

**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
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