Time: 3 Hours   Max. Marks: 60

Note: 1. It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.
2. Answer any four questions from Part -2 in detail.
3. Different parts of the same question are to be attempted adjacent to each other.

PART -1

Q1   (a) What is difference between inheritance and containership?   (2)
(b) State Liskov;s Substation Principle.   (2)
(c) Write advantages of inline function over macros.   (2)
(d) Write the program to throw an exception for divide by zero.   (2)
(e) List the special features of object base programming that differ from object oriented (2)
programming.
(f) List the utility of *new* and *delete* operator.   (2)
(g) What do you understand by DRY principle ?   (2)
(h) What would be output of following program fragment   (2)
```
void main ( )
{ rand( ) ; int Guess, High=4;Guess=random(High)+ 50 ;
for(int C=Guess ; C<=55 ; C++)
cout<<C<<"#" ;}
```

(i) What would be output of following program fragment: (2)
```
. void main()
{ char *Text="UNIVERSITY"; int *P, Num[]={1,5,7,9}; P=Num;
cout<<*P<<Text<<<endl; Text++;      P++;
cout<<*P<<Text<<<endl;      }
```

(j) What is utility of Pure virtual function?   (2)

PART -2

Q2   (a) How do structures differ from classes in C++? Can we have the same function name for a (5)
member function of a class and a outside function in same program file? Justify your
answer by taking a program example.
(b) Write the program to overload < and > operator for comparing two length objects.   (5)

Q3   (a) What are templates? Write the program to perform pooch and pop using template class. (5)
(b) Compare and Contrast Object Oriented approach with Procedure oriented approach.   (5)

Q4   Assume emp1. txt and emp2. txt are two files having employee details. Write a   (10)
program to create new file newemp.txt with records which are either in emp1. txt or
emp2.txt or in both. Assume both the files have object of empploee class.

Class: Student

Name
SSN
Department
Phone No
Address

Q5   Write the inheritance hierarchy for class **quadrilateral, trapezoid, parallelogram,** (10)
rectangle and **square**. Use **quadrilateral** as the base class of hierarchy. Make the

hierarchy as deep (i.e many levels) as possible. The private data of quadrilateral should be the *(x,y)* coordinate point of the four end points of quadrilateral. Write the program that initiates and display objects of each of these classes

Q6 Write the different methods of passing an argument to a function. Write the program to add two time objects using call by value method.

Q7 Differentiate between the following:
Compile time polymorphism VS. Run time polymorphism
Multiple and Hybrid Inheritance

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