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C16- COMMON -107

6004

BOARD DIPLOMA EXAMINATION, (C-16)

JUNE/JULY—2022

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. Write the number of protons and electrons in Al^{+3} , P, O^{-2} .
2. Find the oxidation number of 'S' in H_2SO_4 and Cl in ClO_4^- .
3. Define the terms mole, normality and solution.
4. What is a buffer solution? Write any two applications of it.
5. Define the terms electrochemical equivalent and chemical equivalent.
6. Which chemicals cause temporary and permanent hardness?
7. Define the terms polymerisation, plastic and elastomers. Give one example for each.
8. What are primary and secondary fuels? Give examples.
9. What is an acid rain? Write its effects.
10. Define producers, consumers and decomposers.

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PART—B

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

11. (a) Write the differences between ionic and covalent compounds. 5
(b) Discuss the importance of azimuthal and magnetic quantum numbers. 5
12. (a) Define molarity. Calculate the molarity of a solution if 5.3 grams of Na_2CO_3 is present in 250 ml of solution. 5
(b) Define pH. Calculate the pH of 0.02 M H_2SO_4 solution. 5
13. (a) Define calcination, roasting and smelting with chemical equations. 6
(b) Define alloy. Write the composition and uses of German silver. 4
14. (a) Explain the electrolysis of molten sodium chloride. 5
(b) What is electrochemical series? Explain its significance. 5
15. (a) Define corrosion. What are the factors that influence the rate of corrosion? 6
(b) Explain the cathodic protection, by impressed voltage method. 4
16. (a) Describe ion-exchange process for demineralization of water. 6
(b) What is reverse osmosis? What are the advantages of it? 4
17. (a) What are the disadvantages of plastics? 4
(b) What is vulcanisation? Explain with chemical equations. 6
18. (a) Explain any three methods to control air pollution. 6
(b) What are renewable and non-renewable energy sources? Give examples. 4

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