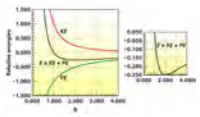
1 When the electron orbital radius is an infinite distance from the nucleus, which one of the following statements is correct?



A KE is a positive value
B PE is a negative value
C E = 0
D None of the above

2 The potential energy of an atom is governed by the Coulombic interaction between the nucleus and the electron. The Coulombic attraction of an electron and a hydrogen nucleus is proportional to ...

A -1/r
B -2/r
C +1/r
D +2/r

3 The potential energy of an atom is governed by the Coulombic interaction between the nucleus and the electron. The Coulombic attraction of a single electron and a helium nucleus is proportional to ...

A -1/r
B -2/r
C +2/r
D -4/r

4 If the radius of an atom is halved, the potential energy of the atom is ...

A increased by a factor of 2
B lowered by a factor of 2
C lowered by a factor of 4 (22)
D remains the same

5 If the radius of an atom is halved, the kinetic energy of the atom is:

A increased by a factor of 2
B lowered by a factor of 2
C increased by a factor of 4 (22)
D remains the same

6 What are the relative sizes of the one-electron systems, the hydrogen atom and the helium cation (He+)?

A The hydrogen atom is larger
B The helium cation (He+) is larger
C They are the same size, because they each have one electron in a 1s orbital
D Need more information