

Code No: 155CX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech III Year I Semester Examinations, January/February - 2023****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) Define syntax and semantics. [2]
- b) What is derivation and a parse tree? Write their significance with examples. [3]
- c) What are the problems with case sensitive names? Explain. [2]
- d) What is the scope and life time of a variable? Explain. [3]
- e) What is a Co-routine? Explain. [2]
- f) What is generic subprogram? [3]
- g) Explain about message passing. [2]
- h) What advantages do monitors have over semaphores? Discuss. [3]
- i) What are the data types supported in Python? [2]
- j) Differentiate between procedural and data abstraction. [3]

PART – B**(50 Marks)**

- 2.a) What are the three general methods of implementing a programming language?
- b) Explain with an example how operator associativity can be incorporated in grammars. [5+5]

OR

- 3.a) The levels of acceptance of any language depend on the language description. Comment on this.
- b) In what fundamental way do operational semantics and denotational semantics differ? [5+5]

- 4.a) What are the design issues for character string types? Discuss.
- b) Describe the process of Array initialization. [5+5]

OR

- 5.a) What are the problems associated with Unconditional Branching? Explain.
- b) Explain the differences between subtypes and derived types. [5+5]

- 6.a) What are the design issues that are involved in functions? Discuss.
b) Explain how subprogram names are passed as parameters. Illustrate with examples. [5+5]

OR

- 7.a) What are the advantages and disadvantages of dynamic type binding? Discuss.
b) Explain how subprogram is overloaded? Give examples. [5+5]

- 8.a) Discuss about concurrency in Functional languages.
b) What is a semaphore? What are the operations on semaphores? [5+5]

OR

- 9.a) Explain in detail about Exception handling in Ada.
b) Write a detailed note on C# threads. [5+5]

- 10.a) What are the differences between Imperative and functional languages? Explain.
b) Explain the Basic primitives of LISP. Give suitable examples. [5+5]

OR

- 11.a) What are the applications of functional languages? Explain.
b) Write a detail note on Scripting languages. [5+5]

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