

(4)

Total Pages—4

M.Sc.—Chem-IVS(CC-510)

6. (a) Write in detail about the band theory of solids.

Or

- (b) Explain the crystal systems with examples. Write about the types of solid state reactions.
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2019

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as directed

The figures in the right-hand margin indicate marks

Candidates are required to answer in their own words as far as practicable

(ADVANCE PHYSICAL CHEMISTRY)

SECTION – A

1. Answer any *four* question from the following : 4 × 4
- (a) Draw and explain Tafel plot.
 - (b) How do you determine the degree of dissociation of an electrolyte ?
 - (c) Write the applications of Fuel cells.
 - (d) Draw and explain Gibb's adsorption isotherm.
 - (e) Explain the factors affecting critical micellar concentration.

(2)

- (f) Write a short note on reverse micells.
(g) What are ionic crystals? Write their properties.

Or

2. Answer *all* questions : 2 × 8

- (a) Write and explain the terms involved in Debye Hückel-Onsagar equation
(b) Define activity coefficient.
(c) Define corrosion.
(d) Define free energy and enthalpy.
(e) Write and explain the terms involved in BET.
(f) Define surface tension.
(g) What are micro-emulsions?
(h) Write and explain the terms involved in Bragg's equation.

SECTION – B

Answer *all* questions : 16 × 4

(3)

3. (a) Derive Lippmann equation. Explain the structure of electrified interfaces.

Or

- (b) State and explain Debye-Hückel limiting law and write about its verification.

4. (a) Describe corrosion monitoring and its preventive methods.

Or

- (b) Write the measurement of EMF. Discuss the relationship between EMF and enthalpy change and entropy change.

5. (a) How do you determine surface area by BET method? Explain the catalytic activity at surfaces of solids.

Or

- (b) Write about the classification of surface active agents with examples. Explain the thermodynamics of micellization.