

Code: IT5T3

**III B.Tech - I Semester – Regular/Supplementary Examinations  
October 2018**

**DATA COMMUNICATIONS AND COMPUTER NETWORKS  
(INFORMATION TECHNOLOGY)**

Duration: 3 hours

Max. Marks: 70

**PART – A**

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1. a) What is the difference between network layer delivery and transport layer delivery?
- b) For n devices in a network, what is the number of cable links required for a mesh, ring, bus, and star topology?
- c) Define the relation between degree of the polynomial generator and the size (number of bits) of the divisor in CRC.
- d) What is the hamming distance between the two pair of words d(10111000 , 11110000).
- e) Define Subnetting and Supernetting.
- f) An address space has a total of 1024 addresses. How many bits are needed to represent an address?
- g) Draw the diagram of routing table for host-specific versus network-specific method.
- h) Define RIP.
- i) What is the minimum size and the maximum size of a UDP datagram?

- j) Define multiplexing and demultiplexing.
- k) What is the size of the window for host A if the value of receiving window is 3000 bytes and the value of congestion window is 3500 bytes?

## PART – B

Answer any **THREE** questions. All questions carry equal marks.

16 x 3 = 48 M

2. Draw a neat labeled diagram and explanation for the following.
- a) LAN and WAN 5 M
  - b) Star and Ring topology 5 M
  - c) TCP/IP protocol suite 6 M
3. a) Explain about stop-and-wait protocol. 8 M
- b) Show the generation of the codeword at the sender site (using binary division) when the dataword is 1010011110 and the divisor is 10111. 8 M
4. a) List the classes in classful addressing and define the application of each class (unicast, multicast, broadcast, or reserve). 6 M

b) Suppose you have to develop an error recovery protocol for a link that is unreliable and delay sensitive, which of the following protocol would you choose? 10 M

(i) Stop & wait. (ii) Selective Repeat. (iii) Go back.

Justify your answer.

5. Explain the following in detail 16 M

a) Flooding b) Reverse Path Forwarding

c) MBONE

6. a) Differentiate between TCP and UDP. 6 M

b) Draw TCP Connection Establishment with neat diagram.

10 M