UG EVEN SEMESTER (CBCS) EXAMINATION, SEPTEMBER - 2021

COMPUTER SCIENCE

4th Semester

COURSE NO. MCSCC - 401

(Data Communications and Computer Networks)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer any five questions, taking one from each unit)

UNIT - I

1. (a) What is Computer Network? What are the benefits of Computer Networks? [4]

   (b) What are the major difference between LAN and WAN? [4]

   (c) Write only one functions of each layer of OSI reference model. [6]

2. (a) Identify the five components of a data communications system. [4]

UNIT - V

9. (a) Differentiate between TCP and UDP. [4]

   (b) Explain Leaky bucket algorithm. [6]

   (c) Write short note on Domain name system. [4]

10. (a) Briefly explain any two techniques to improve QoS. [4]

    (b) Explain process to process delivery. [4]

    (c) Write the various functions of SMTP. [6]

(b) What are some of factors that determine whether a communication system is LAN, MAN or WAN? [4]

(c) Write only one function of each layer of TCP/IP reference model. [6]

UNIT - II

3. (a) Differentiate between circuit and packet switching. [4]

(b) What is hybrid topology? Write the advantages of using hybrid topology. [4]

(c) In a CRC error-detecting scheme, choose $p(x) = x^4 + x + 1$ Encode the bits 10010011011. [6]

4. (a) What is network topology? Explain any two types of network topologies with diagram. [6]

(b) Differentiate Asynchronous and Synchronous transmission. [2]

(c) What is hamming code? Calculate the Hamming pairwise distances among the following codewords: 00000, 10101, 01010 [6]

UNIT - III

5. (a) Consider the delay of pure ALOHA versus slotted ALOHA at low load. Which one is less? Explain your answer. [4]

(b) Discuss Stop –and-wait ARQ flow and error control mechanism. [6]

(c) Write Short Notes on the following: [4]
(i) Polling (ii) HDLC

6. (a) Explain the three persistence protocols that can be used with CSMA. [4]

(b) Explain GO-Back ARQ mechanism. [6]

(c) Write Short Notes on the following: [4]
(i) Token Pass (ii) Bit stuffing

UNIT - IV

7. (a) Write the basic difference between Hub and Bridge. [4]

(b) Write the advantages of subnetting and supernetting. [4]

(c) Explain the various features of static and dynamic routing. [6]

8. (a) Write the basic difference between Switch and Router. [4]

(b) What is classful and classless address? [4]

(c) What is flooding? What are the advantages and disadvantages of it? [6]