**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2024**
(Fifth Semester)

Branch – **CHEMISTRY**

**PHYSICAL CHEMISTRY - I**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1. Which among the following is true about Faraday's law of Induction?
   a) An emf is induced in a conductor when it cuts the magnetic flux
   b) An emf is induced in a conductor when it moves parallel to the magnetic field
   c) An emf is induced in a conductor when it moves perpendicular to the magnetic field
   d) An emf is induced in a conductor when it is just entering a magnetic field

2. Ostwald's dilution law is applicable to
   a) strong electrolytes only b) weak electrolytes only
   c) non-electrolytes d) strong as well as weak electrolytes

3. Which of the following is a Lewis acid?
   a) $(CH_3)_3P$ b) $(CH_3)_2O$
   c) $(CH_3)_3B$ d) $(CH_3)_3N$

4. The standard electrode potential for any half-cell is the measurement of
   a) voltage b) ions apart
   c) radii of ions d) deposited ions

5. Which of the following methods is not used for the prevention of corrosion?
   a) greasing b) painting
   c) plating d) heating

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a. Explain the applications of conductivity.
   OR
   b. Discuss the discharge of ions on electrolysis.

7 a Explain the factors in favour of Arrhenius theory.
   OR
   b Discuss the Falkenhagen effect.

8. a. Explain the Lewis concept of acids and bases.
   OR
   b. Describe the applications of buffer solutions.

9 a. Discuss the metal-metal ion electrodes with examples.
   OR
   b. Describe the standard hydrogen electrode.

10 a. Explain the electroplating units and its basic components.
   OR
   b. Describe the galvanization.

**Cont...**

## SECTION -C (30 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11. a Discuss the determination of transport number of ions by moving boundary method.

OR

b State Kohlrausch law. Mention its applications.

12 a Explain the factors influencing degree of dissociation.

OR

b Give the advantages of conductometric titrations. Explain the strong acid vs strong base by conductometric titration.

13 a Explain the dissociation of weak acid and derivation of dissociation constant.

OR

b Describe the degree of hydrolysis of salts of weak acid and strong base.

14 a Derive an expression of EMF of a concentration cell with transference.

OR

b Explain the determination of solubility product of sparingly soluble salt.

15 a Explain the different kinds of plating.

OR

b Describe the various methods used in the prevention of corrosion.

Z-Z-Z

END