

Total No. of printed pages = 6

**END SEMESTER REGULAR EXAMINATION,  
JANUARY – 2025**

Semester : 1st (New)

Branch : Common to All

Subject Code : BS-105

**APPLIED CHEMISTRY**

Full Marks – 60

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

**Instructions :**

- (i) Question numbers 1 to 3 are compulsory and objective type.
- (ii) Answer any five questions from Question numbers 4 to 9.

1. Fill in the blanks :  $1 \times 5 = 5$

(a) Gram per litre = Normality  $\times$  \_\_\_\_\_.

(b) In covalent compounds the bond is formed due to \_\_\_\_\_ of electrons.

[Turn over

- (c) Inversion of cane sugar is catalysed by \_\_\_\_\_ enzyme.
  - (d) Chemical equilibrium is \_\_\_\_\_ in nature.
  - (e) Ammonium hydroxide is an example of \_\_\_\_\_ electrolyte.

## 2. Choose the correct answers :

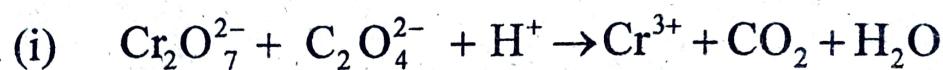
$$1 \times 5 = 5$$

3. Match the following Column - A with Column - B :  $1 \times 5 = 5$

Column – A	Column – B
(a) CaO	(i) Electronic configuration
(b) Sulphur	(ii) Softening of water
(c) Aufbau principle	(iii) Basic flux
(d) Gram/Coulomb	(iv) Vulcanization of Rubber
(e) Ion-exchange process	(v) Electro-chemical equivalent.

4. (a) What is a Redox reaction? Give an example of a Redox reaction. 2

(b) Balance the following equation by ion-electron method (any one) : 3

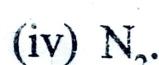


(c) What is Alkalimetry ?

50 ml of 0.15N NaOH solution is diluted to make it 0.1N solution. Calculate the amount of water added. 1+3=4

5. (a) What do you mean by Heisenberg's uncertainty principle ? 2

(b) Write down the electron dot structure of the following compound (any three) : 1×3=3



(c) What is Hydrogen bonding ? Classify the different types of hydrogen bonding with suitable examples. 1+2=3

(d) State the Law of mass action. 1

6. (a) What is Buffer solution ? Explain the different types of buffer solution with examples. 1+2=3

(b) What is a Catalyst and Catalysis ? Name the catalyst used in the synthesis of 3.

(i) Ammonia by Haber's process.

(ii) Sulphuric acid by contact process.

(c) 10 ampere current is passed through a copper sulphate cell for 2 hours. Calculate the amount of copper deposited at cathode. 3

7. (a) What is Rusting of Iron ? Write the mechanism of Rusting of Iron. 1+2=3

(b) What is Portland cement ? Write the function of lime and gypsum in Portland cement. 1+2=3

(c) Differentiate between Calcination and Roasting. 3

8. (a) What is Homopolymer and Co-polymer ? Give examples. 3

(b) What is the difference between temporary hard water and permanent hard water. 3

(c) What is sterilization of water ? How water can be sterilized by using bleaching powder ? 3

9. Write short notes on any *three* :  $3 \times 3 = 9$

- (a) Normal solution and Molar solution
- (b) Primary cell and Secondary cell
- (c) Quantum numbers
- (d) Classification of glass.

