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C16–EC/CHPC/PET–104

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

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. Write any three differences between orbit and orbital.

2. Write any three properties of covalent compounds.

3. Define mole. How many moles are present in 36 grams of water?

4. Define Lewis base Give two examples for it.

5. Define electrolyte and nonelectrolyte. Give one example for each.

6. List out any three salts with formulae that cause permanent hardness of water.

7. Define elastomer. Give two examples for it.

8. Define fuel. Write any four characteristic properties of a good fuel.

9. Define COD and BOD.

10. Define producers and consumers. Give one example for each.

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)* State the important postulates of Bohr's atomic theory. 5

(b) Write any five properties of ionic compounds. 5

12. *(a)* Define molarity. Find the molarity of a solution contain 4 grams of NaOH present in 500 ml of solution. 6

(b) Define pH. Calculate pH of 0·001 M HCl solution. 4

13. *(a)* State any five differences between metals and nonmetals. 5

(b) Explain roasting and calcination with examples. 5

14. *(a)* Define electrochemical series. Write its significance. 5

(b) Calculate the weight of copper deposited when 0·5 amp current is passed through $CuSO_4$ solution for 1 minute and 30 seconds (atomic weight of copper = 63·5). 5

15. *(a)* Define corrosion. Mention the important factors which influence the rate of corrosion. 5

(b) Explain the protection of metals from corrosion by sacrificial anode method. 5

16. *(a)* Explain softening of hard water by using permutit method. 6

(b) Define osmosis and reverse osmosis. Write any two applications of reverse osmosis. 4

17. *(a)* Define and explain addition polymerisation and condensation polymerisation. 5

(b) Write any five differences between thermoplastics and thermosetting plastics. 5

18. *(a)* What are the causes of air pollution? 4

(b) Write the important control methods of water pollution. 6

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