Ajay Kumar Garg Engineering College, Ghaziabad

Department of CSE

Sessional Test-2

Course: B.Tech | Semester: V
Session: 2017-18 | Section: CS-1,2,3, IT-1,2
Subject: Principles of Programming Language | Sub. Code: NCS-503
Max Marks:50 | Time: 2 hour

Note : Answer **all** the Sections.

Section-A

A. Attempt **all** the parts. **(5 X 2 = 10)**

(1) What do you mean by Type Coercion? Explain with example
(2) Define sequence control. What are its different types.
(3) Mention the components of referencing environment.
(4) What is simple list?
(5) What are the two storage management issues that can arise in data structures.

Section-B

B. Attempt **all** the parts. **(5X 5 = 25)**

(6) What do you mean by virtual origin in an array descriptor? Give the formulas for VO and address of the A[i][j][k] element of the array A[LB_1:UB_1, LB_2:UB_2, LB_3:UB_3] stored in row-major order and having base address as α.
(7) Define Chomsky's hierarchy of grammars. Explain each grammar briefly.
(8) What do you mean by static and dynamic scoping? Give the output of the Program 1 in each case: a) static scoping, and b) dynamic scoping used.

```
int x=10, y=10;
void f()
{
        x=x+1;
        y=y+1;
        printf("%d %d", x, y);
}
void main( )
{
        int x=2, y=3;
        f( );
        printf("%d %d", x, y);
}
```

Program 1

(9) Write the brief note on:
a. public, private and protected access specifiers used in inheritance.
b. Activation Record
(10) What do you mean by call-by-value, call-by-reference and call-by-value-result? What will be the output of the Program 2 in each case, a) call-by-name parameter passing technique b) call-by-value paramenter passing technique.

```
int n;
P(int k)
{
        printf("%d", k);
        n=n+1;
        printf("%d", k);
}
```

```
main()
{
        n=0;
        P(n+10);
}
```

Program 2

Section-C

C. Attempt **all** the parts. (2 X 7.5 = 15)

(11) Discuss about the fundamentals of functional programming language. Write a recursive LISP program having two inputs, an atom and a list, and checks whether the atom is the member of the list or not?

(12) Write the short note on any four:

a. Implementation of Switch case
b. Friend class
c. Individualization
d. Type 2 Grammar
e. Let construct in Functional Programming