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MANJARA CHARITABLE TRUST

# RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI

## Department of Applied Sciences & Humanities

## INTERNAL ASSESMENT (IA) - I

Date: - 15/10/25

**Max. Marks:** 15 **Duration:** 45 minutes
**Name of the Course:** Applied Chemistry
**Branch:** All branches

**Instructions:**

1. Question 1**(i &ii)**is **compulsory for 6 Marks**
2. From Question 2 (**Solve any one**)
3. From Question 3 (**Solve any one**)
4. Q. 1 to Q.3 will have three different CO's.
5. Figures to the right of the question indicate full marks.
6. Assume the suitable data wherever necessary.
7. Illustrate your answers using neat diagrams wherever necessary.

| Sr. No. | Question | MM | BT | Course Outcomes |
|---|---|---|---|---|
| **Q1. i** | In Kjeldahl's method, ammonia evolved by 1.5g coal was absorbed in 50ml of 0.1 N HCl solution. After absorption, the excess acid required 35ml of 0.1 N NaOH for neutralization. Calculate % N in this coal. | 3 | 1 | CO1 |
| **Q1. ii** | Why gold, platinum and silver do not corrode? | 3 | 2 | CO2 |
| | | | | |
| **Q2. a** | A gaseous fuel has following composition by volume:-$H_2$=34%, $CH_4$=40%, $N_2$=3.5% and $O_2$=2.5%, $C_2H_6$ =20%. Calculate volume of air required for complete combustion of $1m^3$ of fuel. | 5 | 3 | CO1 |
| | **OR** | | | |
| **Q2. b** | Calculate the weight and volume of air needed for complete combustion of 2kg of coal containing C=80%, H=5%, O=3%, N = 5%, S = 3%, ash=2% water vapors=2% (Mol wt. of air=28.949). | 5 | 3 | CO1 |
| | | | | |
| **Q3. a** | With suitable reactions and diagram explain electrochemical mechanism of rusting of iron in neutral aqueous medium. | 4 | 2 | CO2 |
| | **OR** | | | |
| **Q3. b** | Explain electrochemical mechanism of corrosion of iron in acidic medium with reactions and labeled diagram. | 4 | 1 | CO2 |