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BCS-041

BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

June, 2023

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 private key and public key cryptography. Give suitable example of each. 6

   (b) Briefly discuss the concept of frequency shift keying and phase shift keying. Give an application of each. 6

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(c) What is count to infinity problem in distance vector routing protocol ? How does it happen ? Explain with an example. 10

(d) Briefly discuss the functions of Layer-2 switch and Layer-3 switch. Compare Switch with Hub. 6

(e) How does pure ALOHA differ from slotted ALOHA ? Explain. 6

(f) What are virtual circuits ? Discuss the effect of router failure in virtual circuits. 6

2. (a) Differentiate between ARP and RARP. Explain the working of ARP using a diagram. 10

(b) How does classful addressing differ from classless addressing ? How does classless addressing result in decrease in the table size ? 10

3. (a) Explain the concept *Go-Back-N sliding window protocol* with a suitable example and diagram. 10

(b) What is Fragmentation ? Explain why IPv4 and IPv6 protocols need to fragment some packets. 10

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

(b) Discuss the concept of sliding window protocol with the help of an example. Also, explain how piggybacking technique works. 10

5. (a) What is IGMP ? Draw the header fields of IGMP. Also, explain the significance of each field. 10

(b) Write the significance and usage of the following networking devices : 2×5=10

(i) Repeater

(ii) Bridges

(iii) Switches

(iv) Gateways

(v) Networks interface card