Bahria University
Discovering Knowledge

BAHRIA UNIVERSITY
(Lahore Campus)
Department of Computer Science
QUIZ# 02– Spring 2024

COURSE TITLE: **Compiler Construction**
Class: **BSCS- 5A**
CLO#: **2**
Course Instructor: Dr. Hajra Masood
Time Allowed: **30 minutes**
Date: **29th May 2024**
Max. Marks: **2.5 Points**

COURSE CODE: CSC-32
Shift: **Morning**

Marks Obtained: 2.5

Name: Muhammad Hammad
03-134221-024

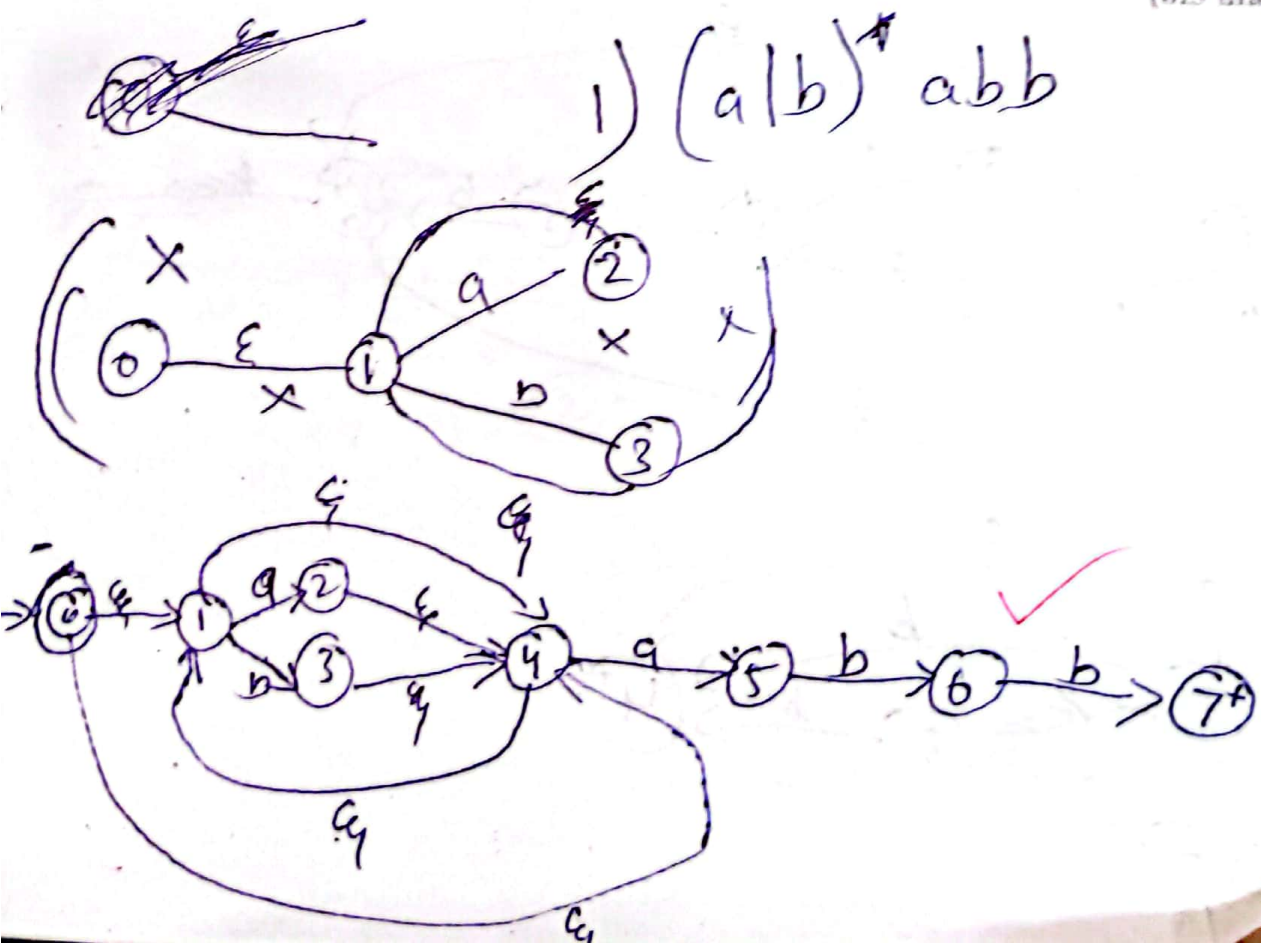
Reg No:

Question 1:

Design a deterministic finite automaton (DFA) for the language described by the regular expressions. Provide the state diagram and the transition table for the DFA.

