

# CBCS SCHEME

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20MCA13

## First Semester MCA Degree Examination, Jan./Feb. 2021 Computer Networks

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Discuss about requirements of Computer Networks. (10 Marks)  
b. Explain Network Architecture with respect to layering and protocols. (10 Marks)

OR

- 2 a. Describe OSI 7-layers model with neat diagram. (10 Marks)  
b. Discuss the following: (i) Bandwidth and latency (ii) Delay X bandwidth (10 Marks)

### Module-2

- 3 a. Explain the following encoding techniques: (10 Marks)  
(i) NRZ (ii) NRZ 1 (iii) Manchester encoding (iv) 4B/5B  
b. Discuss clock-based framing with respect to SONET. (10 Marks)

OR

- 4 a. Calculate CRC for the following data 10011010 and divisor 1101 and discuss the same at sender's and receiver's end. (10 Marks)  
b. Discuss the following: (10 Marks)  
(i) Stop and Wait algorithm (ii) Sliding window algorithm

### Module-3

- 5 a. Define virtual circuit switching. Explain the same with necessary diagrams. (10 Marks)  
b. Discuss the following: (i) Source Routing (ii) IPV4 Packet header (10 Marks)

OR

- 6 a. What is Host Configuration? Explain the same with respect to DHCP. (10 Marks)  
b. Discuss Distance-Vector-Routing algorithm with a suitable graph. (10 Marks)

### Module-4

- 7 a. How TCP manages a byte stream? Explain. (10 Marks)  
b. Discuss about Adaptive Retransmission with respect to reliable byte stream. (10 Marks)

OR

- 8 a. How queuing algorithm is used in resource allocation? Explain. (10 Marks)  
b. Explain the congestion-avoidance mechanisms used in TCP. (10 Marks)

### Module-5

- 9 a. Discuss about principles of Ciphers in terms of symmetric-key Ciphers. (10 Marks)  
b. What is key pre-distribution? Discuss the same with respect to public keys. (10 Marks)

OR

- 10 a. Explain the traditional applications with respect to Electronic Mail. (10 Marks)  
b. Discuss about Domain Name System (DNS) in detail. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8=50, will be treated as malpractice.