

## EXAM INSTRUCTIONS

There are 2 sections to this exam: a machine-graded section and a hand-graded section. The machine-graded portion consists of homework-style and conceptual questions. The hand-graded section consists of multi-part homework-style problems where you show your work. You **may** staple your scratch paper to this exam (which will be returned to you) for your future reference; however, scratch paper may **not** be used to get additional partial credit on the exam.

Also:

- **WRITE YOUR CID ON EACH PAGE OF THE EXAM IMMEDIATELY**
- **You are free to write on the exam**
- **Staple your equation sheet to the back when you turn the exam in**
- Calculators are permitted
- No time limit

### MACHINE-GRADED SECTION

#### Homework-style Questions (4 pts. each)

For this portion of the test a numerical answer is required. When you have finished the calculation, the answer to be filled in on your bubble sheet will be **THE SECOND SIGNIFICANT DIGIT** of your final answer. For example: In question (1) below, if after doing the math you come to the conclusion that the distance is 7.4925 m/s, you would fill in bubble **4** on line 1 of the answer key. If, on the other hand, the answer happened to be 0.039571, you would color in bubble **9** on line 1 of the answer key, since **preceding zeros** don't count as significant digits.

A range of answers is given for each of these questions. For example: If the given range is {2.00, 6.00} m/s and your calculations show the answer to be 5.66 m/s, you can be reasonably confident in your answer and you should then proceed to fill in bubble **6** on the answer line corresponding to the question number. **Do not worry about rounding your answer.**

## Exam 2 Topics

1. Conservation of energy
2. Kinetic Energy
3. Conservation of energy
4. Conservation of momentum
5. Conservation of momentum
6. Angular acceleration, centripetal acceleration
7. Conservation of energy
8. Work KE theorem
9. Work, power
10. Conservation of energy
11. Work
12. Centripetal Acceleration, Gravitation
13. Centripetal acceleration
14. Tangential vs. centripetal acceleration
15. Cons. Momentum
16. Work vs. power
17. Angular vs. tangential velocity
18. Definition of fundamental quantities
19. Forces causing change in direction

Principles covered on Handwritten questions:

- 1) Conservation of momentum
- 2) Conservation of energy
- 3) Forces causing centripetal acceleration