

1014

M.Sc. IV Semester Examination 2020

Subject : Chemistry

Paper : II – Solid State Chemistry

Max.Marks : 85

Min.Marks: 29

Note: Attempt all questions. Question No. 1 is compulsory.

Section –‘A’
(Short Answer Type Questions)

1. Attempt any five of the following questions.(in short answer) 5x5=25
- (i) What is coprecipitation?
 - (ii) Give kinetics of solid state reaction.
 - (iii) Define perfect and imperfect crystals.
 - (iv) Describe colour centers.
 - (v) Define semiconductors. Give examples.
 - (vi) What is anti-ferromagnetism?
 - (vii) Give examples of organic charge transfer complex.
 - (viii) What are new superconductors?
 - (ix) Define liquid crystals.
 - (x) Give application of liquid crystal in brief.

Section –‘B’
(Long Answer Question)

Unit - I

2. Give general principle and experimental procedure to solid state reactions. 12

OR

Describe kinetics of solid state reactions.

Unit - II

3. Write down the thermodynamics of scholty and frenkel defect formation. 12

Contd...

(2)

OR

Describe the following:

- (i) Shottky defect
- (ii) Frenkel defect

Unit - III

4. Describe band theory with respect to metal semiconductors and insulators. 12

OR

Write short notes on (any two):

- (i) P-N junction
- (ii) Optical microscopy
- (iii) Classification of materials

Unit - IV

5. Write an essay on electrically conducting organic materials in conjugated system. 12

OR

Write note on:

- (i) Organic metals
- (ii) Organic charge transfer complexes.

Unit - V

6. What are liquid crystals? Write their types theory and application in details. 12

OR

Write note on (any two):

- (i) New materials
- (ii) Nematic and Smatic liquid crystals
- (iii) Ferroelectric and antiferroelectric liquid crystals
