R18

Code No: 155CX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, July/August - 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)	What are the problem that arise from too much orthogonality?	[2]
b)	Brief about type checking.	[3]
c)	What is a named constant?	[2]
d)	Define precedence and associativity of operators.	[3]
e)	What is overloaded sub program and generic sub program?	[2]
f)	Why are destructors not needed in Java compared with C++?	[3]
g)	Define semaphore.	[2]
h)	What are the constructs used in JAVA for exception handling?	[3]
i)	What is referential transparency?	[2]
j)	How Python provides data abstraction?	[3]

PART – B

(50 Marks)

2.a) Prove that the following grammar is ambiguous:
<S> → <A>
<A> → <A> + <A> | <id>
<id> → a | b | c

b) Explain about readability, writability criteria to evaluate programming languages. [5+5]

OR

3.a) Consider the following grammar:
<S> → <A> a <B> b
<A> → <A> b | b
<B> → b
Check whether the following sentences are generated by this grammar?
i) babb ii) Bbbabb

b) What is hybrid implementation? Explain with a neat flow diagram. How it differs with pure interpreter? [5+5]

4.a) Discuss the design issues of enumerated types.

b) Compare the syntax and working of **"for"** control structure in C and Python language. Give example for each. [5+5]

OR

5.a) Explain the design issues for two-way selectors.

b) What is side effect? What are the solutions to overcome the side effects? [5+5]

6.a) Compare pass-by-value-result and pass-by-reference parameter passing methods.

b) Write a C++ program to implement Queue ADT. [5+5]

OR

7.a) Describe the shallow-access method of implementing dynamic scoping.

b) Compare abstract data types in Objective-C and Java. [5+5]

8.a) How to create thread in Java? Write the statements to create and set priorities to the thread.

b) Discuss in detail about event handling in C++. [5+5]

OR

9.a) How exceptions are handled in Ada? Explain with an example.

b) What is statement level concurrency? Explain in detail. [5+5]

10.a) What is the return value of the following statements?

i) (EQV? 'A 'A)
ii) (EQV? 'A 'B)
iii) (EQV? 3 3)
iv) (EQV? 'A 3)
v) (EQV? 3.4 (+ 3 0.4))
vi) (EQV? 3.0 3)

b) Write a function in LISP to read *n* positive integers and calculate sum and average of the integers. [6+4]

OR

11.a) Write LISP program to concatenate two lists.

b) Write a Python procedure to tabulate the components of a dictionary. [5+5]

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