2G}$, show that the maximum throughput (S_{max}) is 0.184. 10

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

3. (a) Explain the working of ARP, using a diagram. How does ARP differ from RARP ? Explain. 10

   (b) Discuss the advantages of IPv6 over IPv4. 5

(c) Discuss the importance of DHCP and BOOTP at the application layer of TCP/IP model. 5

4. (a) Write the step by step working of lmk state routing. Also, compare it with distance vector routing. 10

(b) Write the components of address field in the Frame Relay Protocol Data Unit (PDU). Also, explain the significance of each component. 10

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

(a) Circuit Switching

(b) GSM Architecture

(c) 3G Network

(d) Fibre Optic Cables