7004

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C20-A-AA-AEI-CHST-BM-TT-MET-
MNG-C-CM-EC-EE-CHOT-CHPC-
CHPP-AMT-AMG-WD-CAI-AIM-
CCB-CCN-COMMON–104

# 7004

BOARD DIPLOMA EXAMINATION, (C-20)

JANUARY—2023

FIRST YEAR (COMMON) EXAMINATION

## ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

*Time* : 3 hours ] [ *Total Marks* : 80

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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 is an electronic configuration? Write the electronic configuration of Cr and Zn. (Cr-24,Zn-30)

* 2. Define saturated, unsaturated and super saturated solutions.

3. What is conjugate acid-base pair? Give an example.

4. Define conductors and insulators. Give an example for each.

5. Write any three disadvantages of using hard water.

6. Define polymerisation. Give an example.

7. What are the characteristics of good fuel?



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8. What is activated charcoal? Give examples.

9. Define the following terms :
   *(a)* BOD
   *(b)* COD
   (*c*) Sink

10. Define producers and consumers. Give examples.

## PART—B

8×5=40

Instructions : (1) Answer all questions.
(2) Each question carries eight marks.
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. *(a)* Write any three differences between orbit and orbital. Draw the shapes of *s*,*p*,*d* orbitals.

( OR )

*(b)* Write the difference between ionic compounds and covalent compounds.

12. *(a)* Define morality. 4·9 grams of solute present in 250 ml of $H_2SO_4$ solution. Calculate the molarity of $H_2SO_4$ solution.

( OR )

*(b)* Explain Arrhenius theory of acids and bases with suitable examples. Mention its limitations.

13. *(a)* Define the following terms :
   *(i)* Gangue
   *(ii)* Mineral
   *(iii)* Ore
   *(iv)* Flux

( OR )

*(b)* State and explain Faraday's laws of electrolysis.



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14. *(a)* What is the sacrificial anode method and explain with a neat diagram.

( OR )

*(b)* Explain the permutit process of softening of hard water.

15. *(a)* Explain addition polymerisation and condensation polymerisation. Write an example for each.

( OR )

*(b)* Explain the green house effect and ozone layer depletion.

## PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries ten marks.

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

16. Define the vulcanisation of rubber. Explain with chemical equation and write the characteristics of vulcanised rubber.



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