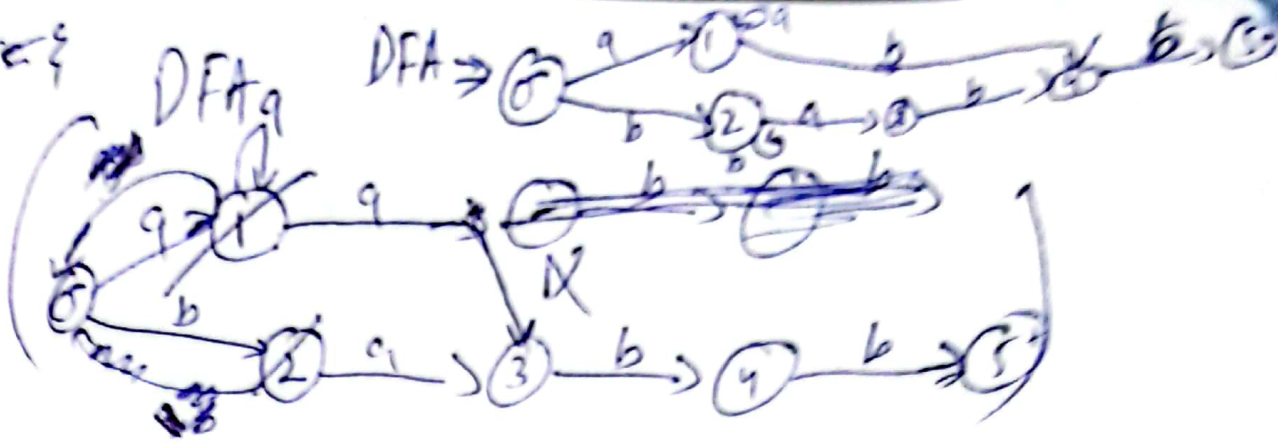
1. (a|b) *abb
2. (a|b)c
3. ((a|b)*ab)*
4. (a|b)*aba(a|b)*
5. (a|b)*c(ab)+

(0.5 mark each)

