K18U 1443

Reg. No. : .....

Name : .....

# V Semester B.Sc. Degree (CBCSS – Reg./Sup./Imp.) Examination, November 2018
## (2014 Admn. Onwards)
## CORE COURSE IN CHEMISTRY
## 5B07 CHE : Inorganic Chemistry – I

Time : 3 Hours Max. Marks : 40

### SECTION – A

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

1. What is polythiazyl ?
2. What are clathrates ?
3. How is boric acid prepared ?
4. List any two uses of noble gases. **(1×4=4)**

### SECTION – B

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

5. Explain why $CCl_4$ resists hydrolysis while $SiCl_4$ gets readily hydrolysed.
6. What are ionic organometallics ? Give examples.
7. How is anhydrous $AlCl_3$ prepared ? Write down its structure.
8. Explain the principle of extraction of sodium.
9. What are ceramics ? How are they useful ?
10. What are orthosilicates ? Give two examples.
11. How is $CaC_2$ prepared ? Explain its reaction with water.

P.T.O.

12. What are macrocycles ? Give two examples.

13. What is diagonal relationship ? Explain with an example.

14. What is vilsmeir reaction ? Write equation. **(2×7=14)**

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. Define electronegativity. How will you calculate the electronegativity using Paulings and Mullikkanns method ?

16. Comment on the position of hydrogen in the periodic table.

17. Give the hybridization and structure of three xenon fluorides.

18. Give the preparation of borazine. Compare its properties with benzene.

19. Account for the irregular variation of in the ionization energies of group 13 elements.

20. Explain 18 electron rule. Illustrate its application in finding the M-M bond. **(4×3=12)**

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. Explain the preparation, properties and structure of diborane.

22. Compare the properties of first transition series with second and third.

23. a) Discuss the classification of organometallics.
    b) Give the methods of preparation of metal carbonyls.

24. a) What are silicones ?
    b) Give an account of different types of silicones and their uses. **(5×2=10)**

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# V Semester B.Sc. Degree (CBCSS-Reg./Sup./Imp.) Examination, November 2018
## (2014 Admn. Onwards)
## Core Course in Chemistry
## 5B08 CHE : INORGANIC CHEMISTRY – II

Time : 3 Hours Max. Marks : 40

### SECTION – A

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

1. What are lattice compounds ?
2. What is meant by CFSE ?
3. Give composition of two non ferrous alloys.
4. List any four toxic effect of metals. **(1×4=4)**

### SECTION – B

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

5. What is meant by spectrochemical series ?
6. What are metalloenzymes ? Name two Zn enzymes.
7. Write two methods for prevention of corrosion.
8. Explain the hybridisation and geometry of $NiCN_4$ and $NiCO_4$.
9. What are ambidentate ligands ? Give examples.
10. Compare the electronic spectra of lanthanides and transition metals.
11. What are trans actinide elements ? Give examples.

P.T.O.

12. What is EAN ? Calculate the EAN of $[Co(NH_3)_6]^{3+}$.

13. What are coinage metals ? How do they occur in nature ?

14. Distinguish between calcinations and roasting. **(7×2=14)**

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. Explain the following, hydrometallurgy, electrometallurgy.

16. What are the consequences of lanthanide contraction ?

17. Write a note on concentration cell corrosion.

18. Give the stereochemistry of coordination compounds with coordination number 4, 5, 6.

19. What are the limitations of CFT ?

20. Explain the biological nitrogen fixation. **(3×4=12)**

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. Discuss the structure and oxygen binding mechanism of Hb.

22. Give an account of the factors affecting stability of complexes.

    Explain step wise and overall stability constant. How are they related ?

23. Discuss the extractive metallurgy of Cu.

24. Compare the properties of transition and innertransition elements. **(5×2=10)**

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