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## B. Tech. Degree III Semester Examination November 2016

### CS 15-1305 PRINCIPLES OF PROGRAMMING LANGUAGES

(2015 Scheme)

Time: 3 Hours

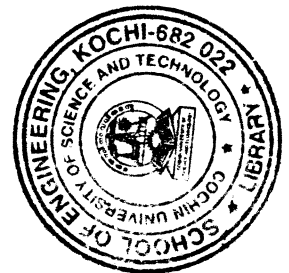
Maximum Marks: 60

#### PART A

(Answer *ALL* questions)

(10 × 2 = 20)

- I. (a) Prove that the following grammar is ambiguous:  
 $\langle S \rangle \rightarrow \langle A \rangle$   
 $\langle A \rangle \rightarrow \langle A \rangle + \langle A \rangle \mid \langle id \rangle$   
 $\langle id \rangle \rightarrow a \mid b \mid c$
- (b) Distinguish between a synthesized and an inherited attribute.  
(c) What is aliasing? Discuss with an example.  
(d) Write a note on named constants.  
(e) What are the three general characteristics of subprograms?  
(f) Distinguish between static parent and dynamic parent of a subprogram.  
(g) Write a short note on dynamic binding.  
(h) Explain polymorphism.  
(i) What are the differences between CONS, LIST?  
(j) What are the forms of Horn clauses?



#### PART B

- II. Explain in detail language evaluation criteria. (4 × 10 = 40)  
(10)  
**OR**
- III. Briefly explain various programming paradigms. (10)
- IV. (a) What is positional parameter and keyword parameter? Discuss with an example. (5)  
(b) What is the referencing environment of a statement? (5)  
**OR**
- V. Explain different parameter passing mechanisms with examples. (10)
- VI. Explain the abstraction and encapsulation. (10)  
**OR**
- VII. Explain various design issues associated with object oriented languages. (10)
- VIII. Explain the functional programming language and its applications. (10)  
**OR**
- IX. Describe the programming language PROLOG and also write the definitions of PROLOG. (10)