Final Exam
Info

Date: Monday, May 7, 2018
Time: 05:45 pm - 08:00 pm

- This is a closed book exam; only 1 sheet of notes (handwritten) is permitted.
- You will have 135 minutes for this exam.
- It will consist of 4 questions (with subquestions) worth 30 points each.
- You need to collect 100 points out of 120 points. If you get more than 100 points, only 100 will be counted toward your final grade.
- All 4 questions will be taken from the following list of templates.

1. For a TM *M* (given by its state diagram) and an input strings *w*, give the *sequence of configurations* that *M* enters working on *w*.
2. Give an *implementation-level description* of a Turing machine that *decides* a given language.
3. Show that a given language is **decidable**.
4. Show that a given language is **undecidable**.
5. Show that a given language or decision problem is in **P**.
6. Show that a given language or decision problem is in **NP**.
7. Show that a given decision problem is **NP-complete.**