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BCA–14

BCA Vth Semester
Examination Dec., 2023

DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 2 Hours]   [**Max. Marks :** 70

Note **:–** This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given there in. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

(Long Answer Type Questions)   2×19=38

Note **:–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Answer the following :

   (a) Explain the design issues of the OSI model. Discuss the functions of each layer in the OSI model. (9)

   (b) Compare the ISO-OSI Reference Model with the TCP/IP Reference Model. Highlight the functions of each layer in both models. (10)

2. Answer the Following :

   (a) Discuss various terminology used in Computer Networks. Explain the differences between Connection-Oriented and Connectionless Services. (10)

   (b) Discuss the role of Domain Name System (DNS) in translating domain names to IP addresses. How does DNS contribute to the usability of the internet ? (9)

3. Answer the following :

   (a) Explain the Internet Addressing System, including IP Address, DNS, and URL. (10)

   (b) Explore the concept of Internet Service Providers (ISPs). Explain their role in providing internet connectivity. (9)

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4. Answer the following :

   (a) What is Bluetooth ? Explain different layers of Bluetooth. (10)

   (b) What is the difference between synchronous and asynchronous communication ? (9)

5. Answer the following :

   (a) What is Network Interface Card (NIC) ? (3)

   (b) Define Network Adapters. (3)

   (c) What are the various Components of NIC ? (6)

   (d) What are the Functions of NIC ? (4)

   (e) List and explain various types of NIC. (3)

Section–B

(Short Answer Type Questions)   4×8=32

Note **:–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What are the essential elements of network architecture ? Explain.

2. Explain Guided Media (Wired) with a focus on Coaxial Cable. Discuss its physical structure, Standards Connectors application and advantages.

3. Discuss the role of Network Security Devices, including Firewalls and Proxy Servers, in ensuring the security of computer networks.

4. Explain the functions of repeaters, bridges, and switches. Discuss the role of gateways and network security devices such as firewalls and proxy servers.

5. Explain the role of Network Interface Card (NIC) and its components. Discuss the functions and types of NIC.

6. Discuss the role of protocols in computer networks. Explain the importance of standardization in network communication.

7. Explain the purpose of IP addresses in the internet addressing system. Discuss the difference between IPv4 and IPv6.

8. Explain the concept of search engines and their role in information retrieval on the internet.

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