

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Engineering Chemistry****Sub. Code: 108726****Day and Date: Wednesday, 21-01-2026****Total Marks: 60****Time: 10:30 AM To 01:00 PM**

**Instructions:**

1. Draw neat labelled diagrams wherever necessary
2. Figures to the right indicate full marks
3. Use of Scientific calculator is allowed

**Special Inst.:**

- 1) Question No. 1 is Compulsory.
- 2) Solve Any Three Questions from Question No. 2 to 5

**Q1) Solve any three of the following. [15]**

- a. Give a detailed composition of brass. Mention any of two properties of it along with its application. [5]
- b. What are the advantages and disadvantages of instrumental methods of analysis? [5]
- c. Write note on sludge and scale formation in boiler. [5]
- d. A water sample on analysis which impurities has: [5]

	Wt.mg/lit	Mol. Wt.
Ca(HCO <sub>3</sub> ) <sub>2</sub>	32.4	162
Mg(HCO <sub>3</sub> ) <sub>2</sub>	14.6	146
CaCl <sub>2</sub>	22.2	111
MgCl <sub>2</sub>	9.5	95
NaCl	10.2	58.4

Calculate temporary, Permanent and total hardness in ppm.

**Q2) Solve the following questions. [15]**

- a. Compare solid fuels with liquid fuels. [5]
- b. With a neat labelled diagram, give construction and working of Bomb calorimeter. [5]
- c. Following results were recorded in Bomb calorimeter experiment. [5]  
 Calculate the gross and net calorific value of the fuel contains 5.6 hydrogen and latent heat of condensation of steam as 587cal/gm.  
 Weight of coal burnt = 0.21 gm  
 Mass of water in calorimeter = 2500gm  
 Water equivalent of calorimeter = 571gm

Observed rise in temperature = 2.28°C

Cooling correction = 0.026°C

Fuse wire correction = 15.5Cal

Acid Correction = 40Cal

**Q3) Solve the following questions. [15]**

- a. Discuss in detail the factors influencing the rate of corrosion. [5]
- b. Explain the protection of metal from corrosion by proper design and material selection. [5]
- c. What is hot dipping process? Write a note on galvanization. [5]

**Q4) Solve the following questions. [15]**

- a. Describe the preparation, any two properties and application of Polystyrene in detail. [5]
- b. Give preparation, properties and application of Urea formaldehyde plastic. [5]
- c. Distinguish between Thermosoftening and Thermosetting plastic. [5]

**Q5) Solve the following questions. [15]**

- a. Discuss the characteristics of a good fuel. [5]
- b. Write a note on Cathodic protection. [5]
- c. Explain condensation polymerization reaction with suitable example. [5]

## **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] (11731) Bachelor of Technology (NEP-2.0) (108726) Engineering Chemistry Part 1 SEM 1