**Total No. of Questions : 8]** **SEAT No. :**

**P9137** **[Total No. of Pages : 2**

# [6179]-263
# S.E. (Information Technology)
# BASICS OF COMPUTER NETWORKS
# (2019 Pattern) (Semester - III) (214445)

***Time : 2½ Hours]*** ***[Max. Marks : 70***

***Instructions to the candidates:***

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

***Q1)*** a) Explain the various controlled access methods. **[6]**

b) Draw & Explain each Field of MAC frame format of IEEE 802.3 **[6]**

c) Compare TDMA & CDMA with neat Diagram. **[6]**

OR

***Q2)*** a) Explain the following physical layer implementations in standard Ethernet: **[6]**

i) 10 Base 5

ii) 10 Base T

iii) 10 Base F

b) Write short notes on: **[6]**

i) IEEE 802.4 (Token Bus)

ii) IEEE 802.5 (Token Ring)

c) Discuss CSMA/CA & CSMA/CD. Also comment on the efficiency of each. **[6]**

***Q3)*** a) Explain network layer services with example. **[6]**

b) Calculate the following for a network address 192.168, 1.0/27 **[6]**

i) Number of valid subnets

ii) Number of actual hosts per subnet

iii) Network and broadcast address for each subnet

c) Compare between IPv4 and IPv6. **[5]**

OR

***P.T.O.***

***Q4)*** a) For class C IP address 8 bits is used for subnet. Each subnet has atleast 60 nodes, so calculate subnet mask. **[6]**

b) Explain the Concept of Subnetting and Supernetting. **[6]**

c) Explain NAT & CIDR with neat Diagram. **[5]**

***Q5)*** a) Explain Bellman-Ford Algorithm with help of example. Also write advantages & Disadvantages of Bellman-Ford Algorithm. **[6]**

b) Compare and contrast the advertisement used by RIP and OSPF routing protocols. **[6]**

c) Explain Message format of RIPVI & RIPV2. **[6]**

OR

***Q6)*** a) Discuss the advantages and disadvantages of OSPF and BGP routing algorithms. **[6]**

b) Explain Optimally Principle with help of example. **[6]**

c) Compare Non Adaptive & Adaptive Routing. **[6]**

***Q7)*** a) Explain how to achieve reliability at transport layer. **[6]**

b) Explain the leaky bucket and token bucket algorithm in detail. **[6]**

c) Explain Three Way Handshake algorithm for TCP connection establishment. **[5]**

OR

***Q8)*** a) What is a socket? Explain the various socket primitives and types of socket with Example. **[6]**

b) Discuss flow control and congestion control mechanisms in TCP. **[6]**

c) Compare: TCP & UDP. **[5]**

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