

Total Pages—5

MCA (II)
PCS 2002

Second Semester Examination, 2004

I OBJECT ORIENTED PROGRAMMING USING C++

Full Marks : 70

Time : 3 hours

Answer Q. No. 1 which is compulsory and
any five from the remaining questions.

The figures in the right hand margin indicate marks.

1. Read the program given in (a) to (g) carefully
and write the output:

```
1.1) #include <iostream.h>
int ctr = 50;
void main ( )
{ register int ctr;
  for (ctr = 1; ctr < 10; ctr++)
    { cout << ::ctr/ctr << endl; }
}
```

(Turn Over)

(2)

```
(b) #include <iostream.h>
int a = 10;
void main ( )
{ cout << a << "\n";
  int a = 20;
  { int a = 30;
    cout << a << "\n";
    cout << ::a << "\n";
  }
  cout << a << "\n";
}
```

```
(c) #include <iostream.h>
void main ( )
{ int a = 1, b = 2, c = 3;
  int &z = a;
  cout << a << b << c << z;
}
```

```
(d) #include <iostream.h>
void swap (int &x, int &y)
{ int t = x; x = y; y = t; }
void main ( )
{ int a = 2, b = 3;
  swap (a, b);
  cout << a << " " << b;
}
```

(3)

```
(e) #include <iostream.h>
void f (char *s = "hello \n")
{ cout << s; }
void main ( )
{ f (); f ("BPUT"); }
```

```
(f) #include <iostream.h>
void main ( )
{ cout << sizeof (long) << "\n" <<
  sizeof (long double); }
```

```
(g) #include <iostream.h>
#define max (a, b) (a > b ? a : b)
void main ( )
{ int x = 5, y = 10;
  int z = max (++x, ++y);
  cout << x << " " << y << " " << z; }
```

(h) Define *class* as an abstract data type.

(i) What are the differences between static and dynamic binding?

(j) Write a C++ program to swap two integer variables without using a third variable.

2 × 10

2. (a) What is object oriented paradigm? What are the advantages of OOP? 5

(b) Write a C++ program to check whether the is a perfect number (number is equal to sum of its factors) 5

3. Write a program in C++ to add two time objects (hr, min, sec) and find the resultant time (day, hr, min, sec). 10

4. (a) Write a C++ program to add two complex numbers using a overloaded + operator. 7

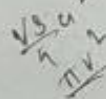
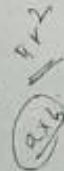
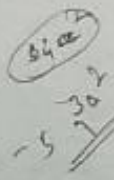
(b) What is a friend function? Specify its characteristics. 1+2

5. (a) What is function overloading? Why it is necessary to overload a function? 1+2

(b) Write a program in C++ to compute the area of a triangle, circle and a rectangle using overloaded functions. 7

6. (a) What is inheritance? Specify its advantages. 1+3

(b) What are the different forms of inheritance? Illustrate with example for each one. 6



7. Write a program to input degree and convert it into radian through two different objects (degree and radian). 10

8. (a) Create a file of student (roll, name) using C++ stream. 5

(b) Display the students of the above-created file and count the number of student records in it. 5

IWL

