BTS-III(15)-11.17-1575 Reg. No. | | | | | | | | |

A

B.Tech. Degree III Semester Examination November 2017

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) Write a grammar for the language consisting of strings that have n copies of the letter a followed by the same number of copies of the letter b, where n>0.

(For example, the strings ab, aaaabbbb, and aaaaaaaabbbbbbbb are in the language but a, abb, ba, and aaabb are not.)

(b) What does it mean for a program to be reliable?

(c) Describe the basic concept of denotational semantics.

(d) In what way are reserved words better than keywords?

(e) Define static binding and dynamic binding.

(f) Distinguish between static ancestor and dynamic ancestor of a subprogram.

(g) Explain co-routines.

(h) What are the two kinds of abstractions in programming languages?

(i) What are the differences between CAR and CDR?

(j) If CONS is called with two atoms, say 'A and 'B, what is the returned?

PART B

(4 × 10 = 40)

II. Explain with an example about ambiguous grammar. (10)

OR

III. Define syntax of a programming language. Discuss the formal methods of describing syntax. (10)

IV. Describe the scope and lifetime of a variable. (10)

OR

V. Explain various methods of parameter passing to subprograms with examples. (10)

VI. (a) Write a short note about Encapsulation. (3)

(b) Describe the features of smalltalk. (7)

OR

VII. Explain various design issues associated with object oriented languages. (10)

VIII. (a) Write short note on Lamda Calculus. (5)

(b) Explain the use of Horn clauses. (5)

OR

IX. (a) Describe the inferencing process of PROLOG. (5)

(b) Describe the applications of logic programming. (5)

***