

2010

PGDCA

Paper : 2.1

( Programming in C++ )

( New Syllabus )

Full Marks : 100

Time : 3 hours

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

1. Choose the correct one amongst the following options : 1×10=10
- (a) Which of the following is not a basic property of object-oriented programming?
- (i) Recursive function
  - (ii) Inheritance
  - (iii) Polymorphism
  - (iv) Abstraction
- (b) In C++, abstraction is achieved by
- (i) object
  - (ii) class
  - (iii) inheritance
  - (iv) None of the above

(c) Private data members of a class are accessed by

- (i) member functions
- (ii) friend functions
- (iii) Both (i) and (ii)
- (iv) None of the above

(d) cin is used to

- (i) input data
- (ii) display data
- (iii) Both (i) and (ii)
- (iv) None of the above

(e) new is a

- (i) function
- (ii) object
- (iii) operator
- (iv) None of the above

(f) Which of the following is not a keyword?

- (i) Class
- (ii) Union
- (iii) Switch
- (iv) Cout

- (g) Maximum number of constructor that can be defined in a class is
- (i) 1
  - (ii) 2
  - (iii) more than one
  - (iv) dependent on the compiler
- (h) Which type of data members cannot be inherited?
- (i) Public
  - (ii) Protected
  - (iii) Private
  - (iv) None of the above
- (i) Which one of the following is a form of polymorphism?
- (i) Function overloading
  - (ii) Operator overloading
  - (iii) Function overriding
  - (iv) All of the above
- (j) Which one of the following operators cannot be overloaded?
- (i) ++
  - (ii) ::
  - (iii) <<
  - (iv) !

2. Fill in the blanks :

1×10=10

- (a) — is returned to the operating system from main function upon the successful completion of a program.
- (b) Object is a — unit.
- (c) Multiple inheritance must have multiple — class.
- (d) Constructor is special — function of a class.
- (e) cout represents the standard — stream in C++.
- (f) Double slash (//) is used to represent — line comments.
- (g) Delete is used to —.
- (h) Protected data members are able to be accessed in —.
- (i) By default a member of a class is —.
- (j) Size of a float type variable is —.

3. Match Column—A with Column—B :  $1 \times 10 = 10$

Column—A

Column—B

- |                        |   |
|------------------------|---|
| (a) Private            | (i) Conditional control                     |
| (b) Class              | (ii) Object                                 |
| (c) Virtual function   | (iii) Protected                             |
| (d) delete             | (iv) &                                      |
| (e) switch             | (v) Operator                                |
| (f) Reference variable | (vi) Basic data type                        |
| (g) typedef            | (vii) Inline function                       |
| (h) cout               | (viii) Cannot be accessed outside the class |
| (i) int                | (ix) OOP property                           |
| (j) Inheritance        | (x) Dynamic binding                         |
|                        | (xi) Define new data type name              |
|                        | (xii) Encapsulation                         |

4. State whether the following statements are True or False :  $1 \times 10 = 10$

- (a) Destructor cannot be overloaded.
- (b) Class and structure are same.
- (c) Constructor does not have any return type.
- (d) C++ is not an object-oriented programming language.
- (e) String and character array are same.

- (f) Scope resolution operator (::) is used to access global variables.
- (g) Sizeof cannot be overloaded.
- (h) While is a loop control.
- (i) exit() is used to exit from a program.
- (j) A recursive function calls itself.

5. (a) Define inheritance. Explain different types of inheritance. 2+5=7
- (b) Explain different basic properties of object-oriented programming language. 5
- (c) What is reference variable? Give example. 5

6. Answer any *three* of the following questions : 3×3=9

(a) Define class and object.

(b) `int a, b, &x = a, &y = b;`  
`a = 10;`  
`b = 20;`  
`cout << x + y;`

What is the output of the above programming statements?

(c) What are the loop controls available in C++?

- (d) What are the ways to access the private members of a class?
- (e) What is string? Write down two string library functions?

7. Answer any *four* of the following questions :

5×4=20

- (a) Write a C++ program to find out the factorial of a number.
- (b) Explain virtual function with an example.
- (c) What is constructor? Explain constructor overloading with an example.
- (d) What is inline function? Write down its advantages.
- (e) What is structure? What are the differences between class and structure?
- (f) What are different types of polymorphism in C++? Explain.
- (g) Write a C++ function where an integer number is passed. Which will check whether the number is prime or not? If the number is prime, then the function will return 1.

8. Answer any *two* of the following questions :

7×2=14

(a) Define a class named 'student' which contains the following data members :

- (i) sname
- (ii) sroll
- (iii) spercentage
- (iv) ssub1
- (v) ssub2
- (vi) ssub3

Here, ssub1, ssub2 and ssub3 are the marks of three subjects.

The class contains a constructor with a student name is passed to it and the name will be initialized to sname.

Write down a member function in the class which will calculate the percentage of a student.

- (b) Write a C++ program to implement bubble sort.
- (c) What is function? Define actual and formal parameters. Explain call by reference with an example.
- (d) Write a C++ program to check whether a string is palindrome or not with class concept.

\*\*\*