6004

C16-A-AA-BM-CHST-AEI- MET-MNG-TT-IT-C-CM-EC-CHPC-PET-EE-CHPP-M-CHOT-RAC–104

6004

BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

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. State and explain Pauli's rule with an example.

2. Calculate the oxidation number of underlined atom in $H\underline{N}O_3$, $KM\underline{n}O_4$ and $H_2\underline{S}O_4$.

3. Define mole. Calculate the number of moles in 3·65 g of HCI.

4. What is conjugate acid base pair? Give one example.

5. Explain strong electrolytes and weak electrolytes. Give example.

6. What is hardness of water? Write the salts causing hardness of water.

7. Define monomer, polymer and polymerization.

8. What are primary fuels and secondary fuels? Give examples.

9. Define BOD, COD and DO.

10. What are primary pollutants and secondary pollutants? Give example.

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)* Define ionic bond. Explain the formation of NaCI. 5

(b) Write the postulates of Bohr's Atomic Theory. 5

12. *(a)* Define molarity. Calculate the weight of sodium carbonate present in 250 ml of 0·05 M sodium carbonate solution. (M.Wt. of Na_2CO_3 = 106) 5

(b) What is Lewis acid, base and neutralization? Give examples. Write any two limitations. 5

13. *(a)* Define mineral, ore, gangue, flux and slag. Give one example for each. 5

(b) Define alloy. Write the composition and uses of German silver and nichrome. 5

14. *(a)* What is electrochemical equivalent and chemical equivalent? 5

(b) What is electrolysis? Explain the mechanism of electrolysis of molten NaCl with relevant equations. 5

15. *(a)* Explain about anodic coating and cathodic coating. 4

(b) What is rusting of iron? Explain the mechanism of rusting of iron. 6

16. *(a)* Describe the softening of water by ion exchange process with a neat diagram. 6

(b) What are essential qualities of drinking water? 4

17. *(a)* What is elastomer? Write the preparation and uses of Buna-S. 5

(b) What are plastics? List out the characteristics of plastics. 5

18. *(a)* Explain the controlling methods of air pollution. 6

(b) Write a note about ozone layer depletion. 4

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