

AC-22112

Seat No. _____

P.G.D.C.A. (Sem. II) Examination

April / May – 2003

OBJECT ORIENTED CONCEPTS & PROGRAMMING

Time : Hours]

[Total Marks : 50

NOTE :

- (I) Make suitable assumptions wherever necessary.
- (II) Write neat , clear and to the point answer.
- (III) Answer each section in a separate answer book.

SECTION - I

Q-1 State whether the following statements are True / False. [5]
(A) Give appropriate reasons to justify your answer. (Any 5)

1. Operator functions can have default arguments.
2. Using inline functions reduces execution time but increase program size.
3. We can use function call on the left side of the assignment operator.
4. Constructors can be declared in the protected section of the class.
5. An object of one class can never be a member of another class.
6. The fin.good() call returns a non-zero value when an operation on the file has failed.

Q-2 Answer the following questions in brief (Any 5) [20]

1. What is a file mode ? Describe various file mode options available in C++ ?
2. What does polymorphism mean in C++ ? How is it achieved at
(i) Compile Time and (ii) Run Time
3. What does this pointer points to ? Explain application of this pointer with suitable example.
4. What is a friend function ? What are merits and demerits of using friend functions ?
5. When will you make function inline ? Differentiate inline functions from the preprocessor macro.
6. What are the advantages of using new operator as compared to the function malloc() ?

SECTION - II

Q- Write a complete C++ program. [20]

1. Define two classes Polar and Rectangle to represent points in the polar and rectangle systems. Use conversion routines to convert from one system to the other. You need to use the following trigonometric formulae :

$$\begin{aligned}x &= r * \cos(a) & a &= \text{atan}(y/x) \\ y &= r * \sin(a) & r &= \text{sqrt}(x*x + y*y)\end{aligned}$$

OR

1. Design a class date which sets date of object to dd , mm ,yyyy format. Overload + and – operators for the class date to add given no of days to a particular date object as d1 = d1 + 10 where d1 is set using a constructor to some valid date and to find difference between two given dates. Display the original dates , after addition and the difference. The date objects created should be validated in the constructor itself.
2. Mehnaz publishing company markets both book and audio cassette versions of its work. Create a class publication that stores the title (a string) and price (type float) of a publication. From this class derive two classes : book , which adds a page count (type int) , and tape , which adds playing time in minutes(type float). Write a main program that reads both book and tape information in an array. When the user has finished entering data for all books and tapes , display the resulting data for all the books and tapes entered.

OR

2. Write an interactive menu driven program that can perform the following operations on strings.
(Use overloaded operators where possible. Try to incorporate member functions as well as friend functions)
- (a) Compare two strings for equality (== operator)
 - (b) Check whether first string is smaller than the second (<= operator)
 - (c) Concatenate two strings (+ operators)
 - (d) Extract a character from the string (Overload [])
 - (e) Copy the string to another
 - (f) Reverse the string

Q- Write a function template for a function which sorts the array of size n. [5]

OR

Q- What is inheritance ? Explain different types of inheritance with help of suitable examples. [5]