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BCS-041

BACHELOR OF COMPUTER APPLICATIONS (BCA) (Revised)

Term-End Examination

June, 2022

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) Briefly discuss the term CRC. Determine the CRC for the data polynomial $X^5 + X^4 + X^2 + 1$ with generator polynomial $X^3 + 1$. *7*

(b) Explain how routing and switching is done in ATM network. *10*

(c) Differentiate between Classful addressing and Classless addressing. Explain how classless addressing results in decrease in table size. *10*

(d) What is a Congestion Control Mechanism ? Discuss slow start phase of TCP congestion control mechanism through an illustration. 7

(e) What do 10Base-T and 100Base-T stand for ? Also, differentiate between the two. 6

2. (a) Compare Ring topology and Mesh topology, in terms of the following parameters : 6

(i) Requirement of cable

(ii) Reliability

(iii) Performance of network by adding extra nodes

(b) What is Count-to-Infinity problem ? Explain. 4

(c) Explain the multiplicative decrease process, with respect to congestion control. 4

(d) What is Silly Window Syndrome ? What are the proposed solutions to this syndrome ? 6

3. (a) Answer the following :

(i) Given the network address 125.0.0.0, find the class, the block and the range of the address. 3

(ii) How can we prove that we have 2, 147, 483, 648 addresses in class A ? 2

(b) Discuss the pros and cons of a wireless communication system. 5

(c) How does MD5 message digest algorithm work ? Explain. 5

(d) Explain Client-Server model of network, with the help of a diagram. 5

4. (a) Discuss the parity bit method for error detection ? Suppose a bit sequence 110001010111 is received. Assume odd parity bit method is used. Find whether received bit sequence is correct or not. 10

(b) Explain X.25 architecture, with the help of a diagram. 10

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

(a) Count-to-Infinity Problem in Distance Vector Routing Protocol

(b) Quality of Service (QoS) of Network

(c) Functions of DHCP

(d) Functions of SNMP

(e) CSMA/CD