18P111 (Pages: 2) Name: …….

Reg. No……...

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(Regular/Supplementary/Improvement)

(CUCSS-PG)

CC15P CH1 C02 – ELEMENTARY INORGANIC CHEMISTRY

(Chemistry)

(2015 Admission onwards)

Time: Three Hours Maximum: 36 Weightage

Section A

Answer ***all*** questions. Each question carries 1 weightage.

1. Write a note on electroneutrality principle.
2. Briefly explain inorganic conducting materials with a suitable example.
3. Classify the following boranes based on structure- $C_2B_{10}H_{12}$, B_5H_9, $B_{10}H_{10}^{2-}$.
4. Discuss structure of S_2N_2
5. Write a note on super heavy elements.
6. Explain inert pair effect with examples.
7. Write a note on super octet molecules.
8. Give one example for thermo nuclear reactions.
9. What are silicides?
10. State and explain Octet rule.
11. The Actinide contraction is severe on comparison with lanthanide contraction. why?
12. Write a note on the applications of molecular sieves.

(12 x 1 = 12 Weightage)

Section B

Answer any ***eight*** questions. Each question carries 2 weightage.

13. Explain Energetics of hybridization using Bent's rule.
14. What are the differences between 4f and 5f orbitals?
15. Give the structure and preparation of phosphazenes.
16. Write a note on Walsh diagrams.
17. Apply wades rule, analyse styx numbers and draw the structure of B_5H_9.
18. Write a note on different types of carbides with suitable examples.
19. Discuss synthesis, structure and applications of SN compounds.
20. Write a brief note on Neutron activation analysis.

21. Explain the action of non-aqueous solvent liquid ammonia and outline chemical reactions taking place in it.
22. Write a note on Lux-flood concept of acids and bases.
23. Write a note on GM counters for radiation detection.
24. Outline structure and synthesis of inorganic benzene.

(8 x 2 = 16 Weightage)

Section C

Answer any ***two*** questions. Each question carries 4 weightage.

25. a) Write notes on Ellingham diagrams and comment on standard reduction potential of species involved.

    b) Discuss spectral and magnetic properties of f-block elements.
26. Discuss structure and bonding in Diborane. How it is synthesized? Explain its reaction with ammonia.
27. Write notes on Poly acids of Tungsten and Molybdenum and outline their applications.
28. Explain: (a) Bethe's notation for nuclear reactions b) Radiolysis of water.

(2 x 4 = 8 Weightage)

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