

Family Name
(Please **print in BLOCK LETTERS**)
as on student card

Given Name(s)
as on student card

Student Number

Practical Group
Code

UNIVERSITY OF TORONTO
Faculty of Arts and Science

DECEMBER 2013 EXAMINATION – version A
PHY 131H1F
Duration - 2 hours

Aids allowed: Any calculator without communication capability. Aid sheet: one single, original, handwritten $8\frac{1}{2} \times 11$ inch sheet of paper, which may be written on both sides. A ruler. A **paper** copy of an English translation dictionary.

- **Completely turn off** any communication device you may have and leave it with your belongings at the front of the room.
- Before starting, please **PRINT IN BLOCK LETTERS your name, student number, and practical group code** at the top of this page **and** on the answer sheet.

DO NOT separate the sheets of your question paper, except the final four pages for “Rough Work” which may be removed **gently**. Your paper should have 12 pages including 3 blank sheets at the end. If this is not the case, call an invigilator.

Answer Sheet:

1. Use **dark lead pencil**.
2. **Locate your test version number in the header at the top of this page, and fill in the circle with the corresponding version code on your answer sheet in the “Form Code” box.** Mark in your student number by shading the circles at the top-right of the sheet, starting with a 0 if the first digit is a 9. It is not required to bubble in your surname on the lower half of the sheet.
3. Indicate the **most correct** answer to a multiple-choice question by filling the appropriate circle on the reverse side of the answer sheet and also by circling the corresponding answer on the exam paper.
4. If you wish to modify an answer, erase your pencil mark thoroughly. Do not use whiteout.
5. **Do not write anything else on the answer sheet.** Use the back of the question sheets and either side of the blank sheets at the end for rough work.

The exam has 12 equally weighted multiple-choice questions, worth 60 marks in total, plus 2 problems, each worth 20 marks each for a fully correct, worked out solution.

Multiple-choice questions:

- Each correct answer is awarded 5 marks.
- Blank or incorrect answers are awarded zero marks.
- Multiple answers for a question are graded as a wrong answer.

Long-Answer Problems:

Maximum credit will be awarded only to fully worked solutions to all parts of the long problems. In addition to showing your work, please put your answer(s) for each part in the boxes provided. Please use the back-side of the sheets and both sides of the blank pages at the end for your rough work which will not be graded. Marks will be deducted for an incorrect number of significant figures in numerical answers.

	Marks
Problem 1	
Problem 2	
Total	

When the Chief Presiding Officer declares the exam ended, stop writing immediately. Please put your answer sheet **inside your exam paper** and have the paper ready for an invigilator to pick up.

Good luck!