(i) Printed Pages: 2 Roll No. .....

(ii) Questions : 9 Sub. Code : 4 5 8 0 9

Exam. Code : 1 2 1 9

PGDCA 1st Semester

(2124)

DATA COMMUNICATIONS AND NETWORKS

Paper : PGD-1104

Time Allowed : Three Hours] [Maximum Marks : 60

Note :—Attempt FIVE questions in all, including Question No. 1 in Section–A, which is compulsory and taking ONE each from Section–B to Section–E.

SECTION—A

(Compulsory Question)

1. (a) Discuss network architecture.

(b) Differentiate between bit rate and baud rate.

(c) What are the design issues of data link layer ?

(d) What is the concept of Tunneling in inter-networking ? Explain. 3,3,3,3

SECTION—B

2. Describe the OSI seven-layer model. Name each of the layers in the model and draw a diagram that shows the ordering of these layers. Write a paragraph describing the areas of function that each layer is responsible for. 12

3. What is computer network topology ? Explain the purpose and appropriateness of star, bus, ring and mesh topologies. 12

SECTION—C

4. What is network switching ? Explain circuit, packet and message switching and their use. 12

5. Describe the architectures, properties and make comparisons for various guided and unguided transmission media. 12

SECTION—D

6. What are the different types of error detection methods ? Explain the CRC error detection technique using generator polynomial $x^4 + x^3 + 1$ and data 11100011. 12

7. Explain the following data link layer protocols :

   (a) HDLC

   (b) Sliding Window. 12

SECTION—E

8. Define routing. List and explain distance vector and link state routing algorithms with examples. 12

9. What is network congestion ? Explain the working of Leaky Bucket Algorithm for network congestion control with the help of suitable examples. 12