No. of Printed Pages : 4

BCS-041

BACHELOR OF COMPUTER APPLICATIONS (B. C. A.) (REVISED)

Term-End Examination

December, 2020

BCS-041 : FUNDAMENTALS OF COMPUTER NETWORKS

Time : 3 Hours *Maximum Marks : 100*

Note : *(i) Question number **1** **is compulsory**. Attempt any **three** questions from the rest.*

(ii) Use of calculator is allowed.

1. (a) Compare serial and parallel transmission. Give advantages and disadvantages of both. 5

   (b) What is Amplitude Modulation ? Give *two* advantages and *two* disadvantages of amplitude modulation. 5

(c) What do you understand by the term sampling in digital communication ? Compare analog to digital conversion with digital to analog conversion. 5

(d) Give at least two similarities between OSI and TCP/IP models. 5

(e) What is Random access protocol ? Compare throughout of pure and slotted ALOHA. 5

(f) Briefly discuss the term "classful addressing". Give disadvantage of classful addressing. Given the network address 17.0.0.0, find the class, the block and the range of address. 5

(g) What is stream cipher ? Give *two* advantages and *two* disadvantages of stream cipher. 5

(h) Compare symmetric and asymmetric cryptography. 5

2. (a) Briefly discuss the functions of various layers involved in TCP/IP model, also mention the protocols defined under each layer. 10

(b) Briefly discuss the following types of multiplexing : 10

(i) Frequency division multiplexing

(ii) Time division multiplexing

(iii) Code division multiplexing

(iv) Space division multiplexing

3. (a) What is round robin technique for transmission ? How does polling differ from token passing ? 5

(b) What are the major functions of transport layer ? How transmission control protocol differs from user datagram protocol ? 5

(c) Briefly discuss the term Cyclic Redundancy Check (CRC). Find CRC for the data polynomial $x^5 + x^4 + x^2 + 1$ with generator polynomial $x^3 + 1$. 10

4. (a) What is distance vector routing ? Briefly discuss the problem of distance vector routing. 5

(b) Compare token bucket algorithm with leaky bucket algorithm. 5

(c) What do you understand by the term Quality of Services (QoS). Discuss the techniques to improve QoS. 5

(d) Differentiate between ICMP and IGMP. 5

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

(i) X.25 Architecture

(ii) CDMA

(iii) RSA

(iv) Public and private key cryptography