* 4004 *

C14–A/AA/AEI/BM/CHST/C/
CM/EC/EE/CHPP/CHPC/CHOT/
PET/M/RAC/MET/MNG/IT/TT–104

4004

BOARD DIPLOMA EXAMINATION, (C–14)

SEPTEMBER/OCTOBER - 2020

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. What are fundamental particles? Mention the mass and charge of electron, proton and neutron.

2. Explain Hund's principle.

3. Define solute, solvent and solution.

4. What is pH? Give its significance.

5. Define conductor and non-conductor. Give one example of each.

6. Define osmosis and reverse osmosis.

7. Define plastic. Write the important properties of plastics.

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8. Define fuel. Classify the fuels on the basis of occurrence.

9. Define pollution, pollutant and contaminant.

10. Write a short note on ozone layer depletion.

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 are the content but not the length of the answer.

11. *(a)* Explain ionic and covalent bond with examples. 6

(b) Write the limitation of Bohr's atomic theory. 4

12. *(a)* Define molarity and normality. 4·9 grams of solute is present in 250 ml of H_2SO_4 solution. Calculate the molarity of the solution. 6

(b) Explain Lewis acid-base theory. 4

13. *(a)* Explain roasting, calcination and smelting. 6

(b) Write the difference between metals and non-metals. 4

14. *(a)* State and explain Faraday's laws of electrolysis. 6

(b) What is electrochemical series? Give its significance. 4

15. *(a)* Explain prevention of corrosion by sacrificial anode method and impressed voltage method. 8

(b) Write any two differences between anodic coatings and cathodic coatings. 2

16. *(a)* Write the essential qualities of drinking water. 4

(b) Explain Permutit process. 6

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17. Write the preparations and uses of following plastics : 10

(a) Polythene

(b) PVC

(c) Teflon

(d) Polystyrene

(e) Urea formaldehyde

18. *(a)* Explain the causes and control methods of water pollution. 7

(b) Define producers, consumers and decomposers. 3

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