

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 :

1×5=5

(a) Gram per litre = Normality × _____.

(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 : 1×5=5

(a) The colour of phenol-phthalein indicator in alkaline medium is

- (i) Yellow (ii) Colourless
(iii) Pink (iv) Orange

(b) 0.1 mole of HCl is equal to

- (i) 3.65 gram of HCl
(ii) 36.5 gram of HCl
(iii) 18 gram of HCl
(iv) 365 gram of HCl

(c) ¹⁴⁰p^H of 0.001(M) H₂SO₄ solution is

- (i) 1 (ii) 2
(iii) 3 (iv) 4

(d) Water can be sterilized by

- (i) Sulphur (ii) Ozone
(iii) Magnesium (iv) Sodium

(e) German silver is an alloy of

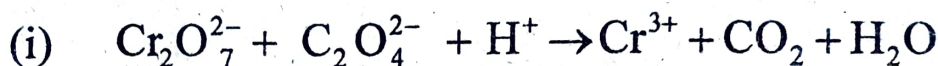
- (i) Calcium (ii) Silver
(iii) Potassium (iv) Copper.

3. Match the following Column – A with Column – B : 1×5=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

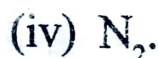


✓(c) What is Alkalimetry ?

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.

