30/12/11

Roll No. ..... Total No. of Pages : 3

MCA/D11 4516

Computer Fundamentals and Problem Solving Using 'C'

Paper : MCA–101

Time : Three Hours] [Maximum Marks : 80

Note :– Question No. **1** is compulsory. In addition, attempt **FOUR** more questions, selecting exactly **ONE** question from each Unit.

(Compulsory Question)

1. (a) Differentiate between hardware, software and firmware.
   (b) Differentiate between top-down and bottom-up approach.
   (c) Write the structure of a 'C' program.
   (d) Write the rules for naming the identifier.
   (e) Write a typical program segment where use of goto is necessary in 'C'.
   (f) Write a recursive function to find factorial of a number.
   (g) Discuss various ways to pass an array to a function.
   (h) Find the bug/s in the following program :

```
void main ()
{
    FILE*fp;
    char text[30];
    clrscr ();
    fp=fopen("text.txt","w");
    clrscr();
```

```
puts("\n Enter Text Here');
gets(text;)
fprintf("%s",text);
}
```

8×3=24

UNIT–I

2. (a) Explain working of computer with the help of a labelled block diagram. 7

   (b) What is a flowchart ? What are its uses ? Draw a flowchart to convert an integer decimal number into a binary number. 7

3. How can you plan, create and implement a program ? Explain all the activities alongwith tool and techniques used while creating a program. Use suitable examples. 14

UNIT–II

4. (a) Write down the algorithm for binary search and explain suitable example. 7

   (b) Discuss various data types in 'C' in detail. 7

5. Draw a table of various operators alongwith their hierarchy and associativity. Explain each operator in brief with suitable examples. 14

UNIT–III

6. (a) Explain various I/O statements in 'C' with the help of appropriate examples. 7

   (b) Write a program in 'C' to generate first n prime numbers. 7

7. (a) Explain various storage classes with the help of appropriate examples. 10

(b) Discuss various ways to pass arguments to functions. 4

UNIT–IV

8. (a) Write a program in 'C' to replace a pattern with another pattern in a given text. 7

(b) Which operations are possible with pointers ? Explain each with examples. 7

9. (a) Differentiate between arrays, structures and union. 6

(b) Write a program to read the text file containing some sentence. Use fseek() and read the text after skipping n characters from beginning of the file. 8