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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 Summer Sem. EXAMINATION- 2018

B.Tech., 6th Semester

COURSE CODE: 10B11CI612 MAX. MARKS: 50

COURSE NAME: Compiler Design

COURSE CREDITS: 4 MAX. TIME: 2 HR

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

**Section A: All Questions Carry Three Marks [7 X 2= 14 Marks]**

1. Differentiate between the Compiler and Interpreter. Draw the suitable figure to show the all phases of compiler and explain each phase in brief.

2. Consider a source program contains the assignment statement:- input x=y+z * 160. Show the all steps phase wise from Lexical Analysis to Code Generation with the help of suitable figure and explanation.

**Section B: All Questions Carry Five Marks [8 X 3= 24 Marks]**

3. Consider the following grammar:
S → Aa/ bAc/Bc/bBa
A→d
B→d
Write down the steps to calculate the first and follow for a grammar. Calculate the first and follow of the Non-Terminals.

4. Consider the context free grammar:-
S→ SS+ | SS* | a
and the string is aa+a*.
(a) Give the leftmost derivation for the string.
(b) Give the rightmost derivation for the string.
(c ) Give a parse tree for the string.
(d ) Is the grammar ambiguous or unambiguous ? Justify your answer.

**5. (a)** Consider the Grammar. Here € stands for NULL :-

A→ Aa | b

A→ bdA' | A'

A'→ c A' | adA' | €

Eliminate the Left recursion among the productions and yield the grammar.

(b) Left factored the following grammar:-

S→ iEtS | iEtSeS | a

E→b

**Section C: Each Question Contain 12 Marks [12 X 1= 12 Marks]**

6. Consider the following productions of a grammar:-

E→ TE'

E'→ +TE' | €

T→ FT'

T'→ *FT' | €

F→ (E) | id

Draw the predictive parsing table M for the Grammar G as mentioned above. Show the moves of the predictive parser using the predictive parsing table on input **id +id * id**.