Practice Problems Section 2.2

1) Which statement below correctly describes the responses of alpha, beta, and gamma radiation to an electric field?

A) Both beta and gamma are deflected in the same direction, while alpha shows no response.

B) Both alpha and gamma are deflected in the same direction, while beta shows no response.

C) Both alpha and beta are deflected in the same direction, while gamma shows no response.

D) Alpha and beta are deflected in opposite directions, while gamma shows no response.

E) Only alpha is deflected, while beta and gamma show no response.

2) \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ reside in the atomic nucleus.

A) Protons, electrons

B) Electrons, neutrons

C) Protons, neutrons

D) none of the above

E) Neutrons, only neutrons

3) The charge on an electron was determined in the \_\_\_\_\_\_\_\_\_\_.

A) cathode ray tube, by J. J. Thompson

B) Rutherford gold foil experiment

C) Millikan oil drop experiment

D) Dalton atomic theory

E) atomic theory of matter

4) \_\_\_\_\_\_\_\_\_\_-rays consist of fast-moving electrons.

A) Alpha

B) Beta

C) Gamma

D) X

E) none of the above

5) The gold foil experiment performed in Rutherford's lab \_\_\_\_\_\_\_\_\_\_.

A) confirmed the plum-pudding model of the atom

B) led to the discovery of the atomic nucleus

C) was the basis for Thomson's model of the atom

D) utilized the deflection of beta particles by gold foil

E) proved the law of multiple proportions

6) Cathode rays are deflected away from a negatively charged plate because \_\_\_\_\_\_\_\_\_\_.

A) they are not particles

B) they are positively charged particles

C) they are neutral particles

D) they are negatively charged particles

E) they are emitted by all matter

7) Of the three types of radioactivity characterized by Rutherford, which is/are electrically charged?

A) β-rays

B) α-rays and β-rays

C) α-rays, β-rays, and γ-rays

D) α-rays

E) α-rays and γ-rays

8) Of the three types of radioactivity characterized by Rutherford, which are particles?

A) β-rays

B) α-rays, β-rays, and γ-rays

C) γ-rays

D) α-rays and γ-rays

E) α-rays and β-rays