Total No. of Questions : 8]

SEAT No. : [ ]

PA-1246

[Total No. of Pages : 2

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S.E. (Information Technology)

BASICS OF COMPUTER NETWORK

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

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

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary.***

Q1) a) Define controlled access and list three protocols in this category. Explain any two protocols. **[8]**

b) Write short note with reference to MAC layer and Physical Layer on: **[9]**

i) Standard Ethernet

ii) Fast Ethernet

iii) Gigabit Ethernet

OR

Q2) a) Write short note on: **[8]**

i) IEEE 802.3 Standard

ii) IEEE 802.4 Standard

b) Describe different channelization techniques mentioned below in short: **[9]**

i) FDMA

ii) TDMA

iii) CDMA

Q3) a) Explain the operation of NAT with suitable example. **[8]**

b) Compare and Contrast Subnetting, Supernetting. An organization is granted the block 172.16.0.0/18. Design the network and Find how many subnets? Find how many hosts per subnet? What are the valid subnets? What is the broadcast address for last subnet? What is the range of valid hosts in last subnet? **[9]**

OR

P.T.O.

Q4) a) What is the need of IPv6? Explain different types of IPv6 address. **[8]**

b) Explain following terms: **[9]**

i) Private IPv4 address

ii) Public IPv4 addresses

iii) NAT

Q5) a) Compare and contrast distance vector routing with link state routing. List out and explain key features of EIGRP that makes it superior to OSPF. **[9]**

b) What is routing? List out and explain different metrics used in various routing protocols. **[9]**

OR

Q6) a) Compare and Contrast Intra Domain and Inter Domain Routing Protocols. List out and explain key features of OSPF that makes it superior to RIP. **[9]**

b) What is BGP? How it avoids count to infinity problem? Explain the difference between internal BGP and external BGP. **[9]**

Q7) a) Explain TCP with its header format. **[9]**

b) What is a Socket? Explain various socket primitives used in client-server interaction with neat diagram for a stream socket. **[9]**

OR

Q8) a) What is silly window syndrome? List different solutions to overcome it. Explain one solution at sender side and receiver side each. **[9]**

b) What do you mean by congestion control in transport layer? What are the different methods to alleviate it? **[9]**