

2012

**INTRODUCTION TO PROGRAMMING**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :  
10X1 = 10
- i) C is a
    - a) middle level language
    - b) high-level language
    - c) low-level language
    - d) none of these.
  - ii) A do-while loop is useful when we want that the statements within the loop must be executed
    - a) only once      b) at least once
    - c) more than once   d) none of these.
  - iii) Every C function
    - a) by default return an integer value
    - b) by default return more than one integer value
    - c) by default return an floating costant
    - d) none of these.
  - iv) An array is a collection of
    - a) different data types scattered through memory

- b) the same data type scattered throughout the memory
  - c) the same data type placed next to each other in memory
  - d) different data types placed next to each other in memory.
- v) When you pass an array as an argument to a function, what actually gets passed
- a) address of the array
  - b) value of the elements of the array
  - c) address of the first element of the array
  - d) number of elements of the array.
- vi) What is a preprocessor directive ?
- a) A message from compiler to the programmer
  - b) A message from compiler to the linker
  - c) A message from programmer to the preprocessor
  - d) A Message from programmer to the microprocessor.
- vii) A header file is
- a) a file that contains standard library functions
  - b) a file that contains definitions & macros
  - c) a file that contains user defined functions
  - d) a file that is present in current working directory.
- viii) The break statement is used to exit from
- a) an if statement
  - b) a for loop
  - c) a program
  - d) the main () function.

ix) Which function would you use if a single key is to be received through the keyboard ?

- a) scanf()                      b) gets()  
c) getch()                      d) getchar().

x) If  $p$  &  $q$  are two pointer variables, then which of the following statements are true

- a)  $*p + *q$                       b)  $*p / *q$   
c)  $*p + 10$                       d) none of these.

xi) What is the output of the following programs ?

```
main()
{
    int i = 1;
    printf("%d%d%d", i, ++i, i++);
}
```

- a) 1 3 3                      b) 3 2 2  
c) 3 1 1                      d) 3 3 1.

### GROUP – B

#### ( Short Answer Type Questions )

Answer any *three* of the following.

3X 5 = 15

2. Describe the different symbols used in a flowchart with a suitable example. What do you mean by debugging of a program ?

4 + 1

3. Briefly describe the different loop control structures in 'C' with syntax, example and explanation.

4. What are the advantages of using functions in 'C' programming ? What is the difference between user defined functions & library functions ? What is recursion in programming ? What advantage is there in its use ?

2 + 1 + 1 + 1

5. What is dynamic memory allocation ? Why a linked list is called a dynamic data structure ? What are the advantages of using linked lists over arrays ?

1 + 2 + 2

6. What is structure ? How is a structure member accessed ?  
What is an array of structures described with an example ?

1 + 1 + 3

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.

3X15 = 45

7. Explain the difference between 'call by reference' and 'call by value'. What is the difference between global & local variable. Write a recursive function for GCD calculation.
- 5 + 3 + 7
8. What do you mean by storage classes in 'C' ? Name different storage classes and explain each with examples. Write a 'C' program that implements the matrix multiplication using 2-D array.
- 2 + 6 + 7
9. What is linked list ? What are the advantages of switch case ? Describe different types of data types. Write a 'C' program to calculate factorial of a number.
- 2 + 2 + 6 + 5
10. What is union ? How does a union differ from a structure ? How a union member accessed ? Write a 'C' program that implements a structure person that would contain person name, data\_of\_joining & salary.
- 2 + 3 + 2 + 8
11. Write short notes on any *three* of the following :
- 3X 5
- a) Preprocessor directives
  - b) strcpy() and strcmp () function
  - c) Automatic and static variables
  - d) getch() and getchar() function
  - e) Actual & formal arguments.

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