S. No.: 63 BATCH: 2017, 2018 Reg. No.:

END OF SEMESTER EXAMINATIONS, APRIL / MAY - 2019
INORGANIC CHEMISTRY - I
SUBJECT CODE: 15P3CH01

MAJOR : M.Sc (Chemistry) SEMESTER : I
TIME : 3 HOURS MAX. MARKS: 70

SECTION - A (10 X 1 = 10)

Answer ALL the questions:

1. What are the types of boranes? Give its general formula.
2. How will you prepare (SN_x) from S_4N_4?
3. What is called symbiosis?
4. Give the applications of polyacids.
5. Why alkali metal shows blue colour in Liq.NH_3?
6. What is called Born-Lande equation?
7. Explain the term Synchrotron.
8. What is called binding energy?
9. Distinguish U-238 and U-235.
10. What are safer disposable ways of nuclear waste?

SECTION - B (5 X 4 = 20)

Answer ALL the questions:

11. a) Write the preparation and properties of siloxanes.
    (OR)
    b) Discuss the preparation and structure of carborane.
12. a) Write a note on hetropolyacid of Tungston.
    (OR)
    b) Explain the Dewar model of ring structure.
13. a) Explain the chemical reactions taking place in Liq SO_2.
    (OR)
    b) Make note on Superconductors.
14. a) Discuss the liquid drop model to explain stability of nucleus.
    (OR)
    b) Write a note on betatron and bevatron.
15. a) Explain the nuclear fusion of hydrogen nuclei.
    (OR)
    b) Narrate the synthesis of new elements.

SECTION - C (5 X 8 = 40)

Answer ALL the questions:

16. a) Classify silicates into different types. Give the composition and structure of each type of silicates.
    (OR)
    b) Discuss the preparation, structure and bonding of boron nitrides.
17. a) Give the applications of HSAB theory.
    (OR)
    b) Explain the preparation, structure and bonding of isopolyacids of V and Cr.
18. a) i) Write a note on high temperature super conductors.
    ii) How the lattice energy of NaCl is calculated?
    (OR)
    b) Write the typical chemical reactions taking place in Liquid ammonia and HCN.
19. a) i) Explain the theory of α, β-decays and, γ-radiation.
    ii) Give the working nature of cloud chamber and give its applications.
    (OR)
    b) Explain the nuclear isomerism and internal conversion.
20. a) i) Discuss the various applications of radio active isotopes.
    ii) Give an application for carbon dating method.
    (OR)
    b) i) What is known as neutron activation analysis? Give its importance?
    ii) Write a note on nuclear cross section.

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