K20U 1495

Reg. No. : ....

Name : ....

V Semester B.Sc. Degree (CBCSS – Reg./Sup./Imp.)
Examination, November 2020
(2014 Admn. Onwards)
CORE COURSE IN CHEMISTRY
5B07 CHE – Inorganic Chemistry – 1

Time : 3 Hours   Max. Marks : 40

SECTION – A

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

1. What is meant by diagonal relationship ?

2. What are pyrosilicates ?

3. Give a method for the preparation of diborane.

4. List any four oxoacids of halogens. $(4\times1=4)$

SECTION – B

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

5. The ionization energies of C, N, O follow the order C < N > O. Give reason.

6. The hydroxides of group II metals are less basic than those of group I. Why ?

7. Give the hybridisation and geometry of $XeOF_4$.

8. Explain the principle of extraction of sodium.

9. What are silicones ? How are they useful ?

10. Give the preparation and structure of B_4H_{10}.

11. How is silicon carbide prepared ? Explain its use.

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12. What is meant by ionisatio enthalpy ? How does the ionization energies of transition elements vary with atomic number ?

13. BCl_3 is monomeric while $AlCl_3$ is trimeric.

14. What are super refractories ?   (7×2=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. Solutions alkali metals in liquid ammonia acts as reducing agents. Why ?

17. Write a note on the use of noble gases.

18. Give the preparation of any three oxoacids of sulphur.

19. Show that ferrocene is more aromatic than benzene.

20. Explain the structure of ICl, IBr_3 and IF_7.   (4×3=12)

SECTION – D

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

21. Discuss the general properties of transition metals.

22. Give an account of sulphur based polymers.

23. a) What are crown ethers and cryptates ?

    b) Discuss the preparation of different types of carbides.

24. a) Give an account of pseudo halogens.

    b) How are orgametallics classified ?   (2×5=10)