23242

3 Hours / 70 Marks   Seat No. ☐☐☐☐☐☐☐☐

Instructions :   (1)   All Questions are *compulsory.*

(2)   Illustrate your answers with neat sketches wherever necessary.

(3)   Figures to the right indicate full marks.

(4)   Assume suitable data, if necessary.

(5)   Preferably write the answer in sequential order.

Marks

1.   Attempt any FIVE of the following :   **10**

(a)   Enlist 4 factors of computer network criteria based on performance.

(b)   State 4 types of remote access technologies (connection types).

(c)   Define Intelligent Hub with neat labelled diagram of Hub.

(d)   Define Logical Topology in short.

(e)   State any two protocol associated with Session Layer and Transport Layer in OSI Reference Model.

(f)   Enlist 4 levels of addresses used by computers for TCP/IP protocols.

(g)   Enlist 4 addressing types in IP systems.

2.   Attempt any THREE of the following :   **12**

(a)   Explain the working of hybrid computing model with neat diagram.

(b)   State the difference between star bus and star ring topology considering topology parameters :

　　1.   Topology　　　　　　　　2.   Configuration

　　3.   Peculiarity　　　　　　　　4.   Applications

    (c)   State the services provided by the network layer of OSI model.

         1.   Internetworking   2.   Addressing

         3.   Routing   4.   Fragmenting

    (d)   State the difference between IPV4 and IPV6 considering :

         1.   Security   2.   Request Frames

         3.   Syntax of Address Notation 4.   IP sec support

3.   **Attempt any THREE of the following :**   **12**

    (a)   Explain the working of point-to-point network with neat labelled diagram consisting of 2 Nodes connected to sender and receiver.

    (b)   State the difference between router and bridge considering parameters :

         1.   Layer in OSI model   2.   Type of device

         3.   Intelligence   4.   Operation

    (c)   Explain the working of star topology with neat labelled diagram of star topology by connecting nodes 0 to 7 to hub device.

    (d)   State the difference between Bus Topology and Ring Topology in terms of :

         1.   Reliability   2.   Security

         3.   Delay   4.   Routing Methology

4.   **Attempt any THREE of the following :**   **12**

    (a)   State the difference between LAN and WAN considering following parameters :

         1.   Data Rates   2.   Mode of communication

         3.   Bandwidth   4.   Ownership of network

    (b)   Explain computer network with neat labelled diagram consisting of basic network components like :

        1. Cable   2. NIC   3. Host   4. Communication subnet

(c) Explain the working of token passing in ring topology with neat labelled diagram of ring topology.

(d) Explain the working of TCP/IP model with neat diagram.

(e) Explain multiplexing & demultiplexing in the transport layer. Also draw the diagram of multiplexing and demultiplexing with processes.

5. **Attempt any TWO of the following :**   **12**

(a) Explain working of Metropolitan Area Network (MAN) with neat labelled diagram of LAN connection. State 2 disadvantages of it.

(b) Explain why

(i) Static routers used in OSI model are called as NOT FAULT TOLERANT.

(ii) Dynamic routers used in OSI model are called as FAULT TOLERANT

Draw neat labelled diagram connecting router to bus topology.

(c) Explain the working of parent-child topology with neat labelled diagram of topology considering central hub with nodes & hub connected to it. Also state it's applications.

6. **Attempt any TWO of the following :**   **12**

(a) Explain the function of repeater in OSI model with neat labelled diagram. Also state two disadvantages of repeater.

(b) Explain the role of presentation layer in OSI reference model. Also draw the diagram of OSI reference model highlighting presentation layer.

(c) Explain TCP segment header format in detail.

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