

Advance Computer Network (315321)

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

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) Find the class and default subnet mask of the following IP addresses: i) 10.45.6.7 ii) 172.16.5.9 iii) 192.168.1.5 iv) 224.0.0.5
- b) State any two differences between distance vector routing and link state routing.
- c) State the role of ISPs in the structure of the Internet.
- d) State any two differences between SCTP and TCP.
- e) Define TELNET. State its use.
- f) State any two differences between SDN and NFV.
- g) State any two advantages and any two disadvantages of FTP.

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

- a) Explain any four characteristics of RIP. State the purpose of RIP timers.
- b) Explain multiplexing and demultiplexing in process-to-process delivery with a neat diagram.
- c) Explain the working of SMTP with a neat diagram.
- d) An IPv4 datagram of total length 4000 bytes (header 20 bytes, no options) has to pass through a network with MTU = 1500 bytes. Find the number of fragments and, for each fragment, the total length, fragment offset and value of the M (more fragments) flag.

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

- a) The UDP header of a datagram in hexadecimal is CB84 000D 001C 001C. Find:
i) Source port ii) Destination port iii) Total length iv) Length of data v) Whether the packet is from client to server or server to client vi) The client process.
- b) Explain link state routing. Find the shortest path tree for router A using Dijkstra's algorithm for the network: A–B = 2, A–C = 5, B–C = 2, B–D = 6, C–

$D = 1$, $C-E = 4$, $D-E = 2$.

- c) Explain the ICMP message format. Classify ICMP messages with examples.
- d) Explain remote desktop with a neat diagram. State any two advantages.

Q.4 Attempt any THREE of the following:

12

- a) Explain ARP and RARP with neat diagrams.
- b) Explain open-loop and closed-loop congestion control methods. (Any three of each)
- c) Explain the services provided by PGP. State the use of key rings in PGP.
- d) Explain 5G technology with its features and applications.
- e) Explain RTP with its header format and state its role in streaming.

Q.5 Attempt any TWO of the following:

12

- a) Describe TCP and UDP with respect to their features. Compare TCP and UDP. (Any six points)
- b) Explain Network Function Virtualization (NFV) with respect to: i) Architecture ii) Benefits iii) Applications.
- c) With a neat diagram explain the architecture of WWW. Explain an HTTP transaction.

Q.6 Attempt any TWO of the following:

12

- a) A network 192.168.50.0/24 has to be divided into at least 6 subnets. Find: i) Number of bits borrowed ii) Subnet mask iii) Number of usable hosts per subnet iv) Network address, first host, last host and broadcast address of all subnets.
- b) Explain BGP with respect to: i) Path vector routing ii) Types of BGP sessions iii) BGP message types.
- c) Explain Voice over IP (VoIP) with respect to: i) How VoIP works ii) Protocols used iii) Services.

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