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GSE/M-21 **1481**

CHEMISTRY
(Inorganic Chemistry)
Paper–IV CH-104

Time : Three Hours] [Maximum Marks : 32

Note : Attempt *five* questions in all, selecting *two* questions from each section. Question No. 1 is compulsory.

Compulsory Question

1. (a) What is inert pair effect ?

(b) Why H_2SO_4 is highly viscous ?

(c) Which alkaline earth metal is radioactive ?

(d) Why sodium is stored in kerosene oil and not in H_2O ?

(e) What is p-n-p transitor ?

(f) Why xenon forms compounds with F_2 and O_2 ?

(g) Why CCl_2F_2 is used in refrigerators.

(h) Write down general electronic configuration of S-Block elements. (1×8=8)

SECTION–A

2. (a) Name two conditions for the formation of H-bond. 2

(b) Write note on p-type semiconductors. 2

(c) Describe briefly Dipole-Induced dipole type of Van der Waal's forces. 2

3. (a) Explain the role of semiconductors in photo voltaic cell. 2

(b) Why Li_2CO_3 is unstable while Na_2CO_3 is quite stable ? 2

(c) What is structure of Beryllium Chloride in solid state and in vapour state ? 2

4. (a) Discuss diagonal relationship of Beryllium with Aluminium. 2

(b) Discuss factors which led to late discovery of compounds of noble gases. 2

(c) Why alkali metals give blue solution in liquid ammonia ? 2

5. (a) Discuss structure of XeF_2 and $XeOF_4$. 2

(b) Why LiF is insoluble in H_2O while fluorides of all other alkali metals are soluble ? 2

(c) What are main postulates of BAND theory of metallic bonding. 2

SECTION–B

6. (a) What are carbides ? How do CaC_2 and Al_4C_3 differs ? 2

(b) Draw structures of P_4O_{10} and N_2O_5. 2

(c) Give *four* uses of silicone polymers. 2

7. (a) Give any *two* methods of preparation of Borazine. 2

(b) Why BF_3 is less acidic than BCl_3 ? 2

(c) Why CO_2 is gas while SiO_2 is solid ? 2

8. (a) Name any *four* oxy acids of sulphur with their structures. 2

(b) What happens when H_2O_2 reacts with

(i) Acidified $KMnO_4$.

(ii) Acidified $FeSO_4$. 2

(c) Discuss structure of IF_7 on the basis of hybridization. 2

9. (a) Write note on cyclic silicates. 2

(b) Give any *three* methods of preparation of inter halogen compounds. 2

(c) Chlorine forms ClF_3 while fluorine does not form FCl_3. Why ? 2