

**Exam 1.00**

1 February 2006

College Physics II (PHYS 2020)

Adam Johnston

**REMOVE THIS COVER SHEET ONLY WHEN  
TOLD TO DO SO. MAKE SURE TO PUT YOUR  
NAME ON THE FIRST PAGE OF THE EXAM  
BEFORE YOU TURN IT IN.**

**General Formulae:**

$$F_{net} = ma, \quad w = mg, \quad a_c = \frac{v^2}{r}, \quad K = \frac{1}{2}mv^2$$

**Specific Formulae:**

$$F_e = k \frac{q_1 q_2}{r^2}, \quad \vec{E} = \frac{\vec{F}}{q}, \quad E = k \frac{q}{r^2}, \quad E = -\frac{\Delta V}{\Delta s}, \quad \Delta U = q\Delta V, \quad V = \frac{kq}{r}$$

$$C = \frac{Q}{V}, \quad C = \frac{\epsilon_0 A}{d}, \quad U = \frac{1}{2}QV$$

$$V = IR, \quad P = IV, \quad R_{eq} = R_1 + R_2 + R_3 + \dots, \quad \frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$

**Constants and conversions:**

$$|e| = 1.60 \times 10^{-19} \text{ C}$$

$$m_e = 9.11 \times 10^{-31} \text{ kg}$$

$$\epsilon_0 = 8.85 \times 10^{-12} \text{ F/m}$$

$$k = 8.99 \times 10^9 \text{ N m}^2 / \text{C}^2$$

$$1 \text{ hp} = 746 \text{ W}$$

**Advice/Info:**

Welcome to your first exam of the semester. Please keep head, hands, and feet inside the vehicle at all times. Show your work clearly for full credit. Ask questions if you have them. Circle your answers if you want me to find them. Remember: Be kind to your grader, and your grader will be kind to you. Take a deep breath. In the event of a water landing, your seat cushion may be used as a floatation device, although not a very good one. All numeric values are good to 3 significant figures. Have fun. **You should have three (3) pages in this exam, not including the cover sheet.** 100 points are possible. Don't worry, this won't hurt a bit . . .

**Poems:**

There's a patch of old snow in a corner  
That I should have guessed  
Was a blow-away paper the rain  
Had brought to rest.

It is speckled with grime as if  
Small print overspread it,  
The news of a day I've forgotten—  
If I ever read it.

R. Frost