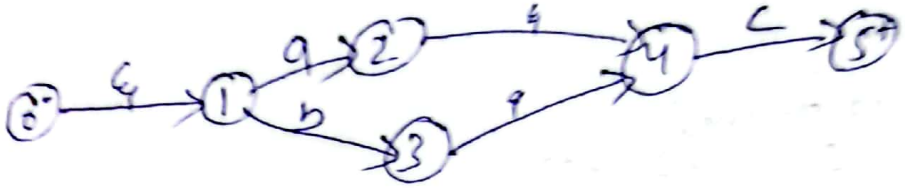


Ans:-

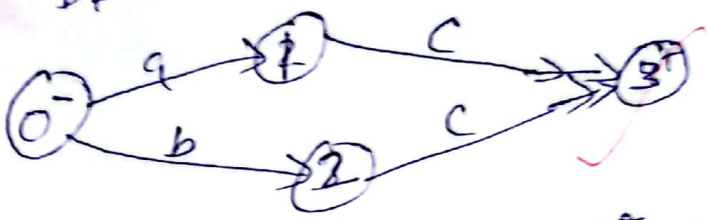
DFA



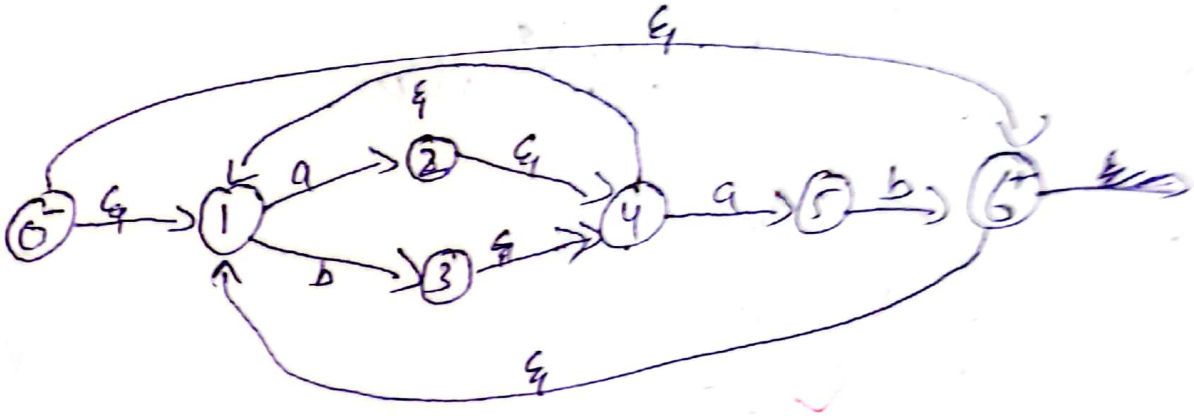
2) $(a/b)c$



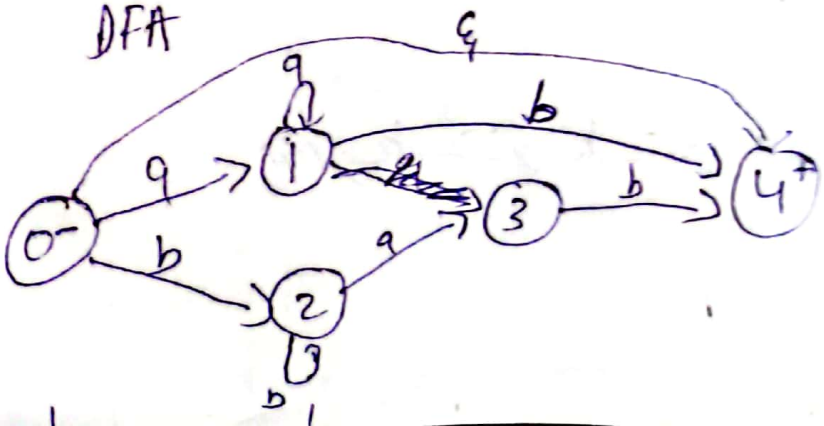
DFA



3) $((a|b)^* ab)^*$



DFA



