



C23-COMMON-104

23013

BOARD DIPLOMA EXAMINATION, (C-23)

OCTOBER/NOVEMBER—2024

FIRST YEAR (COMMON) EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :**
- (1) Answer **all** questions.
 - (2) Each question carries **three** marks.
 - (3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Find the atomic number (Z) and mass number (A) of an element having 12 protons and 12 neutrons in its nucleus.
2. Write any three differences between orbit and orbital.
3. What is pH? Find the pH of 0.01 M HCl solution.
4. Define solute, solvent and solution.
5. What are conductors and insulators?
6. What is stress cell? Give an example.
7. Define hard water. Write the names of salts causing temporary hardness to the water.

8. Define an alloy and give two examples.
9. Write the composition of LPG and mention its any two uses.
10. What is green chemistry? List any two benefits.

PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11. (a) State and explain Aufbau principle and Pauli's exclusion principle. 7
(b) Draw the atomic structures of Si and Ge. 3
12. Explain Arrhenius theory of acids and bases. Mention its limitations. 10
13. (a) Write any five differences between ionic compounds and covalent compounds. 5
(b) Define buffer solution and classify the buffer solutions with examples. 5
14. Define galvanic cell. Explain the construction and working of Galvanic cell. 10
15. (a) What is rusting of iron? Explain the mechanism of rusting of iron. 6
(b) Explain prevention of corrosion by impressed voltage process. 4

- 16.** (a) Write the disadvantages of using hard water in industries. 5
(b) What is reverse osmosis? Write any three advantages of reverse osmosis. 5
- 17.** (a) Define elastomers. Explain a method of preparation and any two applications of Buna-S. 6
(b) What are nano materials? Write any three applications of nano materials. 4
- 18.** (a) Write the causes and effects of deforestation. 6
(b) Write a short note on greenhouse effect. 4

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