

**4E4165**

Roll No. \_\_\_\_\_

Total No. of Pages : **3**

**4E4165**

**B. Tech. IV Sem. (Main) Exam; April-May 2017**  
**Computer Science and Engineering**  
**4CS6A Principles of Programming Languages**

**Time : 3 Hours**

**Maximum Marks : 80**

**Min. Passing Marks : 24**

**Instructions to Candidates :-**

*Attempt any **five questions**, selecting **one question** from **each unit**. All Questions carry **equal marks**. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.  
Units of quantities used / calculated must be stated clearly.  
Use of following supporting materials is permitted during examination.  
(Mentioned in form No. 205)*

1. NIL

2. NIL

**UNIT - I**

1 (a) What do you mean by environment of programming languages ? What are the effects of environment on languages.

8

(b) Explain the history of programming languages.

8

**OR**

1 (a) Differentiate between syntax and semantics giving proper examples.

8

(b) Distinguish between static binding and dynamic binding.

8

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UNIT - II

- 2 (a) What is type equivalence ? Also explain structural and name equivalence using example. 8
- (b) Distinguish between static type checking and dynamic type checking. 8

OR

- 2 (a) Describe the implementation and specification of sequential files and direct access files ? 8
- (b) Discuss the structured data type of variant records. 8

UNIT - III

- 3 (a) What do you mean by structured sequence control ? Also discuss the problems in structured sequence control. 8
- (b) Explain the associativity and precedence of operation with suitable examples. 8

OR

- 3 (a) What are activation records ? How are they useful in subprogram calls ? 10
- (b) Write a short note on Lazy Evaluation Rule. 6

UNIT - IV

- 4 (a) Explain local data and referencing environments. 6
- (b) Explain the implementation of various parameter passing methods. 10

OR

- 4 (a) Explain formal and actual parameters. 6
- (b) What is scope, lifetime and visibility of a variable ? Compare local, non-local and global referencing environment. 10

UNIT - V

- 5 (a) Define abstract data types. Explain ADT in C++ and Java. 10
- (b) What do you understand by encapsulation ? Explain. 6

OR

- 5 (a) Differentiate between static, stack and heap based storage management, with suitable example. 12
- (b) What do you understand by garbage collection ? Explain. 4