

Attempt **FIVE** Questions in all. **Section-A** is **Compulsory**. Attempt **TWO** Questions from **Section-B** and **TWO** Questions from **Section-C**. Give Answer of **Objective Part** in your answer books.

Section-A (Objective Part)

1- Encircle the right option among the given options for each question:

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- i) Which of the following symbol is used for making decision in the flowchart?
 - a) Oval Shape
 - b) Parallelogram
 - c) Diamond Shape
 - d) Rectangle Shape
- ii) A normal C++ operator that acts in special ways on newly defined data types is said to be
 - a) Glorified
 - b) Encapsulated
 - c) Classified
 - d) Over loaded
- iii) Which of the following shortcut keys is used to compile and run the program in Turbo C++ environment?
 - a) Alt+F9
 - b) Alt+F5
 - c) Ctrl+F9
 - d) Ctrl+F5
- iv) The unique names used in the program are called:
 - a) Keywords
 - b) Identifiers
 - c) Tokens
 - d) Labels
- v) What would be the value of x if $y = 10$ and $z = 4$?


```
Switch (y - z) {
  Case 8 : x = y + z ; break;
  Case 9 : x = y ; break;
  Case 10 : x = z ; break;
  Default : x = y*2;
```

 - a) 42
 - b) 20
 - c) 35
 - d) 14
- vi) What is output of the following code?


```
int n = 4 ;
do{
  n = n * 3;
} while (n<=100);
```

 - a) 108
 - b) 110
 - c) 107
 - d) 100
- vii) The index of first element of an array is always
 - a) 1
 - b) 0
 - c) 4
 - d) 2
- viii) The individual structure members are accessed:
 - a) by using dot operator
 - b) by using arrow member selection operator
 - c) by using scope resolution operator
 - d) by using its index value
- ix) Which of the member functions has no arguments and also has no return data type?
 - a) Constructor
 - b) Destructor
 - c) Friend Function
 - d) Inline Function
- x) The ability of a class to derive properties from a previously defined class is:
 - a) Encapsulation
 - b) Inheritance
 - c) Polymorphism
 - d) Information Hiding

Section-B

2- a) What is Data Type? Discuss different data types used in C++.

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- b) Write a program that will prompt the user to enter the current rates of electricity, gas and petrol per unit. Give each item's rate an increment of 15%. Compute and display the new prices per unit of electricity, gas and petrol.

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(Continued Overleaf)

- 3- a) Define Function. Discuss its types and advantages with reference to C++. 7
 b) Write a program to generate a Pascal's triangle using function/ any loop structure as follows:

```

      1
    1   1
  1   2   1
1   3   3   1
1  4  6  4  1
  
```

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- 4- a) Differentiate between function overloading and overriding with simple program examples. 8
 b) Write a program to define a structure "Student" that has the following members.
 RollNo, Name, City and Phone.
 Declare the structure variable "std" enter data into it and display on the screen. 7

Section-C

- 5- a) Define Data Structure and its types. Also tell about algorithmic notations. 8
 b) Write an algorithm to print the prime numbers of first N natural numbers. 7
- 6- a) What is meant by "RECURSION"? How recursive procedure is implemented by Stacks?
 Also give conditions for recursive procedures. 7
 b) Write an algorithm to create a linked list consisting of ten nodes and enter values into the list items. 8
- 7- a) Define Binary Search Tree and construct a binary search tree having the following values 7
 16, 19, 15, 9, 8, 66, 12, 61
 b) Write an algorithm to sort an array A having N elements in ascending order using insertion sort method. 8

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