B.Sc. DEGREE EXAMINATION,APRIL 2020
III Year V Semester
Inorganic Chemistry - I

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What are isotopes? Give examples.
2. What are called magic numbers?
3. What is radioactivity?
4. How is nuclear fusion reactions produce energy?
5. What is meant by sublimation?
6. Mention the methods available for testing purity of a compound.
7. State Beer Lambert's law.
8. Mention the mutual exclusion principle.
9. What are nanoparticles?
10. Mention any four applications of nanochemistry.
11. What are auxochromes?
12. What are radioactive series?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain the term packing fraction.
14. Explain the terms half life period and disintegration constant of a radioactive substance.
15. Explain the Soxhlet extraction technique.
16. Discuss various types of electronic transitions.
17. How is nanoparticles synthesized by sol-gel method?
18. Write a note on Rayleigh and Raman scattering.
19. Discuss the role played by N/P ratio on the stability of a nucleus.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. (a)Explain -meson theory. (5)
    (b)Describe liquid drop model. (5)
21. Describe the detection and measurement of radioactivity by GM counter method.
22. Write notes on (a)fractional crystallization (b)steam distillation. (5+5)
23. Explain the principle and instrumentation of IR spectroscopy.
24. Discuss the following methods for nanoparticle synthesis
    (a)physical vapour deposition (b)chemical reduction. (5+5)

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