



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions. (15x2=30)

- i. How neutron to proton ratio is related to the stability of a nucleus?**
- ii. Differentiate between nuclear fusion and nuclear fission.**
- iii. What are different types of radioactive decay?**
- iv. What is the difference between isotones and isobars?**
- v. What is kinetic isotopic effect? Give its applications.**
- vi. Osmotic pressure is a colligative property. Justify.**
- vii. Explain Hardy-Schulze rule for coagulation.**
- viii. What are gels? Give their types.**
- ix. What are wetting agents? Give their uses.**
- x. Describe Van't Hoff theory of dilute solutions.**
- xi. Differentiate between endosmosis and exosmosis.**
- xii. What is demulsification? How is it achieved?**
- xiii. Briefly describe cleansing action of soaps and detergents.**
- xiv. What are the limitations of Van't Hoff's law of osmotic pressures?**
- xv. Write a small note on properties of colloids.**

Answer the following questions.

Q2(a). What is nuclear reactor. Explain with help of Diagram. (05)

(b) Discuss uses of tracers in Chemistry. (05)

Q3. Describe mechanism of action of a semipermeable membrane with the help of different theories. (10)

Q4. (a) Discuss oriented-wedge theory of emulsions. 05

(b) Write a note on methods of preparation of emulsions. 05