Roll No. ..... Total Pages : 03

BT-3/D-23 43220

PROGRAMMING LANGUAGE

PC-CS-AIDS-209A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What are the different design classes of binding times in the designing of programming languages ? Also, explain the effects of testing and debugging on programming language design. 8

   (b) Write down the BNF grammar and generate the parse tree for the following sentence :
   "They will be going to trigger each point while testing on the simulated software system". 7

2. (a) Justify the basic roles of programming languages and language standardization. 8

   (b) Discuss the concept of specification and implementation of enumerations and Booleans in elementary data types. 7

Unit II

3. (a) How to implement information hiding and overloaded subprograms using structured data types ? 8

   (b) Identify and discuss the main problems which are associated with the complex structured data types. 7

4. (a) Identify the basic use of high-dimensionality arrays in structured data types. 8

   (b) Discuss the specification and implementation of union, pointer and character strings. 7

Unit III

5. (a) Discuss the following by taking their relevant significance and roles : 8

   (i) Synchronization through semaphores

   (ii) Monitors.

   (b) Define Scoping. Explain the concept of static scoping by taking some practical examples of any programing language. 7

6. (a) What is basic role of referencing environment ? Explain the concepts of call by reference and call by name for transmitting parameters. 8

   (b) How to raise and propagate an exception during subprogram control ? 7

Unit IV

7. (a) Differentiate between stack based storage management and heap storage management for variable and fixed size elements. 8

   (b) Identify the major run time elements that require storage during storage management. 7

8. (a) Discuss the following concepts in relation to Ada and Smalltalk : 8

   (i) Subprograms and storage management

   (ii) Abstraction and encapsulation.

   (b) Define garbage and dangling references in storage management. 7