

(3 Hours)

[Total Marks : 100]

N. B. : (1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions from the **remaining** questions.

1. (a) Find the output of the following :-

10

- (i)

```
# include < iostream.h >
int main ( )
{
    int a = 8 ;
    cout << "value =" << - a ;
    a = - a ;
    cout << "value =" << - a ;
    return 0 ;
}
```
- (ii)

```
# include < iostream.h >
# include < conio.h >
void main ( )
{
    int a, b, c ;
    a = 21 ; b = 37 ;
    c = a & b ;
    cout << "operand 1 and operand 2" << c ;
}
```
- (iii)

```
# include < stdio.h >
main ( )
{
    char c [2] = "A" ;
    printf ( "\n% c", c[0] ) ;
    printf ( "\n% s", c ) ;
}
```

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(iv) Point out the errors, if any, in the following programs –

```
# include < stdio.h >
main ( )
{
    struct
    {
        char name [25] ;
        int language [10] ;
    } ;
    struct employee e = {"Hacker", "c"} ;
    printf ( "\n% s% d", e.name, e.language ) ;
}
```

(v) Ten float values are to be stored in memory what would you prefer, an array or a structure ?

- (b) Explain scope resolution operator in c++. **5**
- (c) Explain are the benefits of object oriented programming. **5**
2. (a) Explain ternary operators with example. **5**
- (b) Explain the concept of Parameterized constructor. **5**
- (c) Write a program to print the following pattern using control structures – **10**
- ```

A B C D C B A
 A B C B A
 A B A
 A
```
3. (a) Explain pre / post Increment Decrement operator with example. **5**
- (b) What is recursion ? Write a recursive program to find factorial of a given number. **5**
- (c) Write a program to check whether the given string is Palindrome or not. **5**
- (d) What is Union ? Explain it with example ? **5**
4. (a) Write a program to find largest of three numbers using conditional operator. **5**
- (b) Explain operator overloading of binary operator with using friend function. **5**
- (c) Write a program to find area and perimeter of rectangle using pure virtual function. **10**

5. (a) Explain the static storage class. 5  
(b) Write a program to find sum of diagonal elements of matrix. 5  
(c) Write a program to find cube and square of a square using dynamic binding. 5  
(d) Explain the concept of copy constructor. 5
6. (a) Write a program to swap two numbers using pointers. 5  
(b) Define a structure within structure consisting of following elements – 5  
    Employee code  
    Employee name  
    Employee salary  
    Employee date  
    Write a program to read at least 3 records and display them.  
(c) What is an operator function ? Describe the syntat of operator function. 5  
(d) What is virtual function ? What is the need of virtual function ? 5
7. (a) Write a short note on Data abstraction and Data Encapsulation. 5  
(b) Write a c++ program to implement single inheritance. 5  
(c) What are the various visibility specifier ? When do we use the protected visibility specifier to a class member ? 5  
(d) Differentiate between c and c++. 5

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