

Roll No. ....

Total Pages : 3

MCA/DX

5516(R)

COMPUTER FUNDAMENTALS AND  
PROBLEM SOLVING USING C

Paper : MCA-101

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt five questions in all. Question No. 1 is compulsory.  
Attempt four more questions selecting one question from each unit.

(Compulsory Question)

1. Answer each part of Question Number 1 in less than 30 words.
  - (i) What is the Associativity of operators ? Discuss it using assignment operator.
  - (ii) Discuss the scope, storage and lifetime of Register storage class.
  - (iii) What is returned by printf function ?
  - (iv) What is a String ? What is the difference between a string and array of character ?
  - (v) Draw the block diagram of a computer.
  - (vi) Draw the table showing the hierarchy and associativity of arithmetic operators in C.
  - (vii) What is the difference between getch() and getche() functions ?
  - (viii) Differentiate between Write and Append mode to open a file.

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UNIT-I

2. Differentiate between the following :
  - (a) Syntax error and Logical error. 4
  - (b) Top-down and Bottom-up programming. 6
  - (c) Software and Firmware. 4
3. (a) What do you understand by "Single entry and Single exit" constructs ? What are the advantages of using them ? Explain. 7  
(b) What is a Bug ? What are the different approaches to locate a bug in the program ? Explain. 7

UNIT-II

4. (a) What are the logical operators in C language ? What do you understand by short circuit operations ? Explain using suitable examples. 7  
(b) Write a program in C to find whether two given integers are equal or not without using relational operators. 7
5. (a) What are the different data types in C language ? What do you understand by data type mismatch and type conversion in expression ? Explain the implicit type conversion and explicit type casting operation in C language using suitable examples. 7  
(b) Write a program in C to perform insertion sort on an array of integers. 7

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### UNIT-III

6. (a) What do you understand by Static storage class ?  
Using a suitable example justify the use of static variable. 7
- (b) What do you understand by Recursion ? Write a recursive function to generate the Fibonacci series. 7
7. (a) Differentiate between while and do-while loop using suitable examples. 7
- (b) Discuss the syntax of Switch statement and write a program in C using switch statement that will read an integer in the range 1 to 12 and print the corresponding month of the year. 7

### UNIT-IV

8. (a) What is an Array ? What are its characteristic features ?  
Write a function in C to compute the transpose of a matrix. 7
- (b) What do you understand by Dynamic memory allocation ? Discuss the library functions available in C, used in dynamic memory allocation. 7
9. (a) What is the difference between Structure and Union ?  
Explain using suitable example. 7
- (b) What is pointer ? Discuss the use of arithmetic operators on pointers using suitable examples. 7