

Con. 2644-10.

AN-9802

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions from remaining **six** questions.  
 (3) Assume any data if **required** and **state** the assumption.  
 (4) Every program must be **properly** commented.

1. (A) Select the correct answer :-

10

(a) I = 10 ;

do

{

..... do something .....

} while (I < 10) ;

- (i) "do something" will be executed at least once  
 (ii) "do something" will not be executed at all  
 (iii) do-while loop is not a valid loop  
 (iv) None of the above.

(b) Int a = 29, b = 10 ; float c ;

c = (float) (a/b) ;

The correct value of c is

- (i) 2.9  
 (ii) 2  
 (iii) 3  
 (iv) Compiler dependent.

(c) #define square (A) A \* A

a = square (2 + 3)

value of a will be

- (i) 25  
 (ii) 13  
 (iii) 11  
 (iv) 10

(d) Two static variables are declared in one file with the same name. One of them is global, another is local to a function. Then

- (i) Compiler will give syntax error  
 (ii) Local static variable will be ignored  
 (iii) Global variable will be ignored  
 (iv) None of the above.

(e) Int \*P, i[3] ;

i[0] = 0 ; i[1] = 1 ; i[2] = 2 ;

P = &i[1] ;

What is the value of expression \*P++ ?

- (i) 0  
 (ii) 1  
 (iii) 2  
 (iv) undefined.

(B) What is object oriented programming ? How it is different from procedure oriented programming ? Write the difference in two column format. 10

[TURN OVER

2. (a) Write a program in C++ to convert a given integer to binary format. (Use of class is optional) Write output of your program for two different type of inputs. **10**
- (b) What are the different types of inheritance ? Explain each with example. **10**
3. Create a class "matrix". Define member functions for following operations :- **20**
- (a) Reading matrix elements
  - (b) Printing a matrix
  - (c) Addition of two matrices
  - (d) Multiplication of two matrices
  - (e) Transpose of a matrix.

Write main() to create objects of class matrix. Invoke all the above functions in main (). Write the output of your program. The program should have comment statement for every function.

4. (a) Write a program to display following pattern using nested for loops. **10**
- ```

P
P Q
P Q R
P Q R S
P Q R S T
    
```
- (b) Explain storage classes giving example for each class. **10**
5. (a) Write a program to create two base classes B1 and B2, each of which is publicly inherited by derived class D. Use parameterised constructor and a destructor function in each class and demonstrate the order of execution of constructors. **10**
- (b) What is a pointer ? How will you declare and initialize a pointer ? Write a program to swap two integers using pointers and using reference variables. The program should have two different functions. (Use of class is optional). **10**
6. (a) Write a program to find whether a given string is a palindrome or not. **10**
- (b) Write the rules for operator overloading. **5**
- (c) What are the characteristics of a friend function ? **5**
7. Distinguish between the following :- **20**
- (a) Virtual function and Virtual class
  - (b) Overloading and Overriding
  - (c) Data abstraction and data encapsulation
  - (d) ios member functions and manipulators.