Q.P Code: CS3112PE

Hall Ticket No.:

NARSIMHA REDDY ENGINEERING COLLEGE
(UGC AUTONOMOUS)

MODEL QUESTION PAPER

III B.Tech I Semester (NR20) Regular Examination, January 2023

PRINCIPLES OF PROGRAMMING LANGUAGE

(COMPUTER SCIENCE ENGINEERING)

Time :3 hours **Maximum marks: 75**

Note:
- This question paper contains two parts A and B
- Part A is compulsory which carries 25 marks (1st 5 sub questions are one from each unit carry 2 Marks each & Next 5 sub questions are one from each unit carry 3 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 sub questions

Part-A **(25 Marks)**
Answer all questions

Q.No		Question	M	CO	BL	PO
1)	a.	Differentiate compiler and interpreter.	2	CO1	L1	PO1
	b.	Define guarded commands?	2	CO2	L4	PO2
	c.	Define local referencing environment	2	CO3	L2	PO2
	d.	Define concurrency	2	CO4	L1	PO1
	e.	List few characteristics of Python language	2	CO5	L1	PO1
	f.	Define Parse trees.	3	CO1	L6	PO2
	g.	Differentiate union and enumeration.	3	CO2	L1	PO5
	h.	Differentiate shallow and deep binding.	3	CO3	L1	PO5
	i.	Define an abstract data type.	3	CO4	L3	PO2
	j.	Give the meaning of scripting language.	3	CO5	L2	PO1

Part-B **(50 Marks)**
Answer any five questions
All Questions carry equal Marks

Q.No		Question	M	CO	BL	PO
		UNIT–I				
2)	a.	Draw and explain the flow chart for compilation process	5	CO1	L6	PO1

	b.	Explain about the preconditions and post conditions of a given statement mean in axiomatic semantics	5	CO1	L5	PO2
OR						
3)	a.	Describe the steps involved in the language evaluation criteria	5	CO1	L5	PO1
	b.	Explain with an example how operator associatively can be incorporated ingrammars?What are the usesofattributegrammar?	5	CO1	L6	PO1
UNIT–II						
4)	a.	Define the following? • Stack Dynamic • Explicit Heap Dynamic • Implicit Heap Dynamic • Static	5	CO2	L4	PO3
	b.	What is aliasing? What are the problems associated with it?	5	CO2	L5	PO1
OR						
5)	a.	What are Type conversions, relational and Boolean expressions?	5	CO2	L6	PO1
	b.	Describe how the pointers used in C and C++ with examples?	5	CO2	L6	PO1
UNIT–III						
6)	a.	Define sub program? What are the categoriesofsubprograms?	5	CO3	L5	PO4
	b.	Discuss the design issues of subprograms?	5	CO3	L5	PO1
OR						
7)	a.	Explainabout coroutines? How co-routines are different from conventionalsubprograms?	5	CO3	L4	PO1
	b.	Differentiate between actual andformalparameters	5	CO3	L3	PO3
UNIT–IV						
8)	a.	Explain the difference Physical and logical concurrency?	5	CO4	L2	PO2
	b.	What are three possible levels of concurrency in programs? Explain?	5	CO4	L4	PO1
OR						
9)	a.	Explain In detail Cooperation synchronization?	5	CO5	L3	PO1
	b.	Explain the following with respect to LISP: data types,	5	CO4	L3	PO1

		structures and LISP interpreter				
UNIT–V						
10)	a.	Explain in detail i) Common Lisp ii) Haskell iii) ML	5	CO5	L5	PO2
	b.	Describe the semantics of COND and LET?	5	CO5	L3	PO1
OR						
11)	a.	Write the comparison of functional and imperative languages?	5	CO5	L4	PO4
	b.	Explain the characteristics of scripting languages	5	CO5	L2	PO5

M – Marks **CO –** Course Outcomes**PO –** Program Outcomes

BL – Bloom's Taxonomy Levels (**L1–**Remembering, **L2–**Understanding, **L3–**Applying, **L4–**Analyzing, **L5–**Evaluating, **L6–**Creating)

Code No: 115AN **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November/December - 2018
PRINCIPLES OF PROGRAMMING LANGUAGES
(Computer Science and Engineering)

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 carries10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Define axiomatic semantics.	[2]
b)	Give an attribute grammar for simple assignment statements.	[3]
c)	What do you mean by precision and range?	[2]
d)	What is aliasing? What are the problems associated with it?	[3]
e)	Differentiate between actual and formal parameters.	[2]
f)	What are the three general characteristics of subprograms?	[3]
g)	Define abstract data type.	[2]
h)	What is the purpose of a C++ destructor?	[3]
i)	How Haskell is different from ML?	[2]
j)	What is procedural abstraction? Give example.	[3]

PART - B

(50 Marks)

2.a) Discuss various programming domains and their associated languages.
b) Describe the basic concept of denotational semantics. [6+4]

OR

3.a) What are the potential benefits of studying programming language concepts?
b) Explain with examples how syntactic design choices affect readability. [5+5]

