[6144]-402
B.B.A. (CA)
CA-402 : OBJECT ORIENTED CONCEPTS THROUGH CPP
(2019 Pattern) (Semester - IV)

Time : 2½ Hours]   *[Max. Marks : 70*
Instructions to the candidates:
1) *All question are compulsory.*
2) *Figures to the right indicate full marks.*

Q1) Attempt any eight of the following (out of ten)   **[8 × 2 = 16]**

a) List any four features of OOP's.

b) Define pure virtual function.

c) What is cascading of I/O operator?

d) List the ways to define a constant.

e) What is an abstract class?

f) Define multiple inheritance.

g) Define destructor.

h) What is 'this' pointer?

i) What is Run-Time Polymorphism?

j) Enlist manipulators in C++.

Q2) Attempt any FOUR of the following (out of FIVE)   **[4 × 4 = 16]**

a) Explain function overloading with example.

b) What is inheritance? Explain types of inheritance.

c) Explain static data members and static member functions with example.

d) What is friend function? Write characteristics of friend function.

e) Explain use of any four file opening modes.

P.T.O.

Q3) Attempt any Four of the following (out of FIVE)　　　**[4 × 4 = 16]**

a) Write a C++ program to create a class product which contains data members as pname, price, quantity. Write member functions to accept quantity for n products and accordingly generate and display bill.

b) Design a base class person (name, address, phoneno). Derive a class employee (eno,ename) from person derive a class manager (designation, department, basic-salary) from Employee. Accept all details of 'n' managers and display manager having highest basic salary.

c) Write a C++ program to overload the functions to calculate area of circle, square and rectangle.

d) Write a C++ program to print the following pattern

A

B　C

D　E　F

G　H　I　J

e) Write a C++ program to accept length and width of a rectangle. Calculate and display perimeter of a rectangle by using inline function.

Q4) Attempt any Four of the following (out of Five)　　　**[4 × 4 = 16]**

a) Trace output of following program and explain it. Assume there is no syntax error.

```
# include <iostream.h>
Class Number
{
    Public :    int a, b ;
                static int cnt ;
    Number (int x, int y)
    {
        cout <<"\n constructor called";
        a = x ;
        b = y ;
        cnt ++ ;
```

```
        }
        void display ( )
        {
            cout <<"\n a =" <<a<< "\n b =" <<b;
        }
    }
    int Number : : cnt ;
    void main ( )
    {    Number N1(4, 6), N2(2, 8);
        cout <<"\n Total object created :"
            <<Number : : cnt ;
    }
```

b)   Explain parameterized constructor with the help of suitable example.

c)   Explain virtual base class with example.

d)   Write a C++ program to find maximum of two integer numbers using function template.

e)   Write a program to overload binary plus operator to concatenation of two strings.

Q5) Write a short note on any two of the following.   **[2 × 3 = 6]**

a)   Array of object

b)   Access specifier

c)   Constructor in derived class

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