REGISTRATION NUMBER

SRINIX COLLEGE OF ENGINEERING

1st INTERNAL EXAMINATION-2021-22

Subject-**FLAT** Semester-**5th** Branch-**CSE**

Full Mark-**60** Time-**2.00Hrs**

ANSWER ALL THE QUESTIONS (GROUP-A) **[2*10]**

1. What is Finite State Machine? What are the elements of FSM?
2. What do you mean by an alphabet and a string?
3. If the number of states in an NFA is n, then what is the number of states in its equivalent DFA
4. What is meant by left most and right most derivation? Give example.
5. What are the components used to form a context free grammar?
6. Differentiate between Mealy and Moore machine.
7. Define ambiguity in CFG with an example.
8. Write down the pumping lemma statement for regular language.
9. What are the different ways to simplify a context free grammar?
10. Design a DFA which accepts set of all binary strings.

ANSWER ANY FOUR QUESTIONS (GROUP-B) **[5*4]**

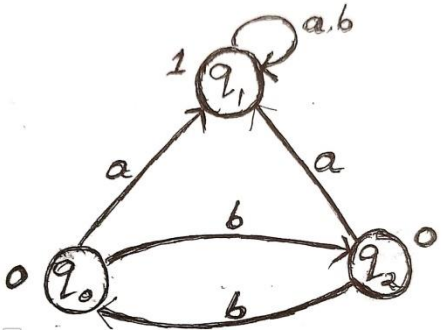
1.Reduce the following grammar into CNF

S → bA/ aB

A → bAA/aS/ a

B → aBB/ bSbb

2. Convert the following moore machine into mealy machine.



3.a) Design a DFA which accepts set of all strings containing 0101 as substring

b) Design a DFA which accepts set of all strings ending with 00

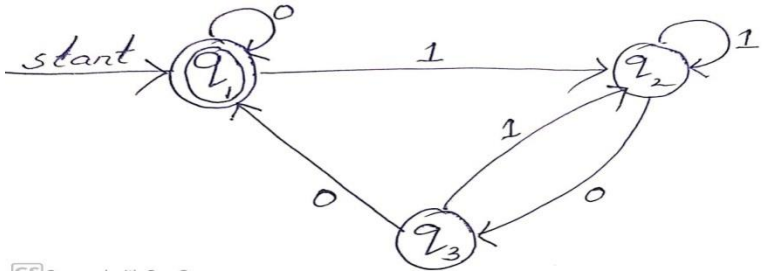
4.Write down closure properties of regular language

5. Discuss the algebraic laws of regular expression.

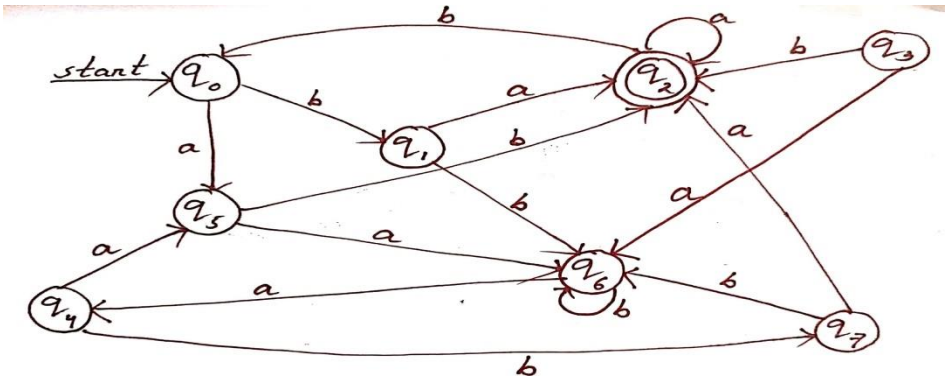
6. Write a CFG, which generates palindrome for binary numbers.

ANSWER ANY TWO QUESTIONS (PART-C) **[10*2]**

1. Construct the regular expression from the given statetransition diagram.



2. Minimize the DFA given below.



3. Convert the following NFA into DFA.