CPSC 121,
2007 Summer
Quiz 5 Practice

Name: _____   Student ID: _____

Signature: _____

- You have **25 minutes** to write the **3 questions** on this examination.
- A total of 25 marks are available. The marks for each question are shown in square brackets to the left of the question number. **You may want to complete what you consider to be the easiest questions first!**
- Justify all of your answers.
- No notes or electronic equipment are allowed.
- Keep your answers short. If you run out of space for a question, you have written too much.
- Use the attached blank page for your rough work.
- Good luck!

Question	Marks
1	
2	
3	
Total	

UNIVERSITY REGULATIONS:
- Each candidate should be prepared to produce, upon request, his/her university-issued ID.
- No candidate shall be permitted to enter the examination room after the expiration of one half hour or to leave during the first half hour of the examination.
- CAUTION: candidates guilty of any of the following, or similar, dishonest practices shall be immediately dismissed from the examination and shall be liable to disciplinary action.
    1. Having at the place of writing, or making use of, any books, papers or memoranda, electronic equipment, or other memory aid or communication devices, other than those authorised by the examiners.
    2. Speaking or communicating with other candidates.
    3. Purposely exposing written papers to the view of other candidates. The plea of accident or forgetfulness shall not be received.
- Candidates must not destroy or mutilate any examination material; must hand in all examination papers; and must not take any examination material from the examination room without permission of the invigilator.

[10] 1. Write regular expressions that describe the following sets of strings

24 hour times.
(Hint, 24 hour times range from 00:00 to 23:59)

Integers that are greater than 100 and divisible by 5.

Reminders:

\d   matches a digit (same as [0-9])

| matches the element on the left **or** the element on the right

{m,n}   matches the previous element from **m** to **n** times

{n}   matches the previous element **n** times

?   matches the previous element 0 or 1 times

*   matches the previous element 0 or more times

+   matches the previous element 1 or more times

()   treats a group of elements as 1 element

Please use this space and the back page for your notes, and write your finals answer above.

2. **[3]** a) What input sequences does the following DFA accept?
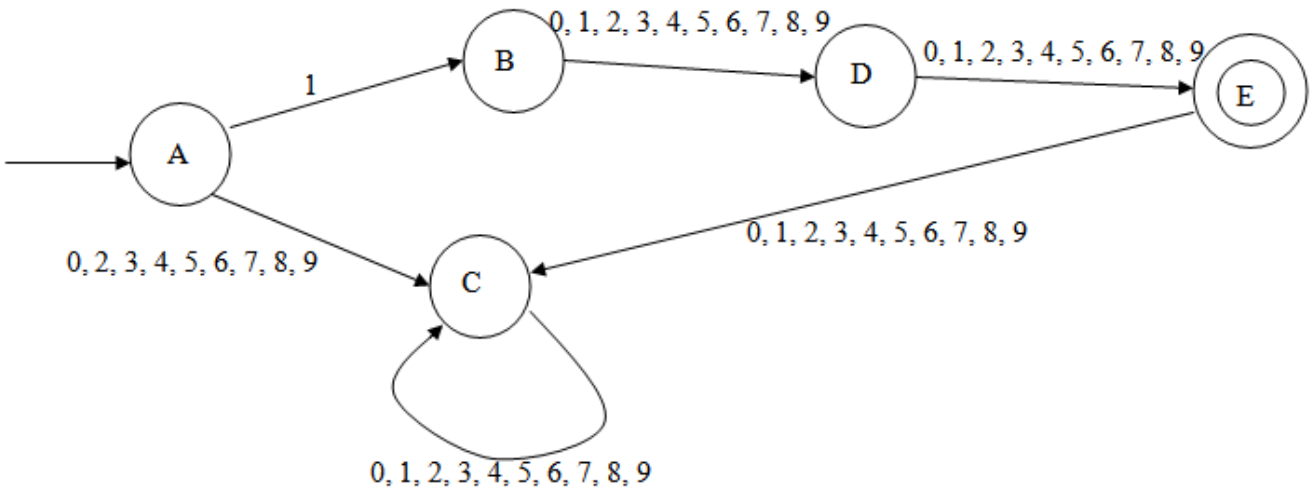
[2] b) Assume δ is the transition function for the DFA from part a.

    i) δ((A, 1)) = _____

    ii) δ((C, 1)) = _____

3. **[8]** Create a DFA with Σ = {a, b} that ends in an accepting state if and only if the input string contains an even number of a's and an odd number of b's.