Paper Code: EC-702	**Roll No.**									

B.Tech.
SEVENTH SEMESTER EXAMINATION, 2016-17
DATA COMMUNICATION NETWORK

[Time: 3 hrs.] [Max. Marks: 100]

Note- Attempt All questions. All questions carry equal marks.

1. Attempt any four parts of the following: - **(5x4=20)**

(a) Discuss salient features of OSI reference model, what principle is applied to arrive at seven layers of OSI-ISO model? Give reason for failure of this model.
(b) Discuss various LAN topologies, explain them in brief with relevant figure?
(c) What is the difference between Pure ALOHA and Slotted ALOHA?
(d) Define and explain the Data Link Layer in IEEE project 802. Why is this layer divided into sub layers?
(e) What is the mechanism of stop-and-wait ARQ error control?
(f) Write down the algorithm for computing the checksum. Using CRC method the codeword is received as 1100 1001 01011. Check whether there are errors in the received codeword if the divisor is 10101

2. Attempt any four parts of the following: - **(5x4=20)**

(a) What is the advantage of sliding window protocol over other data link layer protocols?
(b) What is 802.11 medium access control, how it works for the reliable data delivery access control and security.
(c) What are the difference between Virtual Circuit and Datagrams? Why packet switching is preferred in data networks.
(d) Explain the difference between bit oriented protocol and byte oriented protocol.What are the uses of BSC control frames.
(e) What are the major problems in allocating the channel? Explain framing in details.
(f) Derive the throughput of stop-and-wait flow control mechanism.If NACK is lost in transit what will happen in Stop and wait ARQ.

3. Attempt any two parts of the following: - **(10x2=20)**

(a) What do you understand by Routing Algorithms? Write and explain any one of Routing algorithms
(b) Explain in detail different types of bridges. Write short notes on Routers and Gateways.
(c) Explain with the help of suitable diagram of the TCP segment header; also explain the TCP connection management.

4. Attempt any two parts of the following: - **(10x2=20)**

(a) Explain the specific functions of transport layer, Explain any two types of transport layer protocols and discuss their give their merits and demerits too.

(b) Explain any two of the following with specifying all its standard parameters.
- (i) Switched Ethernet
- (ii) Fast Ethernet
- (iii) Gigabit Ethernet

(c) What is the various design issues involved in the network layer? Explain different Routing Algorithms used to route the packets from source machine to the destination machines.

5. Attempt any two parts of the following: - **(10x2=20)**

(a) What is the use of Bit Stuffing in data? What do you mean by pipe lining? Explain it with suitable example?

(b) Write short note on following :
- (i) Cryptography
- (ii) Bluetooth
- (iii) PPP
- (iv) Concept of frame Relay

(c) What is CSMA/CD? Consider building a CSMA/CD network running at 1 bps over 1 km cable with no repeaters. The signal speed in cable is 2, 00,000 km/sec. what is the minimum frame size?