

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BTECH
BRANCH: CSE

SEMESTER : VI
SESSION : SP2023

SUBJECT: CS305 COMPILER DESIGN

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

Q1	(a) Explain briefly the back-end and the front-end parts of a compiler. Point out some important features of any standard compiler.	[2]	CO-1	Understand
Q1	(b) Highlight the secondary tasks of lexical analyser. Also, discuss the issues in designing lexical analyser.	[3]	CO-2	Understand
Q2	(a) Briefly discuss about Lex tool.	[2]	CO-3	Understand
Q2	(b) Write a simple Lex program to recognize <i>identifier</i> and all the <i>relational operators</i> used in C.	[3]	CO-3	Analyse
Q3	(a) Discuss briefly the advantages and the disadvantages of top down parser.	[2]	CO-1	Analyse
Q3	(b) Let us consider the following grammar (G): $S \rightarrow aA, A \rightarrow bB, B \rightarrow c$ Discuss formally how LL(1) parser parses the strings: $w_1=abc$ and $w_2=bac$, using G. Can you think about LL(0) parser for this G to parse w_1 and w_2 ? If so, then explain the idea to parse.	[3]	CO-4	Apply
Q4	Construct Predictive parsing table (eliminating immediate left recursion) for the grammar given below: $E \rightarrow E^*T, E \rightarrow T, T \rightarrow id$, where E is the <i>start</i> symbol of G. Also, trace parsing by taking an expression (w)= id^*id^*id , using the constructed table.	[5]	CO-4	Apply
Q5	(a) Discuss briefly the logic behind shift-reduce parser. What are the common issues in shift-reduce parser?	[2]	CO-1	Understand
Q5	(b) Construct SLR(1) parsing table for the grammar(G): $S \rightarrow AA, A \rightarrow aA, A \rightarrow b$. What does it happen in the table for LR(0) parser?	[3]	CO-4	Apply

.....22/02/2023:.....M