

Code No: 124DJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May - 2019

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) What is a nonprocedural language? [2]
 - b) Define CFG. [3]
 - c) What is a heterogeneous array? [2]
 - d) What is binding? [3]
 - e) What is subprogram Protocol? [2]
 - f) What are formal parameters? [3]
 - g) What do you mean by friend function? [2]
 - h) What is the purpose of C++ constructor? [3]
 - i) What are the applications of functional programming languages? [2]
 - j) What does procedural abstraction mean? [3]

PART-B

- (50 Marks)**
- 2.a) What are the advantages in implementing a language with a pure interpreter? Discuss briefly.
 - b) What is the meaning of the preconditions and post conditions of given statement in axiomatic semantics? Explain. [5+5]

OR

3. Write EBNF descriptions for the following:
 - a) A Java method call statement
 - b) A C *union* definition. [5+5]
- 4.a) Give an overview of iteration statements.
- b) Illustrate with examples what bindings take place at compile time, load time, link time and run time. [5+5]

OR

- 5.a) Explain about the problems associated with pointers.
- b) What are the advantages of user-defined enumeration types? Discuss briefly. [5+5]

6.a) Explain about the choices for referencing environment of parameters that are subprograms.

b) Consider the following program written in C syntax:

```
void swap(int a, int b)
{
    int temp;
    temp = a;
    a = b;
    b = temp;
}
void main()
{
    int value = 4, list[5] = {1, 5, 7, 9, 11};
    swap(value, list[0]);
    swap(list[0], list[1]);
    swap(value, list[value]);
}
```

For each of the following parameter passing-methods, what are all of the values of the variables `value` and `list` after each of the three calls to `swap`?

i) Passed by value

ii) Passed by reference. [5+5]

OR

7.a) What are the advantages and disadvantages of dynamic local variables? Discuss briefly.

b) Illustrate co routines with examples. [5+5]

8. How can an exception handler be written in Java so that it handles any exception? Illustrate with an example. [10]

OR

9.a) Define Abstract Data type? What are the advantages of the two parts of the definition of abstract data type?

b) How is the type system of Java different from that of C++? Illustrate with an example. [5+5]

10. Explain the following with respect to LISP: data types, structures and LISP interpreter. [10]

OR

11. Explain the following with respect to Python:

a) Procedural abstraction

b) Data abstraction. [5+5]

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