NR

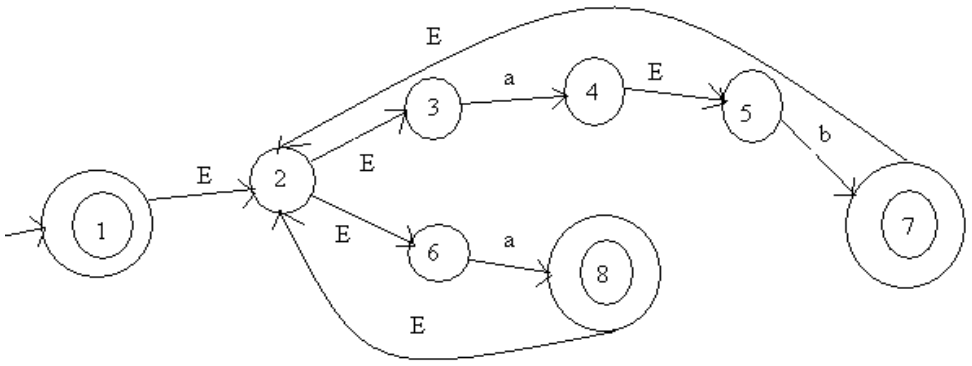
Code No: A0505

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I Semester Examinations, October/November-2011
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
(COMPUTER SCIENCE)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
- - -

1. For the following NFA with Є -moves convert it in to an NFA with out Є -moves and show that NFA with Є -moves accepts the same language. [12]



2. Construct an FA recognizing the corresponding language.
   a) 1(01+10)* + 0(11+10)*
   b) 1(1+10)*+10(0+01)* [12]

3. Design Turing Machine for the language L= {$\mathbf{a^n b^n c^n}$ / n>1}. [12]

4.a) Discuss Chomsky hierarchy of languages
   b) State Church's Hypotheses. [12]

5.a) How many 2-digit or 3-digit numbers can be formed using the digits 1,3,4,5,6,8 and 9 if no repetition is allowed?
   b) How many numbers can be formed using the digits 1,3,4,5,6,8 and 9 if no repetition are allowed? [12]

6. Solve the recurrence relation $a_n = a_{n-1} + f(n)$, $n> =1$ by substation. [12]

7. Explain the algorithm for BFS with an example. [12]

8. Write for DFS Algorithm for a Spanning Tree. [12]

* * * * * *