

Advance Computer Network (315321)

MSBTE Diploma · K-Scheme · Model Question Paper — Set A

Time: 3 Hours**Max. Marks: 70****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 the examination hall.

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

- a) State any four roles of ICANN.
- b) Define routing table. List any two fields of a routing table.
- c) State any four applications of UDP.
- d) Define domain name space in DNS. Give any two examples of generic domains.
- e) State the need of Voice over IP (VoIP).
- f) Why is fragmentation needed in IPv4? Name the header fields used for fragmentation.
- g) State any two differences between connectionless and connection-oriented services.

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

- a) Explain the ARP address mapping process with a neat diagram.
- b) Explain distance vector routing. Find the final routing table of router A for the network given below (links: A–B = 4, A–C = 2, B–C = 1, B–D = 5, C–D = 8).
- c) Explain any four features of Stream Control Transmission Protocol (SCTP).
- d) Explain the working of POP3 with a neat diagram.

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

- a) Draw and explain the UDP header format.
- b) Differentiate between open-loop and closed-loop congestion control. (Any four points)
- c) Describe the RIPv2 message format with a neat diagram.
- d) Explain TCP connection establishment using three-way handshake with a neat diagram.

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

- a) Differentiate between IPv4 and IPv6. (Any four points)
- b) Explain static, dynamic and active web documents.
- c) Describe the evolution of wireless networks from 3G to 4G to 5G.
- d) Explain the architecture of Network Function Virtualization (NFV) with a neat diagram.
- e) Explain the security parameters carried in a PGP message and the algorithms used by PGP.

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

- a) Draw the IPv4 header format and describe the following fields: i) VER and HLEN ii) Total length iii) Flags and fragment offset iv) TTL v) Protocol vi) Header checksum.
- b) Explain Software Defined Networking (SDN) with respect to: i) Architecture ii) Working iii) Applications.
- c) Explain OSPF with respect to: i) Types of links ii) Graphical representation of an autonomous system iii) Any four features.

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

- a) An organization is granted the block 200.15.30.0/24. It needs 4 subnets of equal size. Find: i) Class and default mask ii) Number of bits borrowed and new subnet mask iii) Number of usable hosts per subnet iv) Network address, first host, last host and broadcast address of each subnet.
- b) Explain ICMP error-reporting messages with respect to: i) Any four types and their purpose ii) A suitable example with IP addresses.
- c) Explain FTP with respect to: i) Control and data connections (with diagram) ii) Transmission modes iii) Anonymous FTP.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in