[6402]-59

S.E. (I.T.)

BASICS OF COMPUTER NETWORKS (BCN)

(214445) (2019 Pattern) (Semester - III)

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) Draw & Explain the frame format for IEEE 802.3.   **[6]**

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

      c) Discuss CSMA/CD random access technique. How is collision detection achieved in this technique.   **[6]**

<p align="center">OR</p>

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

         i)   10Base5

         ii)   10BaseT

         iii) 10BaseF

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

         i)   IEEE 802.4 (Token Bus)

         ii)   IEEE 802.5 (Token Ring)

      c) Explain FDMA, TDMA and CDMA in detail.   **[6]**

Q3) a) Explain different classes of IP addresses and show by calculations how many networks and hosts are possible in each class.   **[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) Computer between IPv4 and IPv6.   **[5]**

<p align="center">OR</p>

Q4) a) For a given class-C network, design 4 equal subnets having minimum 50 nodes in each sub network. **[6]**

b) Explain NAT & CIDR with neat Diagram. **[6]**

c) Draw and Explain Header diagram of IPv4. **[5]**

Q5) a) What is routing? State different types of routing. Explain two interior gateway routing protocols. **[6]**

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

c) Explain Distance Vector Routing with Count to Infinity Problem. **[6]**

OR

Q6) a) What is Autonomous System? What are the Inter Domain Routing Protocols? Explain One Inter Domain Routing protocols in details. **[6]**

b) Differentiate between Distance Vector Routing and Link State Routing. **[6]**

c) What is BGP? Explain the operation of BGP with suitable example. **[6]**

Q7) a) Explain duties of transport layer and differentiate between connection oriented and Connection less services. **[6]**

b) Draw & Explain Leaky Bucket and Token Bucket algorithm. **[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) What is Silly Window Syndrome? Explain at-least two methods to overcome it. **[5]**

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