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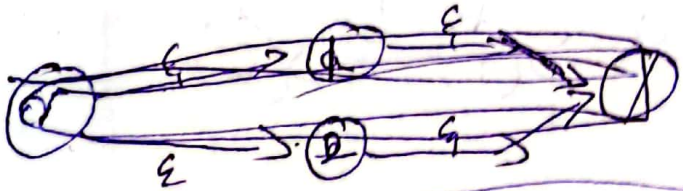
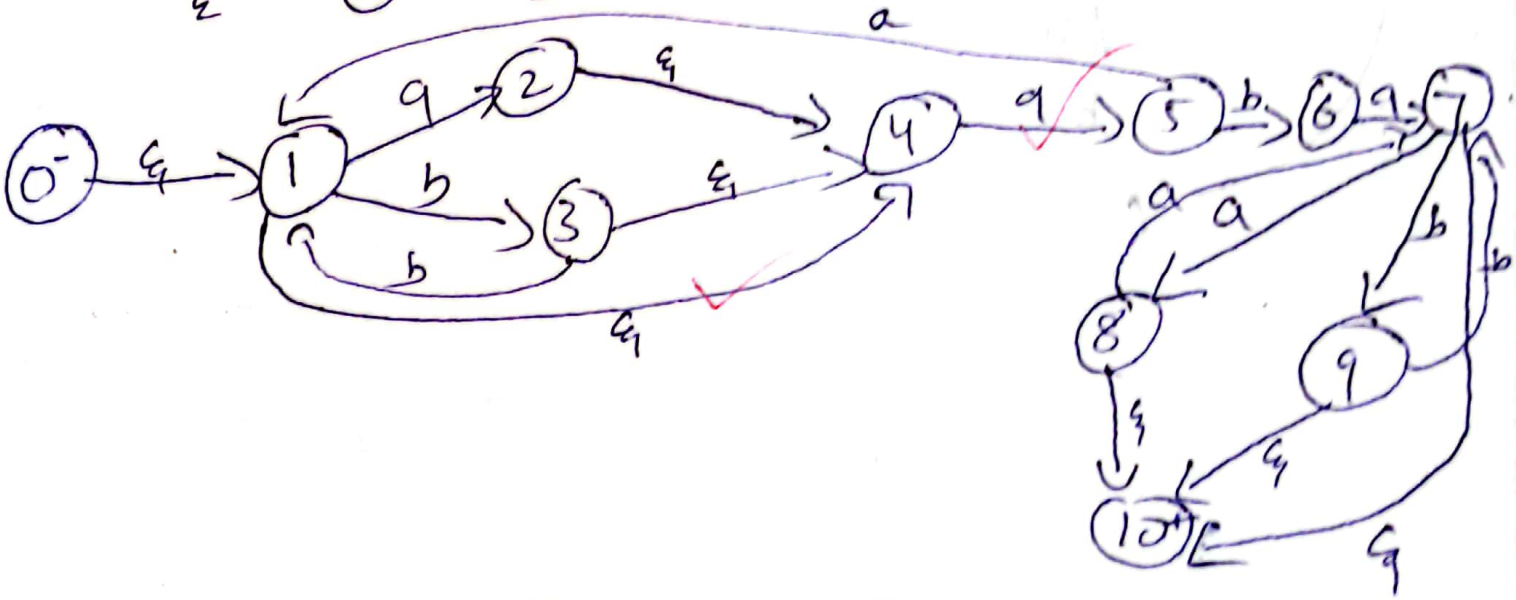
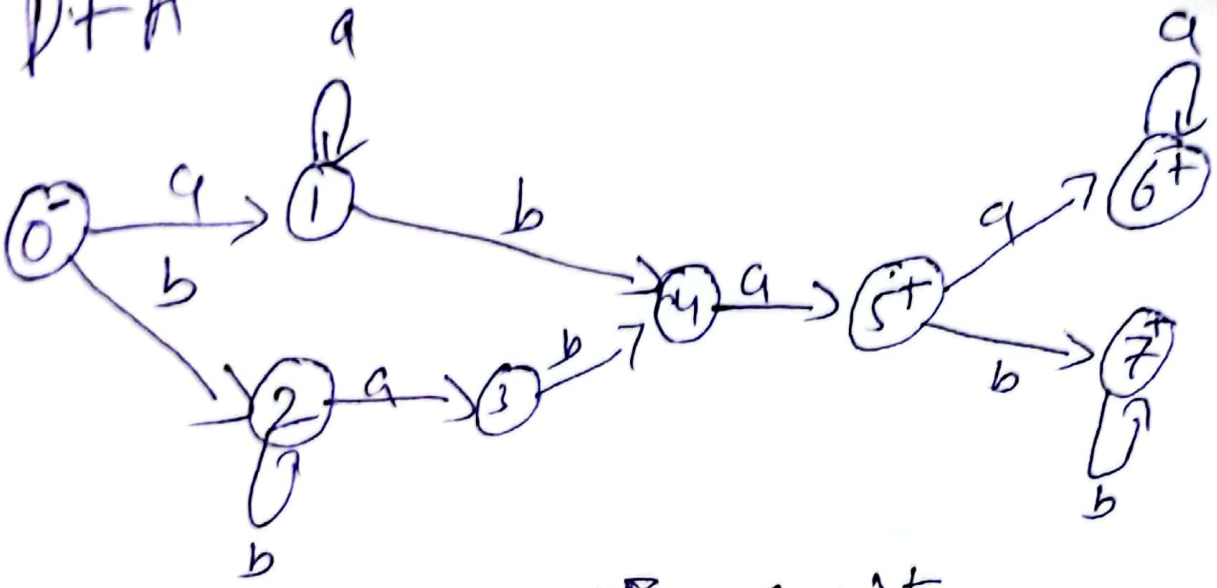
4. **(a|b)*aba(a|b)***
5. **(a|b)*c(ab)+**

4) $(a|b)^* aba (a|b)^*$ (0.5 mark ...

