BACHELOR OF COMPUTER APPLICATIONS (BCA) (Revised)

Term-End Examination

June, 2021

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) Which type of communication, digital or analog, is better for computers ? Justify your answer.   5

   (b) What are 'Hash functions' ? Why are they called 'One-way functions' ? Explain.   5

   (c) Compare SVC and PVC of X·25 architecture.   5

   (d) Why is serial data transmission faster than parallel data transmission ? Explain.   5

(e) How are the number of twists in the UTP cable related to its performance ? 5

(f) Name the two sublayers of Data Link Layer, and explain the characteristics of these layers. 5

(g) Explain Silly Window Syndrome, with the help of a diagram. 5

(h) Briefly discuss the problem with PSK and explain its possible solution. 5

2. (a) Compare and contrast the amplitude modulation and phase modulation techniques. Discuss the limitations of each. 10

(b) Explain RSA algorithm with example. 10

3. (a) Explain the working of 3-way handshake used in TCP, using a suitable diagram. 10

(b) Discuss the ATM service classes and QoS (Quality of Services) parameters of each class. 10

4. (a) Calculate the CRC for a 10 bit sequence 1010011110 with a divisor of 1011.
Note : Show all steps and calculations. 10

(b) Compare Time Division Multiplexing (TDM) and Frequency Division Multiplexing (FDM). Give the advantage and disadvantage (if any) of both TDM and FDM. 10

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

    (a)   CSMA/CD

    (b)   IEEE 802·3

    (c)   Frame Relay

    (d)   OSI Model

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