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S.E. (Computer Engg.) (II Semester) EXAMINATION, 2019

**PRINCIPLES OF PROGRAMMING LANGUAGES**

(2015 PATTERN)

**Time : Two Hours**

**Maximum Marks : 50**

**N.B. :—**

(i) All questions are compulsory.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

1. (a) What is an Activation Record ? What are the attributes of Activation Record ? Explain with example how it plays an important role in execution of recursive function. [7]
- (b) What is quality ? What are the qualities related to Software ? Explain [6]

Or

2. (a) What are the steps in Software Development ? How does Software Development take care of efficiency quality attribute of the programming language ? [7]
- (b) What is weakest pre-condition ? Determine the weakest pre-condition for : [6]

$S1 : x = 2*y + 1, S2 : y = x - 3, P : \{y < 0\}$

P.T.O.

3. (a) What are the challenges for programming in large ? Explain how they are addressed by programming language. [6]
- (b) Demonstrate through a program in Java how constructors can be used for Initializing the elements of matrix with '0' in the example on Addition of 2 Matrices. [6]

Or

4. (a) Define Modularity. What are the advantages of modularity in software design ? Which features of Java help in providing modularity ? [6]
- (b) What is Generic Programming ? Demonstrate with suitable program how generic programming is implemented in C++. [6]

5. (a) Describe Inheritance. List and explain the different types of Inheritance. Demonstrate how Java supports Multiple Inheritance. [7]
- (b) What is a Constructor ? What are its different types ? Demonstrate with suitable example the different types of constructors used in Java. [6]

Or

6. (a) Elaborate the significance of keyword super in Java ? Demonstrate with example each of the case. [6]
- (b) What is Polymorphism ? Which type of polymorphism is method overriding ? Demonstrate method overriding in Java. [7]

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7. (a) What is an Exception ? What are the different types of Exceptions ? Illustrate how exceptions are handled in Java. [7]  
(b) Illustrate use of methods in PrintStream Class to implement Student Information system. [5]

Or

8. (a) What is meant by Streams in Java ? How does Java manage Input/Output using Streams ? Differentiate ByteStream, CharacterStream and PredefinedStream ? [6]  
(b) Differentiate between Applet and a normal Application Program. With neat diagram explain life-cycle of an Applet. [6]