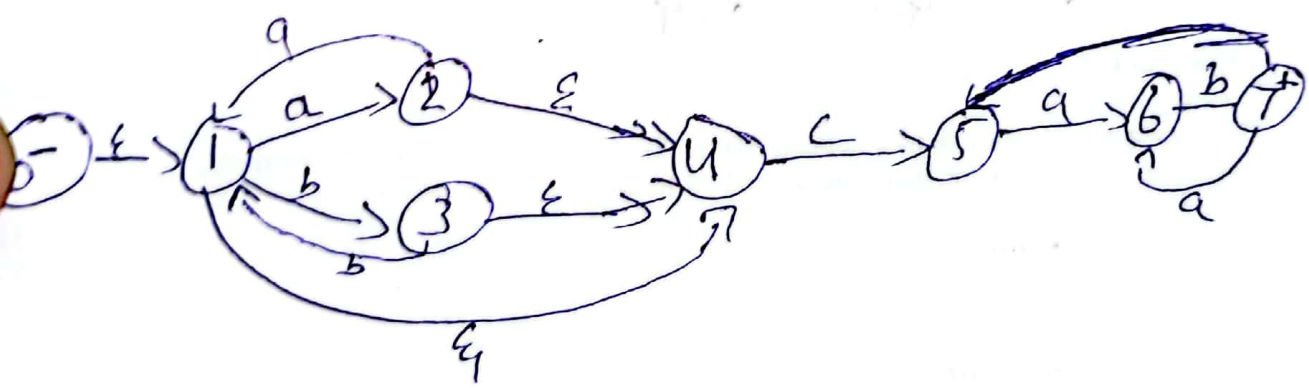




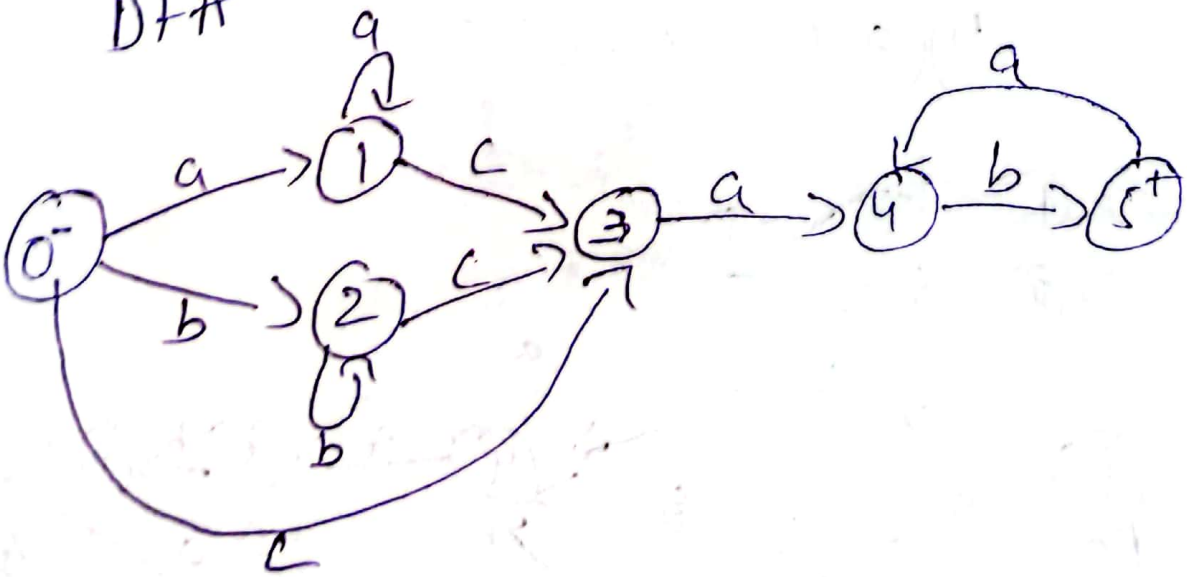
DFA



5) $(a|b)^* c (ab)^+$



DFA



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2. (a|b)c
3. ((a|b)*ab)*
4. (a|b)*aba(a|b)*
5. (a|b)*c(ab)*

Transition tables

(0.5 marks each)

S	a	b	A
0	1	2	–
1	1	4	–
2	3	2	–
3	–	4	–
4	–	5	–
5	–	–	Accept

TT 2)

S	a	b	c	Accept
0	1	2	—	—
1	—	—	2	—
2	—	—	3	—
3	—	—	—	Accept

TT 3)

S	a	b	c	Accept
0	1	2	4	—
1	1	4	—	—
2	3	2	—	—
3	—	4	—	—
4	—	—	—	Accept

TT 4)

S	a	b	Accept
0	1	2	—
1	1	4	—
2	3	2	—
3	—	4	—
4	5	—	—
5	6	7	Accept
6	6	—	Accept
7	—	7	Accept

TT 5)

S	a	b	c	Accept
0	1	2	3	—
1	1	—	3	—
2	—	2	3	—
3	4	—	—	—
4	3	5	—	—
5	—	—	—	Accept