

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)

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- (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

5. (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 magnetic tape reel drive. (6)
6. (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

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