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C09–CHPC–104/C09–EC–104/C09–PET–104

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2014

DECE—FIRST YEAR 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. Define atomic number and mass number with an example each.

2. Write the differences between oxidation number and valency.

3. Write the formulas for the calculation of equivalent weight of acids, bases and salts.

4. What is conjugate acid-base pair? Give examples.

5. What is meant by hardness? What are the salts causing temporary hardness and permanent hardness?

6. Write any three differences between electrolytic cell and galvanic cell.

7. What are the advantages of plastic over traditional material?

8. Define fuel. Write the composition and uses of producer gas.

9. What is acid rain? What are its effects?

10. What is deforestation? What are the effects of deforestation?

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Write the salient features of modern periodic table.

(b) Write any four differences between properties of ionic compounds and covalent compounds.

12. *(a)* Define normality. Find the weight of Na_2CO_3 required to prepare 0·02 *N* of 500 ml of solution. (GEW of Na_2CO_3 53)

(b) What are meant by pH and pOH? Calculate the pH of 0·002 *M* H_2SO_4 solution.

13. *(a)* What is galvanic cell? Describe its construction.

(b) Define EMF. How do you measure EMF from single electrode potential?

14. *(a)* Write the differences between the properties of metals and non-metals.

(b) Write a short note about smelting with example.

15. *(a)* Define corrosion. Explain any four factors influence the rate of corrosion.

(b) Explain the rusting of iron with chemical equation.

16. *(a)* What is meant by reverse osmosis? What are its applications?

(b) Explain about chlorination and its need.

17. *(a)* Explain addition and condensation polymerization with examples of Polythene and Bakelite. (Only step equation)

(b) Write the differences between thermoplastics and thermosetting plastics.

18. *(a)* Define water pollution. Write the effects of water pollution.

(b) Define the following :

(i) Non-renewable energy sources

(ii) Renewable energy sources

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