

BCA/D-21

1233

FUNDAMENTALS OF COMPUTER SCIENCE

Paper-BCA-CTIS-101

Time : Three Hours]

[Maximum Marks : 60

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

Compulsory Question

1. Prove the following theorem using postulates of Boolean algebra : $a + (\bar{a}.b) = a + b$. Also find its dual & prove it. (3)
 - (b) Discuss various characteristics of a good algorithm. (3)
 - (c) What is flash memory? (3)
 - (d) What is an IP address? Discuss. (3)

UNIT-I

2.
 - (a) Briefly discuss various generations of computers. (8)
 - (b) List and explain some important characteristics of a computer. (4)
3.
 - (a) Show that a positive-logic AND gate is a negative-logic OR gate and vice-versa. (6)
 - (b) Convert $(11110001001001.10101)_2$ to its octal, hexadecimal and decimal equivalent. (6)

UNIT-II

4. What are various techniques of problem solving? Also explain various types of program errors. (12)

5. (a) Explain the importance of decision tables in programming. What are the limitations of these tables? (6)
- (b) Write the guidelines that a programmer must follow while drawing a flowchart. Also write advantages and limitations of flowcharting. (6)

UNIT-III

6. (a) What is a WORM disk? What limitation of a CD-ROM disk does it overcome? What limitation it still has? (6)
- (b) What is a magnetic tape drive? Describe the main components and basic operation mechanism of a half-inch magnetictape reel drive. (6)
7. (a) What is a joystick? How it is different from a trackball? Write some uses of a joystick. (6)
- (b) What is a plotter? Differentiate between Drum and Flatbed plotters. (6)

UNIT-IV

8. (a) What are various applications of internet? Discuss. (6)
- (b) Discuss the followings :
(i) Search Engines.
(ii) World Wide Web. (6)
9. (a) What are the advantages and disadvantages of E-Mail? (6)
- (b) Define computer network. Also discuss various types of computer networks. (6)