PHYS 202 HWK on E-field Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PHYS 201 Equations of kinematics & Newton’s 2nd law are given below:

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| 1. | 2. | 3. | 4. | Newton’s 2nd Law: |
|  |  |  |  | $$\vec{F}=m\vec{a}$$ |

1. When *v* is constant (*v* = *v*0), the acceleration is \_\_\_\_\_\_\_\_. For this case, simplify equations 2 and 3.

2. Define electric field, identify it as a vector or scalar, and state its SI unit.

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| http://edugen.wileyplus.com/edugen/art2/common/pixel.gif |

3. [P52, Chap 18] The right drawing shows an electron entering the lower left side of a parallel plate capacitor and exiting at the upper right side. The initial speed of the electron is 5.71  × 106 m/s. The capacitor is 2.00 cm long, and its plates are separated y 0.150 cm.

a. When the capacitor plates are not charged, as in the left drawing, draw the subsequent motion of the electron, and determine how long the electron takes to cross the plates.

b. Assume that the electric field between the plates is uniform everywhere in the right drawing, and find its magnitude.

 