4.a) What do you mean by binding? Give examples of some of the bindings and theirbinding times.
b) Evaluate the two approaches for supporting dynamic allocation and deallocation fordynamic length strings. [6+4]

OR

5.a) Explain in detail various design issues of character string types.
b) What are dangling pointers and lost heap-dynamic variables? How are they created? [4+6]

6.a) How co-routines are different from conventional subprograms?
b) Explain type checking technique in parameter passing. [5+5]

OR

7.a) What is a subprogram? Discuss the design issues of subprograms.
b) Write a detailed note on local referencing environments. [5+5]

8.a) What are the various methods of exception handling? Discuss.
b) How message passing is implemented in ADA? Give examples. [5+5]

OR

9.a) Explain how information hiding is provided in an ADA package.
b) Discuss about the basic elements of Prolog with examples. [5+5]

10.a) Explain the important functions of LISP.
b) Discuss the key concepts of scripting languages. [5+5]

OR

11.a) What are the three features of Haskell that makes very different from schema?
b) What are the data types supported in Python? Discuss. [5+5]

R13

Code No: 115AN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year I Semester Examinations, November/December - 2017
PRINCIPLES OF PROGRAMMING LANGUAGES
(Computer Science and Engineering)

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)	List the principal phases of compilation.	[2]
b)	Explain the features of denotational semantics.	[3]
c)	Explain about guarded commands.	[2]
d)	Differentiate between user defined and primitive data types with an example.	[3]
e)	Explain about the local referencing environments.	[2]
f)	Explain the design issues for functions.	[3]
g)	Explain the parts of smalltalk class.	[2]
h)	Distinguish between Competitive Synchronization and Cooperation synchronization.	[3]
i)	What is the type inferencing used in ML.	[2]
j)	What are the applications of functional programming languages.	[3]

PART - B

(50 Marks)

2.a) Distinguish between ambiguous grammer and attribute grammar with an example.
b) Construct the parse tree for the simple statement. [5+5]

A := B * (A + C)

OR

3.a) Explain about the preconditions and postconditions of a given statement mean in axiomatic semantics.
b) Describe the important factors influencing the writability of a language. [5+5]

4.a) Describe about the pointers in FORTRAN 90, Ada, pascal with an example.
b) Write the syntax and semantic rule of an attribute grammer for simple assignment statements. [5+5]

OR

5.a) Explain about the control structures with an example.
b) Explain the different types of Union with an example. [5+5]

6. Explain the different parameter passing methods with an example. [10]

OR

7.a) What is an overloaded subprogram explain with an example.
b) What are the characteristics of co-routine feature? List the languages which allow coroutines. [5+5]

8.a) What is semaphore. Explain the different types of semaphores.
b) Explain the design issues of an exception handling system. [5+5]

OR

9.a) Explain about the data abstraction for SIMULA 67.
b) Explain how to handle the exceptions in C++. [5+5]

10.a) Write a function that computes the sum of numbers using vectors in LISP.
b) Explain the different types of data types used in Python. [5+5]

OR

11.a) Explain how to handle exceptions in Java with an example.
b) Explain about the fundamentals of functional programming languages. [5+5]

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Code No: 115AN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech III Year I Semester Examinations, May/June - 2019PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

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)	Explain about the Virtual Machine.	[2]
b)	What are the uses of attribute grammar?	[3]
c)	Explain about the problems in unconditional branching.	[2]
d)	Explain about the enumerated data type.	[3]
e)	What are the characteristics of subprograms?	[2]
f)	Explain about coroutines.	[3]
g)	Why does Java not have a destructors?	[2]
h)	What are the applications of logic programming?	[3]
i)	Describe the scoping rule in ML.	[2]
j)	Explain about the fundamentals of FPL.	[3]

PART - B

(50 Marks)

2.a) Explain about the preconditions and postconditions of a given statement mean inaxiomatic semantics.

b) Describe the steps involved in the language evaluation criteria. [5+5]

OR

3.a) Explain the different categories of languages.

b) Draw and explain the flow chart for compilation process. [5+5]

4.a) Explain about the mixed-mode assignments that are used in Ada and Java Languages.

b) Explain about the type compatibility with an example. [5+5]

OR

5 a)What is type checking? Differntiate between static and dynamic type checking and give their relative advantages.

b) Define an array? Explain how to initialize an array? Explain the different types of arrays. [5+5]

6.a)	Describe about the static and dynamic scope of variables with an example.	
b)	Define sub program. What are the distinct categories of subprograms.	[5+5]
	OR	
7.a)	Explain about the generic subprograms in Ada with an example.	
b)	Explain about the semantic models of parameter passing.	[5+5]
8.a)	Explain about the concurrency in Ada 95.	
b)	Explain the basic elements of prolog.	[5+5]
	OR	
9.a)	Explain how to handle the exceptions in Ada.	
b)	What are the design issues of abstract data types.	[5+5]
10.a)	Explain about the internal representation of two LISP lists.	
b)	Describe the scoping rule in common LISP and Haskell.	[5+5]
	OR	
11.a)	Compare the functional programming languages with imperative languages.	
b)	Write a LISP function Fib(n) that computes nth Fibonacci number.	[5+5]

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