5. (a) Explain the concept of micells and reverse micells. How do you determine the critical miceller concentration ?

Or

(b) Explain the formation of surface films on liquids. Write their applications.

6. (a) Discuss the Band theory of solids.

Or

(b) Explain the types of solid state reactions by taking suitable examples.

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2018

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as per direction

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* questions from the following : 4 × 4

   (a) Explain Tafel Plot.

   (b) How do you determine activity coefficient by breezing method ?

   (c) Write any two methods for the prevention of corrotion.

(2)

(d) State and explain Kelvin equation on surface adsorption.

(e) Write the classification of surface active agents with suitable examples.

(f) Write about Miller planes.

Or

2. Answer *all* the questions from the following : 2×8

(a) State and explain the terms involved in Butler volmer equation.

(b) What is meant by degree of dissociation of an electrolyte ?

(c) What is meant by passivity of metals ?

(d) Write the relationship between emf and free energy. . . . .

(e) Explain electrokinetic phenomenon.

(f) What are meant by reverse micelles ?

(3)

(g) What are ionic crystals ? Give example.

(h) Define Critical Miceller Concentration (CMC).

SECTION – B

Answer all questions : 16×4

3. (a) Discuss the thermodynamics of electrified interface equations.

Or

(b) Write any two methods for the determination of activity coefficients of electrolytes.

4. (a) Describe chemical and electrochemical theories of corrosion in detail with examples.

Or

(b) Define EMF. How do you determine EMF of a cell ?