Student Name:

Roll Number:

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# Modern Physics

## Part A

1. When a quarter, a nickel, a penny, and a dime are spun on a tabletop, what characteristics allow you to identify the type of spinning coin?

The **time is taken by the coin, sound produced by the coin, the area of spinning taken by the coin.**

1. The average mass of an atom of an element is known as ?

**Atomic Mass of the Element**

1. The currently accepted model of the atom is that of ?

**Schrodinger and Heisenberg Model**

1. Atoms of an element with the same number of protons but different number of neutrons in the nucleus are known as ?

**Isotopes**

1. The smallest particle of an element which can take part in chemical reactions and may or may not exist independently is the .

**Atom**

## Part B

1. Based on Thomson’s Plum Pudding model, how did Rutherford expect the alpha particles to behave when he shot them at the gold atoms?

Rutherford expected the alpha particles will pass out from the gold foil without any disturbance.

1. Why did he expect this?

It was expected because the atom was considered to consist of positive and negative charges. The negative charges are stuck in positive charges according to the Plum Pudding Theory.

1. What did he observe instead?

Rutherford observed that the majority of the α-particles passed out from the gold foil. While few reflective and refracted at different angles.

1. Based on his observations, what inference did Rutherford make about the distribution of positive charge in the atom?

The atom has a dense tiny center with a positive charge. It also consists of large empty spaces.

Work Cited

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