

**R18**

Code No: 155CX

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year I Semester Examinations, January - 2025**

**PRINCIPLES OF PROGRAMMING LANGUAGES**

(Common to CSE, IT)

**Time: 3 Hours**

**Max. Marks: 75**

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A**

**(25 Marks)**

- 1.a) Describe the meaning of programs. [2]
- b) Explain various categories of languages. [3]
- c) What is short circuit evaluation? [2]
- d) Write about primitive data types. [3]
- e) Explain the concept of abstraction with examples. [2]
- f) Discuss the importance of blocks. [3]
- g) What is event handling? Explain. [2]
- h) Discuss about Java Threads. [3]
- i) What are the applications of logic programming? [2]
- j) Write about the significance of functional programming languages. [3]

**PART – B**

**(50 Marks)**

- 2.a) Explain the language evaluation criteria and the characteristics that affect them.
- b) Discuss in detail about the attribute grammars with examples. [5+5]

**OR**

- 3.a) Discuss the potential benefits of studying programming language concepts.
- b) What are the formal methods of describing syntax? Explain. [5+5]

- 4.a) Define an array. Explain how to initialize an array? Explain the different types of arrays.
- b) What do you mean by binding? Give examples of some of the bindings and their binding times. [5+5]

**OR**

- 5.a) Define Coercion, Type error, Type checking and Strong Typing. Illustrate them with examples.
- b) Explain the design issues of pointers and reference types. [5+5]

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6.a) What is the need of an activation record in implementing a subprogram? Explain with an example.

b) Write a detailed note on pass-by-name and pass-by-reference parameter passing methods. [5+5]

**OR**

7.a) Explain how subprogram is overloaded? Give examples.

b) Write a detailed note on Parameterized ADTs with examples. [5+5]

8.a) What is a semaphore? Explain its role in concurrency.

b) Discuss about event handling in Java and C#. [5+5]

**OR**

9.a) Explain the exception handling mechanism in Ada and Java and C++ with illustrative example.

b) Discuss the concepts of message passing and monitors. [5+5]

10.a) What are the key concepts of Scripting languages? Discuss.

b) Discuss the basic elements of Prolog and its applications. [5+5]

**OR**

11.a) What are the various storage and control statements available in Python? Discuss.

b) Explain about Procedural and Data abstractions in detail. [6+4]

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