2023

INFORMATION TECHNOLOGY

Paper Code : ITBHC3066

(Object-Oriented Programming Using C++)

Full Marks : 60

Pass Marks : 24

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer from the following (any *five*) : 1×5=5

   (a) Cout is a/an

      (i) operator

      (ii) function

      (iii) object

      (iv) macro

(Turn Over)

(b) Which of the following access specifiers is used in a class definition by default?

   (i) Protected

   (ii) Public

   (iii) Private

   (iv) Friend

(c) When do we mention the prototype of a function?

   (i) While defining

   (ii) While declaring

   (iii) While calling

   (iv) None of the above

(d) Which of the following is not a type of constructor?

   (i) Copy constructor

   (ii) Friend constructor

   (iii) Default constructor

   (iv) Parameterized constructor

(e) How many instances of an abstract class can be created?

   (i) 1

   (ii) 5

   (iii) 13

   (iv) 0

(f) Which of the following is not used as a file opening mode?

   (i) ios::binary

   (ii) ios::in

   (iii) ios::ate

   (iv) aios::trunc

(g) Which type of function among the following shows polymorphism?

   (i) Inline function

   (ii) Virtual function

   (iii) Undefined function

   (iv) Class member function

(h) If a = 10, the result of a++/2 * a+a%2=

    (i) 56

    (ii) 0

    (iii) 5

    (iv) 10

(i) Which of the following best defines single-level inheritance?

    (i) A class inheriting a derived class

    (ii) A class inheriting a base class

    (iii) A class inheriting a nested class

    (iv) A class inherited by two classes

(j)
```
#include<iostream.h>
int main()
{int i=2, j;
j=i++;
cout<<++i<<","<<- -j;
```
What is the output of the program?

    (i) 4, 1

    (ii) 1, 4

    (iii) 4, 2

    (iv) 1, 2

2. Answer the following questions in brief (any *five*) :   2×5=10

(a) Write the basic difference between procedural and object-oriented programming.

(b) What is dynamic initialization of a variable? Give an example.

(c) What are static data members of a class? Give example.

(d) Write any two special features of operator overloading.

(e) What is a file pointer?

(f) How do you handle an exception?

(g) What is a class template?

3. Answer the following questions (any *five*) :   5×5=25

(a) Find error (s) (if any) and rewrite the statements given below :
```
int a=2, int b=1;
while (a- - >=b);
{ cout>>b;
  cout>>a;
   if (a=0)
     break; }
```

(b) Explain operator precedence in expressions.

(c) What are type casting and type conversion? Explain with example.

(d) List the characteristics of destructor.

(e) Explain the use of break and continue with an example.

(f) Discuss the working principle of inline function.

(g) Write a C++ program to check whether a number is palindrome or not.

(h) What are call by value and call by reference? Explain briefly.

(i) What are early binding and late binding? Explain briefly.

4. Answer the following questions (any *two*) :

10×2=20

(a) Discuss the implementation of a class and objects of class ITEMS with the following specifications :

item_no : interger

item_desc : 30 characters

item_price : float

(Continued)

total_cost () : a function to calculate *n* no. of items where *n* is passed as argument to a function

inputdata () : a function to read values for data members

showdata () : a function to display all data on the screen.

(b) Explain constructor and destructor by overloading ++ operator (unary operator).

(c) "A pure virtual function does not have a definition in base class, instead, it is intended to be overridden and implemented by derived classes". Justify the statement with an example in C++ program.

(d) Write a C++ program to check the number of vowels, consonants, special characters, spaces, words and total characters (excluding spaces).

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