*Enrolment No/Seat No.:* _____

# R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT

***(An Autonomous Institute U/s UGC Act 1956)***

**B.Voc. SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025**

**SUBJECT CODE: 1IC301** **DATE: 16-12-2025**

**SUBJECT NAME: INDUSTRIAL CHEMISTRY-2**

**TIME: 11:00 AM to 01:00 PM** **TOTAL MARKS: 50**

**Instructions**

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| **Q.1** | **(a)** | How are dyes classified based on their application? Provide examples. | **05** | **R** | **1** |
| | **(b)** | What are chromophores and auxochromes, write with examples. | **05** | **R** | **1** |
| **Q.2** | **(a)** | Explain the difference between mechanical pulping and chemical pulping. Include their principles, yield, and applications. | **05** | **U** | **2** |
| | **(b)** | Apply your knowledge of coloring agents to select appropriate dyes or pigments for decorative or coated papers. | **05** | **A** | **2** |
| | | **OR** | | | |
| **Q.2** | **(a)** | Explain the sulfite process of chemical pulping, including its principle, chemicals used with advantages and disadvantages. | **05** | **U** | **2** |
| | **(b)** | Using your understanding of sizing, suggest how to improve water resistance in paper used for packaging. | **05** | **A** | **2** |
| **Q.3** | **(a)** | Apply your understanding of the properties of natural rubber to explain how the process of vulcanization improves its elasticity, strength, and overall usefulness. | **05** | **A** | **3** |
| | **(b)** | Explain addition or condensation polymerization with suitable examples. | **05** | **U** | **3** |
| | | **OR** | | | |
| **Q.3** | **(a)** | Discuss the properties and commercial applications of nylon-6, 6**,** and its preference in textile and engineering industries. | **05** | **A** | **3** |
| | **(b)** | Describe the preparation, properties of Polyvinyl chloride (PVC) | **05** | **U** | **3** |

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|---|---|---|---|---|---|
| **Q.4** | **(a)** | Explain the wet process and dry process of manufacturing cement with the help of a neat flow diagram. | **05** | **U** | **4** |
| | **(b)** | What is cement? Write the chemical composition of Portland cement. | **05** | **R** | **4** |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| **Q.4** | **(a)** | Describe the different types of glass and mention their specific uses. | **05** | **U** | **4** |
| | **(b)** | What are ceramics? Explain their general characteristics. | **05** | **R** | **4** |
| **Q.5** | **(a)** | Explain detergent by giving preparation method of detergents. | **05** | **U** | **5** |
| | **(b)** | Apply Green Chemistry in day-to-day life - with reference to bleaching of paper and dry cleaning. | **05** | **A** | **5** |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| **Q.5** | **(a)** | What are surfactants? Give classification of surfactants. | **05** | **U** | **5** |
| | **(b)** | Apply the principles of Green Chemistry to suggest environmentally friendly alternatives for conventional chemical processes or products, giving suitable examples. | **05** | **A** | **5** |

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