(i) Printed Pages :3] Roll No. .....

(ii) Questions :9] Sub. Code : 0149

Exam. Code: 0002

B.A./B.Sc.(General) 2nd Semester

1055

CHEMISTRY

(Same for B.Sc. Microbiol & Food tech.)

Paper - V : Inorganic Chemistry-B

Time : 3 Hours] **[Max. Marks : 45**

Note :- (i) Attempt **five** questions in all, selecting **one** question from each Unit.
(ii) Unit-V is compulsory.
(iii) Simple calculator is allowed.

UNIT-I

I. (a) Differentiate between tetrahedral and octahedral voids. 3

(b) What is doping? Explain with example. 3

(c) Define SCHOTTKY and FRENKEL defects. 3

II. (a) Draw a neat diagram of zinc sulphide crystal. 3

(b) What are the limitations of radius ratio rule? 3

(c) What is n-type semiconductor? Explain with an example. 3

UNIT-II

III. (a) Why othersilver halides are insoluble in water but silver fluoried is soluble in water? Explain. 5

(b) Explain polarisation and polarising power. 4

IV. (a) Give a brief account of band theory of banding in solids. 4

(b) Calculate Lattice energy of NaCl when modeling constantis 1.748, internuclear distance is 0.2814 nm and Born exponent is 9. 5

UNIT-III

V. (a) Discuss the ability of group 14 elements to form complexes. 5

(b) Why does property of catenation for group 14 follow the order:

C >> Si > Ge > Sn > Pb 4

VI. (a) The structure of trimethylamine is pyramidal while that of trisilylamine is planar although C and Si both belong to the same family. 5

(b) Write a note on cyclic silicates. 4

UNIT-IV

VII. (a) Al forms AlF_6^{-3} but B does not form BF_6^{-3} ion. Explain. 4

(b) Out of BF_3 ,BCl_3 ,BBr_3 ,which is not easily hydrolysed and why? 5

VIII. (a) Why are interhalogens morereactive than parent halogens? 3

(b) ICl_7 does not exist while IF_7 exists. Explain. 3

(c) Out of IBr and ClFwhich is more stable and why? 3

UNIT-V

IX. (a) Out of NaCl and CsCl Which has higher coordination number of Cl?

(b) n-type semiconductor is obtained by adding Si with atoms of which element?

(c) Nameaninorganic compound which is hard and can be used as abrasive.

(d) Name a compound which shows both Schottky and Frenkeldefects.

(e) Name the most important factor that governs the value of modeling constant.

(f) How many Na^+ and Cl^- ions are present in a unit cell of NaCl?

(g) What are imperfections or defects?

(h) What is a unit cell?

(i) Name one oxoacid of sulphur. 9x1=9