

A-809

Total Pages : 5

Roll No.

BCA-14

Bachelor of Computer Application (BCA)

(Data Communication and Computer Networks)

5th Semester Examination, 2024 (June)

Time : 2:00 Hrs.

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 therein. *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 model. Highlight the advantages and disadvantages of each. (10)

2. Answer the following :
 - (a) Discuss the significance of network security devices, such as firewalls and proxy servers. Explain their roles in ensuring network security. (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) Discuss the functions of web servers in the World Wide Web. Explain how they handle requests from web browsers and deliver web content to users ? (10)

(b) Explore the features and functions of web browsers. Discuss the evolution of web browsers and their role in enhancing the user experience on the internet. (9)

4. Answer the following :

(a) Provide an overview of Bluetooth technology. Explain its purpose, and discuss the key features that make it suitable for short-range wireless communication. (10)

(b) Define and explain the concept of a Piconet in Bluetooth communication. Discuss the role of the master and slave devices within a Piconet. (9)

5. Answer the following :

(a) Explain the concept of unguided media in wireless communication. Discuss the key characteristics that differentiate unguided media from guided media. (9)

(b) Discuss the different propagation methods in wireless communication, including ground wave, sky wave, and line-of-sight propagation. Explain how each method influences signal transmission. (10)

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. Define a computer network. Discuss the goals and structure of computer networks. Provide examples of broadcast and point-to-point networks.
2. Differentiate between LAN, MAN, and WAN. Compare and contrast server-based LANs with peer-to-peer LANs.
3. Describe the physical structure, standards, and applications of coaxial cables. Explain the differences between twisted pair cables (UTP Vs. STP) and their applications.
5. Explain the functions of repeaters, bridges, and switches. Discuss the role of gateways and network security devices such as firewalls and proxy servers.
6. Answer the following :
 - (a) Discuss the growth and architecture of the internet. Explain the concept of Internet Service Providers (ISPs) and the Internet Addressing System (IP Address, DNS, URL). (5)

- (b) Provide an overview of the World Wide Web (WWW), including web servers, web browsers, and search engines. Explain the concept of intranet and extranet. (5)
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.
