

	MIDTERM EXAMINATION SPRING 2007 CS402 - THEORY OF AUTOMATA (Session - 4)	Marks: 35 Time: 90min
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StudentID/LoginID: _____

Student Name: _____

Center Name/Code: _____

Exam Date: Saturday, April 28, 2007

1. This examination is closed book, closed notes, closed neighbors.
2. Answer all questions.
 - a. There is no choice.
 - b. You will have to answer correctly all questions in this examination to get the maximum possible marks.
3. Do not ask any questions about the contents of this examination from anyone.
 - a. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
 - b. If you believe that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.

You are allowed to use only MS Word for drawing Diagrams and Symbols.

****WARNING: Please note that Virtual University takes serious note of unfair means. Anyone found involved in cheating will get an `F` grade in this course.**

For Teacher's use only											
Question Marks	1	2	3	4	5	6	7	8	9	10	Total
Question Marks	11	12	13	14	15	16	17	18			
Question Marks											
Question Marks											

Length of a null string is supposed to be 1.

- ▶ True
- ▶ False

Question No: 2 (Marks: 1) - Please choose one

There is no difference between Word and String

- ▶ True
- ▶ False

Question No: 3 (Marks: 1) - Please choose one

There may be two RE representing the same language.

- ▶ True
- ▶ False

Question No: 4 (Marks: 1) - Please choose one

NFA – null can be considered as TG and vise versa.

- ▶ True
- ▶ False

Question No: 5 (Marks: 1) - Please choose one

$\Sigma = \{aA, b\}$, $\text{length}(aAbaAaAb) = 5$.

- ▶ True
- ▶ False

Question No: 6 (Marks: 1) - Please choose one

If $s=abcd$ is a string defined over $\Sigma = \{a,b,c,d\}$ then reverse of s is $dcba$.

- ▶ True
- ▶ False

Question No: 7 (Marks: 1) - Please choose one

The language equal means number of a's and b's are equal with no null string.

- ▶ True
- ▶ False

Question No: 8 (Marks: 1) - Please choose one

Palindrome is a regular language.

- ▶ True
- ▶ False

Question No: 9 (Marks: 1) - Please choose one

If $s = \text{babab}$ then palindrome of $s = \text{rev}(s)$.

- ▶ True
- ▶ False

Question No: 10 (Marks: 1) - Please choose one

TG must have only one start state.

- ▶ True
- ▶ False

Question No: 11 (Marks: 1) - Please choose one

If a language can be accepted by FA then it can be accepted by a TG as well.

- ▶ True
- ▶ False

Question No: 12 (Marks: 1) - Please choose one

Length of output string is 1 less then that of input string is mealy machine.

- ▶ True
- ▶ False

Question No: 13 (Marks: 1) - Please choose one

Formal languages are called Semantic languages.

- ▶ True
- ▶ False

Question No: 14 (Marks: 1) - Please choose one

Every NFA can be converted to an FA

- ▶ True
- ▶ False

Question No: 15 (Marks: 1) - Please choose one

In mealy machine output character are mentioned on the transition.

- ▶ True
- ▶ False

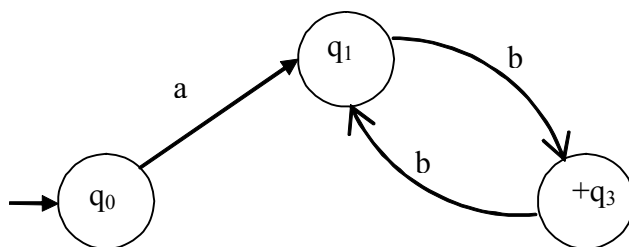
Question No: 16 (Marks: 8)

Differentiate between the following terms:

- Mealy and Moore machine.
- NFA and FA.

Question No: 17 (Marks: 5)

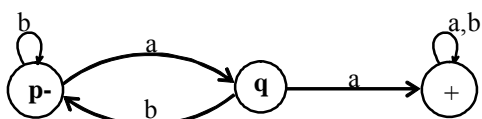
Build an FA corresponding to NFA given below.



Question No: 18 (Marks: 7)

Build an NFA equivalent to $FA_1 \cup FA_2$, where FA_1, FA_2 are given below.

FA₁



FA₂

