ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
MSc Computer Science – I SEMESTER
END SEMESTER EXAMINATION: NOVEMBER 2020
CS 7218-THEORY OF COMPUTATION

Time- 2 1/2 hrs   Max Marks-70
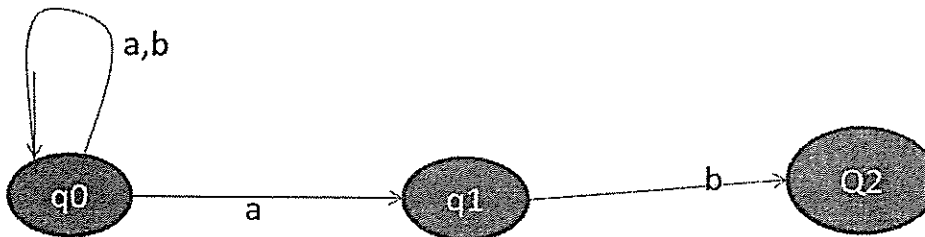
This paper contains three printed pages and one part

1) Define the following with formula and example   (10)
   - FA
   - Extended transition function of a NFA
   - Grammar.
   - Regular Expression

2) Obtain a DFA to accept Strings of L, M and N   starting with "LMN" and process the string
   "LMNL" using Extended transition function .   (10)

3) Convert the following NFA into DFA.   (10)

4) a)Obtain a Regular Expression to accept language consisting of strings of 0's ans 1's and
2's starting with 001 and ending with 222 .
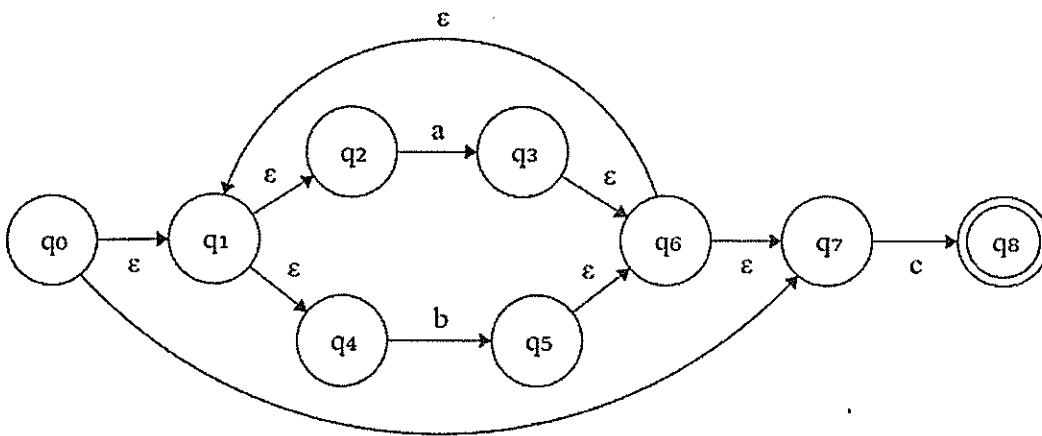
(2+8)

b)Construct an NFA for the Regular Expression [(X+Y)*+(xyz)+(X+Y)].

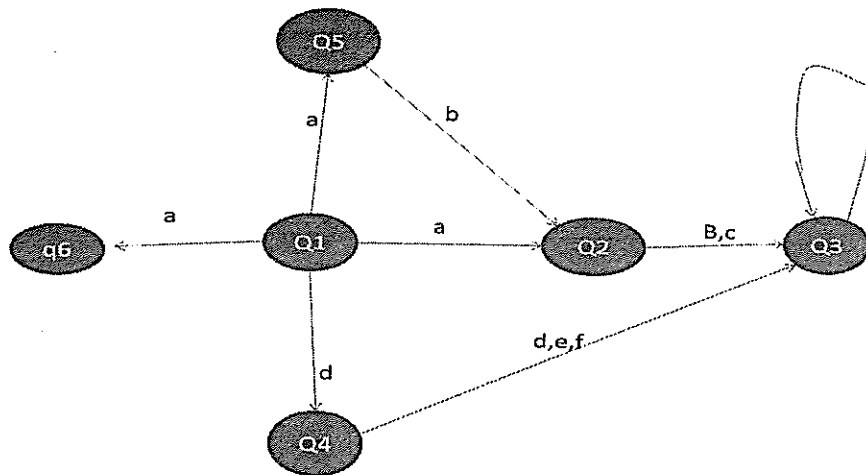5) Minimize the following DFA.   (10)

Transition	a	b
→A	B	F
B	G	C
*C	A	C
D	C	G
E	H	F
F	C	G
G	G	E
H	G	C

6) a) Define E- CLOSURE and Write the E- CLOSURE of all the states in the given problem.   (10)

7) Obtain the Regular Expression from the Finite Automata by Eliminating States.

8) Eliminate UNIT PRODUCTIONS from the Grammar. (10)

S→AB

A→a

B→C/b

C→D

D→E/bC

E→d/Ab

9) a) Explain the Principal of Pushdown Automata along with an Example Transition . (5)

b) Define Ambigious Grammar and Define Turing Machine. (5)