Seat No.

Total No. of Pages : 2

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Engineering Chemistry

Sub. Code: 71817/72507

Day and Date: Wednesday,21-01-2026 **Total Marks: 70**

Time: 10:30 AM To 01:00 PM

Instructions: **1. Draw neat labelled diagrams wherever necessary**
2. Figures to the right indicate full marks

Special Inst.: **Attempt any three questions from each section**
Use of Non programable calculator is allowed

Q1) a) A sample of water on analysis was found to contain the following impurities; **[12]**

	Wt. mg/lit	Mol. wt.
MgCO3	12.5	84
Mg(HCO3)2	25.6	146
CaCl2	20.1	111
MgSO4	5.8	120
Ca(NO3)2	5.2	164

Calculate temporary, permanent and total hardness of water in Degree Clark

b) Explain ion exchange process for the treatment of hard water 6

Q2) a) With schematic diagram, explain Glass Liquid Chromatography. 6 **[11]**

b) State and derive the expression for Beer - Lamberts Law. 5

Q3) a) Give the preparation, properties and application of Urea formaldehyde plastic. 6 **[11]**

b) Explain condensation polymerization reaction with suitable example 5

Q4) Attempt Any Three **[12]**

a) Write a note on Chloride content of of water.

b) Write note on Hardness of water

c) What are the advantages and disadvantages of instrumental methods of analysis?

d) Distinguish between Thermosoftening and Thermosetting plastic.

e) Give composition, properties and applications of GRP.

Q5) Section II **[12]**

a) Following results were recorded in a Boy's gas calorimeter experiment. 6
Volume of gas used= 0.06 m3
Weight of water heated= 30.6 kg
Temperature of inlet water= 20 0C
Temperature of outlet water= 45 0C
Mass of steam condensed = 0.35 kg.
Calculate the gross and net calorific value of the fuel assuming
that latent heat of condensation of water vapour as 587 kcal/kg.
b) Write a construction of Bomb colorimeter with a neat labeled diagram. 6

Q6) a) Define electrochemical corrosion. Discuss oxygen absorption mechanism with example. 6 **[11]**

b) Discuss the protection of metal from corrosion by proper design and material selection. 5

Q7) a) Write twelve principals of green chemistry explain any four principals. 6 **[11]**

b) Write composition, properties and applications Aluminum Alloy 5

Q8) Attempt Any Three **[12]**

a) Discuss any four characteristics of a good fuel.
b) Write composition properties and uses of Nichrome Alloy
c) Discuss any four factors influencing the rate of corrosion.
d) Write composition, properties and applications of Brass.
e) What is hot dipping process? Write a note on Galvanizing.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (72507) ENGINEERING CHEMISTRY Part 1 SEM 2
2] (1154) B.Tech. CBCS (71817) Engineering Chemistry Part 1 SEM 1