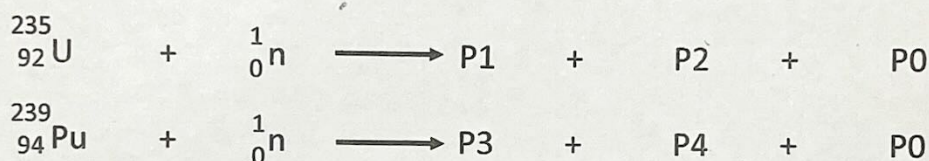


22 1. Answer the below questions:

- Arrange the various types of hydrocarbons in ascending octane numbers order. (05)
  - Among the \_\_\_\_\_ number of SDGs, the 1, 7 and 13 goals represent \_\_\_\_\_ and \_\_\_\_\_. (04)
  - The knocking phenomenon occurs due to the ignition of \_\_\_\_\_ resulting in \_\_\_\_\_ of air/fuel mixture. (02)
  - \_\_\_\_\_ energy is use to make \_\_\_\_\_ panels, whereas \_\_\_\_\_ power can be converted into \_\_\_\_\_ by a generator. (04)
  - The design of FCC reactors comprises of \_\_\_\_\_ and \_\_\_\_\_ type reactors. (02)
  - The two major monomers used to make synthetic rubber are \_\_\_\_\_ and \_\_\_\_\_. (02)
  - In the thermal cracking process, lighter petroleum fractions such as naphtha are cracked thermally to obtain alkenes and BTX (\_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_). (03)
- Q 2. With appropriate figure, illustrate the entire process of planktons deposition and how over time these planktons get converted into fossil fuels / petroleum products. (9)
- S 3. Indicate the products P0, P1, P2, P3 and P4 formed in the nuclear fission reactions: (05)



- ✓ 4. List five fraction sets, from C5 to C12 and higher, that are separated out by petroleum refining process, their basic physical characteristics, applications and carbon ranges they possess. (10)
- 6 5. Define: Thermal Cracking, Catalytic Cracking and Steam Cracking (06)
- 4 6. In the steam-cracking process, explain the roles of the following: (09)
- Cracking and quenching
  - Compression and drying
  - Separation of products
- 10 7. Describe the difference between Renewable and Non-Renewable energy forms. Classify Renewable and Non-renewable energy types and provide description for each. (10)
- 10 8. Depict and explain with a flow diagram of fluidized catalytic cracking process, for obtaining various cracked products. (10)
- 9 9. Explain the thermal cracking reaction and products of propane, octane and decane. (9)

$$\frac{45}{100} \times \frac{100}{2} = \frac{27}{2} = 13.5$$

$$\frac{20}{2} = 10$$