

Time: 3 Hours

**June 2018**

Max. Marks: 100

**PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.**

**NOTE: There are 9 Questions in all.**

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

**Q.1 Choose the correct or the best alternative in the following: (2×10)**

- a. In C++, a function contained within a class is called  
(A) member function (B) an operator  
(C) a class function (D) a method
- b. When a language has the capability to produce new data types, it is said to be  
(A) reprehensible (B) encapsulated  
(C) overload (D) extensible
- c. Dividing a program into functions  
(A) is the key to object-oriented programming  
(B) makes the program easier to conceptualize  
(C) may reduce the size of the program  
(D) makes the program run after
- d. The library function exit () causes an exit from  
(A) the loop in which it occurs (B) the block in which it occurs  
(C) the function in which it occurs (D) the program in which it occurs
- e. Assume m has the value 24 and n has the value 7. Evaluate m% ++n expression  
(A) 3 (B) 4  
(C) 7 (D) 0
- f. Which of the following is a valid identifier?  
(A) cost-in-\$ (B) X930  
(C) -12345 (D) 2<sup>nd</sup> Birthday
- g. The directive required in any program that uses either cin or cout is:  
(A) <iomanip.h> (B) <iostream.h>  
(C) <locale.n> (D) <dialog.n>

- h. Construct a logical expression for score is greater than or equal to go but less than 90  
(A) (<score>=80 && score<90);      (B) score>=score <90;  
(C) 80>=score<90;      (D) 90<score<=900;
- i. Write a declaration for a function that returns a float;  
(A) float f();      (B) float \*f();  
(C) float (\*f)();      (D) float\*(\*f)();
- j. The keyword virtual  
(A) declares a member function that is defined in a subclass  
(B) designates the absence of a type  
(C) declares objects that can be modified outside of program control  
(D) declares a synonym for an existing type

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**Answer any FIVE Questions out of EIGHT Questions.  
Each question carries 16 marks.**

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- Q.2** a. What do you mean by preprocessor and preprocessor directive? (4)  
b. What are the different programming paradigms? (6)  
c. Write a C++ program to read two integers as input and print their sum as output with proper messages before reading and during printing to aid the user. (6)
- Q.3** a. What is the relationship between an array and a pointer? What is the difference? (6)  
b. Illustrate with examples the declaration of multidimensional arrays. (4)  
c. How do you extract members from a pointer to structure? Illustrate with examples. (6)
- Q.4** a. What is the difference between call-by-value and call-by-reference? Illustrate with suitable example. (6)  
b. Illustrate with suitable examples the concepts of function overloading. (4)  
c. What is the difference of static and extern keyword when used for function declaration and variable declaration? (6)
- Q.5** a. Explain about 'this' pointer. What is meant by overriding? Where is it used? Explain with an example. (6)  
b. Explain, how constructor and destructor differ from normal functions? (6)  
c. What do you mean by constructor overloading? Describe with an example. (4)

- Q.6** a. What is operator overloading? Why is it necessary to overload an operator? (4)
- b. How are friend functions used to carry out overloading of operators? In which situation are they helpful? (6)
- c. Write a program to overload an operator. When this operator is used with the object, the program should prompt for inputting a number. (6)
- Q.7** a. What is a virtual member function? What is a pure virtual function? When should you define a member function as virtual? How do you override a virtual member function? (8)
- b. How does C++ perform static typing while supporting dynamic binding? (4)
- c. What is the benefit of inheritance? What does class inheritance mean? (4)
- Q.8** a. What is function template? Write a program to sort using bubble sort with the help of function template. (8)
- b. What do you mean by Template Specialization? (4)
- c. What do you mean by Exception Handling? (4)
- Q.9** a. What is Standard Template Library (STL)? Why should they be used? (6)
- b. Explain IOStream hierarchy with diagram. (6)
- c. What is getline() and write() functions? (4)