Previous Year JEE Problems

Given below are two statements :

Statement I : Rutherford's gold foil experiment cannot explain the line spectrum of hydrogen atom.

Statement II : Bohr's model of hydrogen atom contradicts Heisenberg' uncertainty principle.

In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Statement I is false but statement II is true.

(B) Statement I is true but statement II is false.

(C) Both statement I and statement II are false.

(D) Both statement I and statement II are true.

Explanation

Rutherford's gold foil experiment only proved that electrons are held towards nucleus by electrostatic forces of attraction and move in circular orbits with very high speeds.

Bohr's model gave exact formula for simultaneous calculation of speed & distance of electron from the nucleus, something which was deemed impossible according to Heisenberg.