DIPIETE – ET/CS (Current & New Scheme)

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. A function that returns no values to the program that calls it is _____.
      (A) type empty   **(B)** type barren
      (C) type void   **(D)** not allowed in C++

    b. Which of the following is a mechanism of static polymorphism?
      (A) Function Overloading   **(B)** Operator Overloading
      (C) Templates   **(D)** All of these

    c. A member function in an object cannot be of _____ type.
      (A) private   **(B)** enemy
      (C) public   **(D)** friend

    d. A class can be _____.
      (A) Derived   **(B)** Recursive
      (C) Nested   **(D)** Self referential

    e. A struct is the same as a class except that
      (A) it does have a *this* pointer
      (B) cannot be used in inheritance hierarchy
      (C) all members are *public*
      (D) there are no member functions

    f. Which of the following declaration correctly defines default parameters?
      (A) int fn(int i=10, char c, float f);
      (B) int fn(int i, char c, float f=12.3);
      (C) void fn(int i, char c='a', float f);
      (D) int fn (int i=10, char c, float f=12.3);

g. Which of the following code segment is an example of multiple inheritance?

(A)
```
class A { ...};
class C : public A
```

(B)
```
class A { ...};
class B : protected A { ... };
class C : public B { ... };
```

(C)
```
class A { ...};
class B { ... };
class C : public A, private B
```

(D)   None of these

h. The operator << is called _____.
   (A) an extraction operator   **(B)** an insertion operator
   (C) Both **(A)** and **(B)**   **(D)** None of these

i. Which of the following is a valid syntax for default parameters?
   (A) int fn(int a, int b, int c=3)   **(B)** int fn (int a=1, int b, int c=3)
   (C) int fn (int a, int b=2, int c)   **(D)** int fn (int a=1, int b, int c)

j. Which of the following identifiers is invalid?
   (A) paper_name   **(B)** writer_name
   (C) type_name   **(D)** print name

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

Q.2 a. Explain the following in C++   **(4+4)**
        (i) data types   (ii) operators

   b. Write a program to display the multiplication table of the number entered by
      the user.   **(8)**

Q.3 a. Define array. Give the syntax for defining an array. With the help of syntax and
        example, explain, how single-dimensional array can be initialized at definition
        time?   **(8)**

   b. What do you mean by structures? Give the syntax for defining a structure.
      Write a program using an array of structure.   **(8)**

Q.4 a. What is Inline function? What are advantages and disadvantages of using Inline
        function? Write an Inline function in C++ that returns maximum of two
        numbers.   **(8)**

   b. Explain the concept of a class in object-oriented paradigm. How does it
      accomplish data hiding?   **(8)**

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Q.5 a. What is operator overloading? Write a program to demonstrate the use of overloading of addition operator. **(8)**

b. Write a program to demonstrate overloading of assignment operator. **(8)**

Q.6 a. What is multiple level inheritance? What will be the calling sequence for constructors and destructors for the following class definitions: class A{ … }; class B : public A { … }; class C: protected B { … }; **(8)**

b. What do you mean by Inheritance? What are different access modifiers in single inheritance? Differentiate single inheritance and multiple inheritances. **(8)**

Q.7 a. What is Polymorphism? Explain in details various types of Polymorphism. **(8)**

b. What is an exception? How is it handled in C++? What are the advantages of using exception handling mechanism in a program? **(8)**

Q.8 a. What is difference between opening a file with constructor function and with open() function? Explain your answer with a suitable example. **(8)**

b. What is the need of templates? Briefly explain the different types of templates available in C++. **(8)**

Q.9 a. Write short note on **(3×3)**
(i) Standard input and output   (ii) File I/O
(iii) I/O Parameters

b. Write a program to copy contents of file story.txt into newstory.txt **(7)**