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S.E. (Computer Engg.) (Second Semester) EXAMINATION, 2017

PRINCIPLES OF PROGRAMMING LANGUAGES (2015 PATTERN)

Time: Two Hours

Maximum Marks: 50

- N.B. := (i) All questions are compulsory.
 - (ii) Figures to the right indicate full marks.
- **1.** (a) Define the syntax and semantics. Compare and contrast the axiomatic semantics and denotational semantics. [6]
 - (b) List and discuss the Statement-level control structures and Unit-level control structures with their syntax. [7]

Or

- **2.** (a) Explain how following concepts are used in design of data types with examples: [6]
 - (i) Data Aggregates and type constructors
 - (ii) Cartesian Prodct
 - (iii) Sequencing.
 - (b) What is importance of reliability and maintainability to programming languages? List the factors which ensure the reliability and maintainability. [7]

P.T.O.

- 3. (a) What are four main programming paradigms? Which programming languages are based on these? Explain the features of any one of these. [6]
 - (b) Write a program which receives n integers. Store the integers in an array. Program outputs the number of odd and even numbers present this array.[6]

Or

- 4. (a) What are primitive data types? List the primitive data types in Java and their respective storage capacity. [6]
 - (b) Explain various methods of grouping programming units in Ada.

 What is advantage of grouping the units? [6]
- **5.** (a) What is an Interface in Java? How is this different than a class? Give example of interface. [6]
 - (b) What do you mean by method overloading? Write a program which adds *two* integers and *three* integers by using overloaded methods for adding *two* and *three* integers respectively. [7]

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- 6. (a) What is the use of static variables and methods in Java?

 Give example of static declaration. What are restrictions on methods which are declared static?

 [7]
 - (b) What is method overriding in Java? What is advantage of using overriding? Demonstrate method overriding with example.

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- 7. (a) How is the architecture of an applet different than a console based program ? Explain the function of init(), start() and stop() methods. [6]
 - (b) Which class supports character input to the program? Write a program to read the name of the user and display welcome message. [6]

Or

- 8. (a) What is the use of PrintStream and PrintWriter classes?

 Which methods are suppoted by these classes? Give example of each.
 - (b) What are uncaught exceptions? What are advantages of exception handling? State the use of try(), catch() and throw() methods. [6]