Code No: RT31053 **R13** SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What are the factors influencing the writability of a language?	[4M]
	b)	List the advantages of using control structures in any of the compiled programming languages.	[3M]
	c)	Define Shallow and Deep binding for referencing environment of subprograms that have been passed as parameters.	[4M]
	d)	Describe briefly about Monitors.	[4M]
	e)	Write about Meta Language declaration statements.	[4M]
	f)	What is the relationship between resolution and unification in Prolog?	[3M]

PART -B

2	a)	Compare and contrast between the special purpose and general purpose programming languages.	[4M]
	b)	What is attribute grammar? Give the syntax directed definition for a desktop calculator.	[8M]
	c)	What are the limitations of recursive descent parser?	[4M]
3	a)	Explain the conditional statements and its implementation with examples.	[8M]
	b)	Explain the scope and lifetime of variables. Illustrate when they would coincide and when they don't.	[8M]
4	a)	Define a subprogram.Write the semantics of call and return of a subprogram.	[8M]
	b)	Discuss about nested subprograms with examples.	[8M]
5	a)	How message passing is implemented in Ada? Explain with examples.	[8M]
	b)	What is an event? How the events are handled in various OOP languages.	[8M]
6	a)	Discuss the fundamental concepts of lambda calculus.	[8M]
	b)	Explain about LISP functional programming language.	[8M]
7	a)	Discuss about basic elements of Prolog.	[8M]
	b)	Explain different types of propositions present in logic programming.	[8M]

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Code No: RT31053 **R13** SET - 2

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Describe the approach of using axiomatic semantics to convert the correctness of a given program?	[4M]
	b)	List the advantages and disadvantages of mixed mode arithmetic expressions.	[4M]
	c)	Why is type checking the parameters of a subprogram important?	[3M]
	d)	What is the primary problem with semaphores to provide synchronization?	[4M]
	e)	Write a short note on ML functions.	[4M]
	f)	What are the syntactic form and usage of fact and ruled statements in Prolog?	[3M]

PART -B

2	a)	How do you describe the meanings of programs using dynamic semantics?	[4M]
	b)	Explain in detail about recursive descent parsing.	[8M]
	c)	Give an example of left recursive rule in CFG. What is the significance of left Recursive rule?	[4M]
3	a)	Explain about the following i) associative arrays ii) union types	[8M]
	b)	State whether static binding is more reliable or dynamic binding. Justify.	[8M]
4	a)	Define a function. What are the design issues for functions? Explain.	[8M]
	b)	Explain how subprogram is overloaded? Give examples.	[8M]
5	a)	Compare and contrast the cooperation synchronization and competition synchronization in message passing.	[8M]
	b)	Explain the basic concepts of exception handling.	[8M]
6	a)	How ML is different from other functional programming languages?	[8M]
	b)	Why were imperative features added to most dialects of LISP?	[8M]
7	a)	Explain how RDBMS and expert systems are helped using logic programming.	[8M]
	b)	Discuss Terms and Goal statements in Prolog with examples.	[8M]

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Code No: RT31053 **R13** SET - 3

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define grammar, derivation and a parse tree.	[4M]
	b)	What are the design issues for string types?	[3M]
	c)	What are generic methods?	[4M]
	d)	List out the errors that can occur in expression evaluation.	[4M]
	e)	What is type inferencing used in ML?	[4M]
	f)	Mention the various applications of multi paradigm languages.	[3M]

PART -B

2	a)	Explain language evaluation criteria and the characteristics that affect them.	[8M]
	b)	Discuss the general approaches for the implementation of a Lexical analyzer.	[8M]
3	a)	Explain in detail arrays, indices, subscript bindings, and array categories.	[8M]
	b)	Define unconditional branching. What are the problems with unconditional branching?	[4M]
	c)	Discuss various methods for reclaiming garbage.	[4M]
4	a)	Discuss the design issues of subprogram and its operations performed on them.	[8M]
	b)	Explain how subprogram names are passed as parameters.	[8M]
5	a)	Define a Thread. How are threads different from processes? Explain java threads with examples.	[8M]
	b)	Define monitor. Explain how cooperation synchronization and competition synchronization are implemented using monitors.	[8M]
6	a)	Explain about scheme functional programming language.	[8M]
	b)	Discuss how Haskell differs from ML.	[8M]
7	a)	Correlate the importance of logic programming languages over functional programming languages.	[8M]
	b)	Explain Fact and Rule Statements in Prolog with suitable examples.	[8M]

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Code No: RT31053 **R13** SET - 4

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What are the difficulties in using an attribute grammar to describe all of the syntax and static semantics of a contemporary programming language?	[4M]
	b)	Write a note on Boolean and relational expressions.	[3M]
	c)	State the importance of Local Referencing Environments with suitable examples.	[4M]
	d)	Differentiate between physical and logical concurrency.	[4M]
	e)	What scoping rules are used in ML?	[3M]
	f)	Describe the multi - paradigm languages.	[4M]

PART -B

2	a)	Discuss in detail about the attribute grammars.	[4M]
	b)	Explain how is the order of evaluation of attributes determined for the tree of a given grammar.	[8M]
	c)	Why lexical and syntax analyzer are separated out?	[4M]
3	a)	Discuss the merits of guarded commands.	[3M]
	b)	What is a variable? What are the attributes of a variable? Elaborate on address of a variable.	[8M]
	c)	Explain in detail about overloaded operators.	[5M]
4	a)	Discuss how generic methods are implemented with suitable examples.	[8M]
	b)	Explain the importance of dynamic scoping with an example.	[8M]
5	a)	What are the three possible levels of concurrency in programs? Explain.	[8M]
	b)	Discuss the reasons for using exception handlers in a programming language. What if there exist programming languages with no exception handlers.	[8M]
6	a)	Give comparison of Functional and Imperative Languages.	[8M]
	b)	Explain the control structure of a PROLOG program.	[8M]
7	a)	How PROLOG is different from other logic programming languages? Give an example for each feature.	[8M]
	b)	Explain Prolog interfacing process.	[8M]

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