**Gulistan Academy**

Physics (10th) Max.Marks = 40

Chapter No.18 (Atomic & Nuclear Physics) Pass Marks = 20

Time = 1 Hour

**Question No.1: Give short answers. (2x12 = 24)**

1. What is the difference between atomic number and mass number?
2. What do you mean by the term Radioactivity?
3. How can you make radioactive elements artificially?
4. Write the alpha decay process for**.**
5. What do you understand by the half-life of a radioactive element?
6. What is meant by background radiations? Enlist some sources of background radiations.
7. Describe two uses of radioisotopes in medicine, industry or research.
8. A nitrogen nuclide decays to become an oxygen nuclide by emitting an electron. Show this process with an equation.
9. What nuclear reaction would release more energy, the fission reaction or the fusion reaction? Explain.
10. How long would you likely have to wait to watch any sample of radioactive atoms completely decay?
11. How much of a **1g** sample of pure radioactive mater would be left after four half-lives?
12. Which radiation (**α, β, γ**) has the largest penetrating ability? Explain.

**Question No.2: (5+3 = 8)**

1. Describe some uses of Radioisotopes.
2. **Cobalt-60** is a radioactive element with half-life of **5.25 years**. What fraction of the original sample will be left after **26 years**?

**Question No.3: (5+3 = 8)**

1. What is Nuclear Fission Reaction? Explain with example. Also discuss the Fission Chain Reaction.
2. Ashes from a campfire deep in a cave show **carbon-14** activity of only **one-eighth** the activity of fresh wood. How long ago was that campfire made?

**Best of luck**