Total No. of printed pages = 8

END SEMESTER/RETEST EXAMINATION – 2021

Semester : 5th (Old Course)

Subject Code : CO-505

OBJECT ORIENTED METHODOLOGY

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instruction :

All questions of PART – A are compulsory.

PART – A

Marks – 25

1. Choose the appropriate option : 1×10=10

(i) Which of the following pairs are similar ?

(a) class and object

(b) class and structure

(c) class and union

(d) object and structure

[Turn over

(ii) When a function is defined inside a class, the function is called

(a) Inside function

(b) Class function

(c) Inline function

(d) Interior function

(iii) Which feature of OOP illustrated the code reusability ?

(a) Abstraction (b) Encapsulation

(c) Polymorphism (d) Inheritance

(iv) Which type of constructors do not have a return type ?

(a) Default constructors

(b) Parametric constructors

(c) Copy constructors

(d) Constructors do not have a return type

(v) A static member function can access

(a) both static and non-static member data

(b) static member data only

(c) non-static member data only

(d) neither static member data nor non-static member data

(vi) Regarding a destructor which one of the following is true ?

(a) a destructor helps to create an object

(b) a destructor must have a return data type

(c) a destructor is called by the compiler

(d) a destructor can be overloaded

(vii) Regarding inheritance which one of the following is true ?

(a) Inheritance provides the mechanism to reuse of existing codes

(b) Object of sub-class cannot access the private members of the base class

(c) Parametric constructor of sub-class cannot pass arguments to that of the base class

(d) None of these

(viii) Regarding function overriding which one of the following is true ?

(a) it requires the concept of polymorphism

(b) member function of the base class to be overridden in the sub-class must be declared as a virtual member function

(c) base class constructor can be overridden

(d) overridden member function of the sub-class redefines the functionality

(ix) How run-time polymorphisms are implemented in C++ ?

(a) Using Inheritance

(b) Using Virtual functions

(c) Using Templates

(d) Using Inheritance and Virtual functions

(x) What will be the output of the following code ?

```
{
int a;
a=5+3*6/2;
cout<<a;
}
```


(a) 45 (b) 11

(c) 14 (d) None of these

2. Write down whether the following statements are true or false : 1×5=5

(a) A pointer is a static data structure.

(b) A class is a data type.

(c) Constructors and destructors must be defined in a class by the programmer.

(d) Dynamic data structures are not supported in C++.

(e) Sub-class pointer can points to the object of the base class.

3. Fill in the blanks : 5

(a) A class puts together ——— and ——— as a single entity. 2

(b) ——— members of a class are accessible by the outsider of the class. 1

(c) ——— members of a class are sharable by all the objects of that class. 1

(d) Name of destructor of a class is preceded by ———. 1

4. Answer each of the following questions in a single word/sentence : 1×5=5

(a) Which feature of OOPS focuses on functionality of objects hiding details.

(b) Name the operator used with 'cin'.

(c) Which access specifier blocks the unauthorised access of members of a class ?

(d) What is a friend function ?

(e) What is the name of the parameter used in templating a function or a class ?

PART – B

Marks – 45

Instruction :

PART – B consists of 6 questions each of which carries 9 marks equally. Out of 6 questions answering any 5 (*five*) questions are compulsory.

1. Explain briefly the main features of OOPS. Write a C++ program to overload '+' binary arithmetic operator. 4+5=9

2. What do you mean by data type ? What is the importance of data type in programming ? Discuss about the basic and user defined data types used in C++. 2+2+5=9

3. (a) Discuss about the benefits of inheritance. 3

   (b) Write a C++ program to find the area and circumference of a circle implementing the concept of class and object. 6

4. Differentiate between early binding and late binding. Write a C++ program to realise the concept of pure virtual function. 3+6=9

5. What is a template ? How does this help the programmer in programming ? Write a C++ program to add any two number of any type realising the concept of template function and template class. 2+2+5=9

6. Write short notes on (any *three*) : 3×3=9

   (a) Operator overloading

   (b) Dynamic Memory Allocation

   (c) Scope resolution operator

   (d) Abstract Class.