B.C.A. (Part–II) Semester–IV (CBCS) Examination

4 BCA 1

DATA COMMUNICATION AND NETWORKING

Time : Three Hours] [Maximum Marks : 80

Note :— (1) All questions are compulsory.

(2) Assume suitable data wherever necessary.

(3) Illustrate your answers with the help of neat sketches wherever necessary.

1. (A) Select correct alternative : 10

(1) What are the two main modes of data transmission ?

(a) Serial and Asynchronous (b) Parallel and Serial

(c) Synchronous and Isochronous (d) Guided and Unguided

(2) Which modulation technique involves changing the amplitude of a signal ?

(a) Frequency Modulation (b) Amplitude Modulation

(c) Phase Shift Modulation (d) Code Division Multiplexing

(3) Which model describes the interaction between a client and a server in network communication ?

(a) TCP/IP Model (b) OSI Model

(c) Client Server Model (d) Application Layer Model

(4) What is the role of DNS in network communication ?

(a) Error Correction (b) Address Resolution

(c) Data Compression (d) Flow Control

(5) Which transport layer protocol provides connectionless communication ?

(a) TCP (b) UDP

(c) ICMP (d) IP

(6) What is the primary function of flow control in networking ?

(a) Error Detection (b) Congestion control

(c) Reliable Data Transfer (d) Multiplexing

(7) Which network service model can be either Datagram or Virtual Circuit ?

(a) Hierarchical Routing (b) Internet Protocol

(c) OSI Model (d) Classful Routing

(8) What is the purpose of DHCP in networking ?

(a) Dynamic Host Configuration Protocol

(b) Domain Host Configuration Protocol

(c) Data Handling Control Protocol

(d) Datagram Host Configuration Protocol

(9) What is the main purpose of the Data Link Layer ?

(a) Routing (b) Error Detection and Correction

(c) Multiplexing (d) Flow Control

(10) Which protocol is used to resolve MAC addresses to IP addresses in a LAN ?

(a) DNS (b) ARP

(c) ICMP (d) DHCP

(B) Fill in the blanks : 5

(1) _____ modulation involves changing the amplitude of a signal.

(2) The _____ model describes the interaction between a client and a server in network communication.

(3) Flow control is crucial for preventing _____ during data transmission.

(4) _____ is a routing algorithm that uses the distance vector approach.

(5) In LANs, ARP resolves _____ addresses to IP addresses.

(C) Answer in **one** sentence : 5

(1) What is data communication ?

(2) SMTP stands for ?

(3) What is congestion control ?

(4) What is meant by protocol ?

(5) What is Hub ?

2. (A) Define and differentiate between parallel and serial data transmission. 8

(B) Briefly explain the advantages of using guided and unguided transmission media. 4

OR

3. (A) Explain the OSI layered architecture and its services. 8

(B) Describe the characteristics and services of TCP/IP layered architecture. 4

4. (A) Explain the client server model in detail. 8

(B) What is the socket interface in networking ? Explain. 4

OR

5.	(A)	Explain in detail the different types of HTTP connections.	8
	(B)	Explain the essential FTP commands.	4
6.	(A)	Describe in detail transport layer services and principles.	8
	(B)	What is connectionless transport, and how does UDP operate ?	4

OR

7.	(A)	Describe the principles of reliable data transfer (RDT).	8
	(B)	Write a note on GBN protocol.	4
8.	(A)	What is the network layer, and what are its primary functions ?	8
	(B)	Explain the principles of routing in data communication in brief.	4

OR

9.	(A)	Explain the concept of Internet Protocol (IP) addressing.	8
	(B)	Explain the role and services of DHCP in networking in brief.	4
10.	(A)	Define the Data Link Layer and explain its key services.	8
	(B)	Describe multiple access protocols commonly used in LANs.	4

OR

11.	(A)	Describe in detail Ethernet technology.	8
	(B)	Explain the following terms :	4
		(i) Hubs	
		(ii) Bridges.	