JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-VI Semester (CSE & ECM)

COURSE CODE(CREDITS): 18B11CI612 (3)   MAX. MARKS: 25

COURSE NAME: Compiler Design

COURSE INSTRUCTORS: Pardeep, Maneet, Ramesh, and Faisal   MAX. TIME: 1 Hour 30 Minutes

Note: (a)All questions are compulsory.

(b)Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

1. Find first set for the grammar G:

   E →TE', E'→*TE'/ €, T→FT '/ €, T '→€/ +FT ' and F→id /c E

   and follow set for grammar H: S→ABC , A→DEF, B→€, C→€, D→€, E→€, F→€

   Note: E is the start symbol in grammar G and S is the start symbol in grammar H.

   [CO-3][5]

2. Consider the grammar G: S→(L)a , L→SL' , L' →€ / , SL' and construct the LL(1) parser. Is the grammar G acceptable by your constructed parser? Note: S is the start symbol.

   [CO-3] [4]

3. Consider the grammar G: E→iE' , E→+iE' / € and the string i+i where E is the start symbol. Is the given grammar G right recursive? Write the recursive functions with recursive descent parsing. Note: E is the start symbol.   [CO-4] [4]

4. Consider the grammar G: S→(S) / a where S is the start symbol. Construct the LALR parser for the given grammar G. How many numbers of states are there in CLR and LALR parsing table?   [CO-4][7]

5. Consider the grammar G: S→SAS/a , A→bSb/b. Is this grammar operator precedence grammar? Justify your answer. If no then convert it into operator precedence grammar. Now consider grammar H: T→T+T/T*T/id and generate the operator precedence table and operator function table for the grammar H.   [CO-4] [5]