

17429

16117

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any SIX of the following:

12

- (i) State the need of computer network.
- (ii) Name any two types of server.
- (iii) Give two criteria for selection of network topologies.
- (iv) State the function of:
 - 1) Hub
 - 2) Router
- (v) State the frequency band used in cellular telephony for transmission and reception.
- (vi) State four applications of satellite communication.
- (vii) Define Protocol. State the need for the same.
- (viii) State two features of IPV₆.

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- b) **Attempt any TWO of the following:** **8**
- (i) Name any four resources that can be shared in a computer network.
 - (ii) Draw a neat diagram and describe the working of star topology.
 - (iii) Compare Mesh topology with Star topology.
2. **Attempt any FOUR of the following:** **16**
- a) Describe the working of peer-to-peer network.
 - b) State four features of LAN and WAN.
 - c) Draw a neat sketch and describe the construction of co-axial cable.
 - d) Give two applications of:
 - (i) Modems
 - (ii) Routers
 - e) State four benefits of network used for centralized management.
 - f) Describe the architecture of bluetooth technology.
3. **Attempt any FOUR of the following:** **16**
- a) Describe the working of server based networks. Where is it used?
 - b) Draw a neat sketch of Bus topology and describe its working. Give its advantages.
 - c) Describe the concept of encapsulation.
 - d) Name the protocols used in:
 - (i) Data Link layer
 - (ii) Network layer
 - (iii) Transport layer
 - (iv) Presentation layer

- e) State the reasons for having a layered architecture in OSI reference model.
- f) Compare TCP and UDP.

4. Attempt any FOUR of the following: 16

- a) Differentiate IPV₄ and IPV₆.
- b) Explain the protocols ARP and RARP.
- c) Draw a sketch indicating the construction of fibre optic cable. State four advantages over electrical cables.
- d) Describe the various IP address classes with suitable examples.
- e) Explain the services provided by the transport layer of the OSI model.
- f) Draw a neat diagram and describe a wide area network. What are the three phases of communication in a WAN.

5. Attempt any FOUR of the following: 16

- a) Explain the various fields in the frame format of UDP with a neat diagram.
- b) Explain the operation of file transfer protocol.
- c) Explain Handoff procedure in mobile communication.
- d) What are the situations under which gateways are used in networks?
- e) Compare OSI and TCP/IP network model.
- f) Name the topology which combines two or more topologies. What are its advantages? Draw a neat diagram of the same.

6. Attempt any TWO of the following:**16**

- a) Draw a neat diagram showing the layers of OSI model and state the function of each layer.
 - b) Explain the terms:
 - (i) Subnetting
 - (ii) Supernetting
 - (iii) Masking
 - (iv) Classless IP addressing with suitable examples.
 - c) With the help of neat diagram describe:
 - (i) Single mode step index
 - (ii) Single mode graded index
 - (iii) Multimode step index
 - (iv) Multimode graded index fiber
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