Mohamud Harbi Primary and secondary school		**Grade: Form four**
Subject: Physics		**Date: 15/3/2019**
Chapter (9): Nuclear physics		**Teacher: Mohamed Hassan Abdullahi (Daacad)**

1) What Rutherford discover ?

- Rutherford discovered that atoms have central positively charged part known as nucleus of the atom and the electrons revolve in an empty space of the atom.

2) What Bohr discover ?

- Bohr discovered that the electrons revolve around the nucleus in a special orbit known as the energy levels and he proved that the angular momentum of the electron.

3) What is the nucleus consists of ?

- A nucleus consists of nucleons comprising of protons and neutrons.

4) Define atomic number ?

- Atomic number is the number of protons inside a nucleus.

5) Define mass number ?

- Mass number is the combined number of all the protons and neutrons in a nucleus.

6) Define isotopes ?

- Isotopes are such nuclei of an element that have the same atomic number but have different mass number.

7) Define mass-spectrograph ?

- ❖ Mass-spectrograph is a device with the help of which not only the isotopes of any element can be separated from one another but their masses can also be determined quite accurately.

8) Define radioactivity ?

- ❖ Radioactivity is the explosion of the nucleus of the atom.

9) Who was discovered radioactivity ?

- ❖ Henary Bacquerel.

10) List nature of radioactivity ?

- ❖ Nature of radioactivity include:
  - ✓ They affect photographic plates.
  - ✓ They ionize the air molecules.
  - ✓ They have a fluorescent effect.
  - ✓ They have physiological effect.
  - ✓ They pass through a sequence of decay.

11) What are radioactive elements ?

- ❖ Radioactive elements are:
  - ✓ Alpha-particles (α)
  - ✓ Beta-particles (β)
  - ✓ Gamma (γ) rays

12) Define alpha-particles ?

- ❖ Alpha-particles (α) are helium nuclei ($^{4}_{2}He$) that are positively charged.

13) Define beta-particles ?

- ❖ Beta-particles (β) is similar to electrons with high velocity ($^{0}_{-1}e$) and negatively charged.

14) Define Gamma rays ?

- ❖ Gamma (γ) rays are electromagnetic waves and are uncharged.

15) What is the half life ?

- ❖ Half life is the time in which half of the atom decays.

16) What is the decay constant ?

- ❖ Decay constant (λ) is the ratio of the number of atoms that decays in unit of time to the whole number of the atoms.

17) What are the two main types of nuclear reactions ?

- ❖ There are two main types of nuclear reactions that can release energy:
  - ✓ Fission
  - ✓ Fusion

18) Define fission ?

- ❖ Fission: The process of causing a large nucleus to split into multiple smaller nuclei, releasing energy in the process.

19) Define fusion ?

- ❖ Fusion is the process of causing small nuclei to stick together into a larger nucleus, in the process releasing energy or union of small atoms to form a large atom.

20) What is the application of radioactivity ?

- ❖ Carbon dating.

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