22685

24225

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

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) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **5 × 2 = 10**

(a) Enlist four applications of computer network.

(b) List four functions of network layer.

(c) Define topology and list its types (any two).

(d) State features of Windows Server 2022 (any two).

(e) Define Unicast and Multicast.

(f) Define Inter-domain and Intra-domain routing.

(g) Differentiate between EPON & GPON router (any two points).

2. Attempt any THREE of the following : 3 × 4 = 12

(a) Differentiate between LAN and WAN (four points).

(b) Name the OSI-Layers at which the following devices function :

(i) HUB

(ii) Router

(iii) Layer 2 Switch

(iv) Bridge

(c) Explain four features of VLAN.

(d) Discuss Issues in network layer (any two).

3. Attempt any THREE of the following : 3 × 4 = 12

(a) Name the layers in TCP/IP model and write name of one protocol at each layer.

(b) Explain IEEE 802.11 W-LAN architecture.

(c) Draw IEEE 802.16 protocol stack and explain MAC layer.

(d) Compare VLAN and VPN on the basis of

(i) Type of service

(ii) Purpose

(iii) Security

(iv) Efficiency

4. Attempt any THREE of the following : 3 × 4 = 12

(a) Explain the purpose of using LDAP over SSL in Directory Access protocol.

(b) Compare 802.11 and 802.16 on the basis of

(i) Standard

(ii) Frequency band

(iii) Bandwidth

(iv) Area covered

(c) Explain the three goals of security.

(d) Explain the components of SNMP.

(e) Give class and subnet address for the following IP address :

(i) 10.145.14.68

(ii) 192.168.10.1

(iii) 221.45.14.68

(iv) 245.32.14.24

5. Attempt any TWO of the following : **2 × 6 = 12**

(a) Compare IPv4 and IPv6 on the basis of

(i) Address length

(ii) Header size

(iii) Address representation

(iv) Fragmentation

(v) Encryption/Authentication

(vi) Checksum field

(b) List any four types of physical topology and explain any one topology with two advantages and disadvantages.

(c) Explain link state routing with suitable example.

6. Attempt any TWO of the following : **2 × 6 = 12**

(a) Differentiate between Routing Information Protocol (RIP) and Open Shortest Path First (OSPF) Protocol (6 points).

(b) Explain VLAN Trunking Protocol.

(c) Explain the following process of transition from IPv4 to IPv6 for a network :

(i) Dual stack

(ii) Tunneling

(iii) Header Translation