

58. If the only force acting on an electron is due to a uniform electric field, the electron moves with constant

- (A) acceleration in a direction opposite to that of the field
- (B) acceleration in the direction of the field
- (C) acceleration in a direction perpendicular to that of the field
- (D) speed in a direction opposite to that of the field
- (E) speed in the direction of the field

Questions 59-60

In a region of space, a spherically symmetric electric potential is given as a function of  $r$ , the distance from the origin, by the equation  $V(r) = kr^2$ , where  $k$  is a positive constant.

59. What is the magnitude of the electric field at a point a distance  $r_0$  from the origin?

- (A) Zero
- (B)  $kr_0$
- (C)  $2kr_0$
- (D)  $kr_0^2$
- (E)  $\frac{2}{3}kr_0^3$

60. What is the direction of the electric field at a point a distance  $r_0$  from the origin and the direction of the force on an electron placed at this point?

<u>Electric Field</u>	<u>Force on Electron</u>
(A) Toward origin	Toward origin
(B) Toward origin	Away from origin
(C) Away from origin	Toward origin
(D) Away from origin	Away from origin
(E) Undefined, since the field is zero	Undefined, since the force is zero