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.