Code No: 124DJ **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, December - 2017
PRINCIPLES OF PROGRAMMING LANGUAGES
(Information Technology)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	Define Syntax.	[2]
b)	What is aliasing?	[3]
c)	What is an access function for an array?	[2]
d)	What are the two common problems with pointers?	[3]
e)	What is parameter profile?	[2]
f)	What are actual parameters?	[3]
g)	What do you mean by friend function?	[2]
h)	Why does Java not have destructors?	[3]
i)	Define referential transparency.	[2]
j)	What data types were parts of the original LISP?	[3]

PART-B

(50 Marks)

2.a) What are the three general methods of implementing a programming Language?
b) In What fundamental way do operational semantics and denotational semantics differ? Discuss briefly. [5+5]

OR

3. Write EBNF descriptions for the following:
a) A Java Class definition header statement
b) A C ***switch*** statement. [5+5]

4.a) Give an overview of subscript bindings and array categories.
b) Why reference variables in C++ better than pointers for formal parameters? Explain with an example. [5+5]

OR

5.a) Discuss about various attributes of a variable
b) Give an illustration of 'assignment as an expression' and the disadvantages of the same. [5+5]

6.a) Distinguish between co routines and subprograms.

b) Illustrate with examples static and stack-dynamic local variables. [5+5]

OR

7.a) Consider the following program written in C syntax:

```
void fun (int first, int second)
{
first += first;
second += second;
}
void main()
{
int list[2] = {1, 4};
fun(list[0], list[1]);
}
```

For each of the following parameter-passing methods, what are the values of the list array after execution?

i) Passed by reference

ii) Passed by value-result.

b) What are the design issues for functions? Discuss briefly. [5+5]

8. What are the problems with semaphores for providing competition synchronization? Explain how monitors provide competition synchronization without these problems. [10]

OR

9. What is the difference between checked and unchecked exceptions in Java? Illustrate with an example. [10]

10. Write about the following Functional Languages:

a) HASKELL b) ML. [5+5]

OR

11. Explain the following with respect to Python:

a) Data types

b) Iterative commands

c) Class. [3+3+4]

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