[5152]-570

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]

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]

Or

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. [6]

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 supported by these classes ? Give example of each. [6]

(b) What are uncaught exceptions ? What are advantages of exception handling ? State the use of try( ), catch( ) and throw( ) methods. [6]