K22U 2776

Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree (CBCSS – Supplementary) Examination, November 2022
(2016 – 18 Admissions)
COMPLEMENTARY COURSE IN CHEMISTRY
3C03CHE(PS) Chemistry (For Physical Science)

Time : 3 Hours

Max. Marks : 32

SECTION – A

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

1. Give one example of an ambidentate ligand.
2. What is meant by homolysis ?
3. Name any two ores of aluminium.
4. What are closed systems ?
5. What is the hybridization and geometry of $[NiCN)4]^{2-}$? **(1×5=5)**

SECTION – B

Answer **any four** questions. **Each** question carries **2** marks.

6. What is n/p ratio ? How is it related to stability ?
7. What is the physical significance of Gibbs free energy ?
8. What are Grignard reagents ? Give one method for preparation.
9. What is froth flotation process ?
10. What is meant by zero point energy ?
11. What is electromeric effect ? **(2×4=8)**

P.T.O.

SECTION – C

Answer **any three** questions. **Each** question carries **3** marks.

12. State and formulate the first law of thermodynamics. Calculate the internal energy change produced when 800 J of work is done on a system which gives off 220 J of heat.
13. Give an account of the problems associated with nuclear waste disposal.
14. Give the mechanism of Friedel Crafts acylation and alkylation reactions.
15. What are the limitations of VB theory ?
16. Write notes on :
    a) ionic and
    b) pi bonded organometallic compounds. **(3×3=9)**

SECTION – D

Answer **any two** questions. **Each** question carries **5** marks.

17. a) Explain radiocarbon dating.
    b) An old wooden furniture shows a C^{14} activity which is 60% of the activity of fresh wood. Find the age of the wood that was used to make the furniture. Half life of C^{14} is 5760 years.
18. Explain the various stages in the metallurgy of Ni.
19. Discuss the reactions of ferrocene.
20. Write notes on :
    a) spin-spin coupling
    b) finger print region
    c) chemical shift. **(5×2=10)**
