JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech-VI Semester (CS)

COURSE CODE: 18B11CI612

MAX. MARKS: 25

COURSE NAME: Compiler Design

COURSE CREDITS: 3

MAX. TIME: 1 Hour 30 Min

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

(Q1)(a) Specify the rules to find whether the grammar is LL(1) or not [CO2, CO3] [2 + 3 marks]

(b) Briefly describe the algorithm of predictive parsing? How is the use of stack in top-down different from that in bottom-up parsing?

(Q2)(a)Consider the following grammar, where A is the initial symbol and {t,u,v,w,x} is the set of terminal symbols:[CO2,CO4]

A -> B D

B -> C w B | (eps)

D -> D x B | v

C -> t | t u

1. Examine the grammar and rewrite it so that an LL(1) predictive parser can be built for the corresponding language. [2 marks]

2. Compute the FIRST and FOLLOW sets for all non-terminal symbols in the new grammar and build the parse table.. [1+1+2 marks]

3. Show the analysis table (stack, input, and actions) for the parsing process of the **tuwvxtw** input sequence. [3 marks]

(b) Why do we use Regular Expressions instead of Context Free Grammars to describe tokens? [1 Marks]

(Q3) (a) Construct the SLR sets of items for the (augmented) grammar S -> SS+ | SS* | a. Compute the GOTO function for these sets of items. Show the parsing table for this grammar. Is the grammar SLR? [CO4, CO5] [1+3+3+1 marks]

(b) Define the terms handle pruning and sentential form [2 marks]