Roll Number: _____

Thapar Institute of Engineering & Technology, Patiala

Computer Science and Engineering Department

AUXILLARY EXAMINATION

Course Code: UCT 502	Course Name: Compiler Design
August 16, 2022	Tuesday, 5.30 PM – 7.30 PM
Time: 2 Hours, M. Marks: 50	Name of Faculty: Dr. Rupali Bhardwaj

Note: ATTEMPT ALL QUESTIONS IN SEQUENCE.

1 a)What is operator grammar? Check whether given grammar is operator grammar or not, if NOT then convert given grammar into operator grammar.

$$E \rightarrow EAE \mid id$$
$$A \rightarrow + \mid *$$

4+6

b) Write short note on the following-

(i) LEX

(ii) YAAC

2 Consider the regular expression $a(a+b)^*bb$ with $\sum = \{a, b\}$

a) Using Thompson's rule construct NDFA

b) Using subset construction algorithm construct DFA from NDFA obtained in 2 (a).

4+6

3 Construct a predictive parsing table for the grammar

$$S \rightarrow (L) \mid a$$
$$L \rightarrow L, S \mid S$$

Where S is the start symbol of the grammar and {a , ( )} are terminals whereas {S, L} are nonterminals. Afterwards, check whether string $(a, (a, a))$ is accepted by above mentioned grammar or not.

6+4

4 a) Explain the different representations of 3-address code with the help of a suitable example

b) Describe each phase of compiler with suitable examples

5+5

5 Differentiate between

10

i. Inherited and synthesized attributes
ii. Top down and Bottom up parser.
iii. L-attributed and S-attributed Grammar.
iv. Ambiguity with example