Register Number:
Date: 25-10-18

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
M.Sc COMPUTER SCIENCE - I SEMESTER
SEMESTER EXAMINATION: OCTOBER 2018
CS7218– THEORY OF COMPUTATION

Time- 2 1/2 hrs **Max Marks-70**

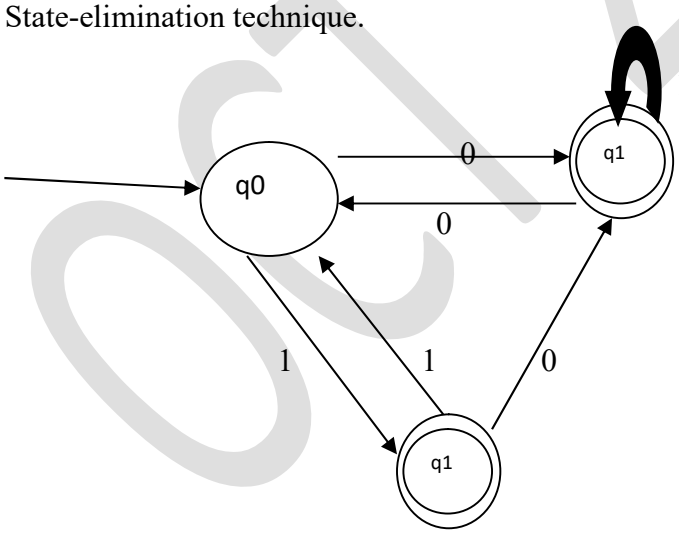
This paper contains 2 printed pages and three parts

ANSWER ANY SEVEN QUESTIONS **(7 *10=70)**

1. a) What is DFA? Obtain a DFA to accept any number of 0's and 1's starting with 01 or 10 and process the string 01001 using extended transition function 10 Marks

2. a) Convert the following DFA to a regular expression using

State-elimination technique. 5 Marks



b) Define Regular Expression. What are the applications of regular expression? 5 Marks

3. a) Describe the general strategy used in Pumping Lemma for proving certain languages are not

Regular? 5 Marks

b) Explain Ambiguous Grammar with example . 5 Marks

4. a) Obtain a grammar for the DFA of Strings of a's and b's starting with ab 5 Marks

b) Explain UNIT Productions. 5 Marks

5. How an NFA can be obtained from Regular expression. Give example 10 Marks

6. Explain minimization DFA with suitable example. 10 Marks

Transition	**0**	**1**
Start A	B	A
B	A	C
C	D	B
*D	D	A
E	D	F
F	G	E
G	F	G
H	G	D

7. For the grammar

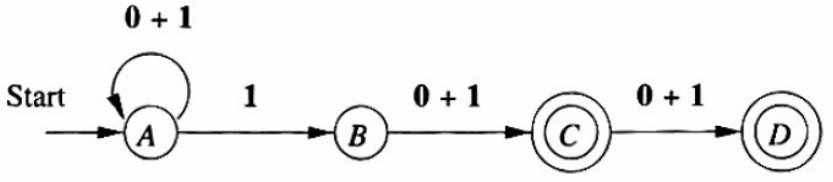
$A \rightarrow BC$

$B \rightarrow CA \mid b$

$C \rightarrow AB \mid a$

Obtain the corresponding GNF. 10 Marks

8. Convert the given NFA to DFA 10 Marks



9. Explain the action of Turing machine using Transition table with example 10 Marks