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Name.....

Reg. No.....

SIXTH SEMESTER U.G. (CBCSS—UG) DEGREE EXAMINATION MARCH 2024

Chemistry/Polymer Chemistry/Industrial Chemistry

CHE 6B 11—PHYSICAL CHEMISTRY—III

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answers)

Answer questions up to 20 marks.

Each question carries 2 marks.

1. Give Nernst equation for galvanic cell for which overall cell reaction is :

   $aA + bB \leftrightarrow cC + dD$

2. Discuss Debye Falkenhagen effect.

3. Briefly describe $H_2 - O_2$ fuel cell.

4. Define Vant Hoff factor.

5. Define Molar refraction, Write the equation.

6. Explain the hydrolysis of salt of strong acid-weak base with equation.

7. Define the term Colligative properties

8. Calculate the p^H of 0.01M NaOH.

9. What is common ion effect ?

10. What are the applications of liquid crystals ?

11. What are unit cell and space lattice ?

12. What is hexagonal close packing ?

(Ceiling of marks : 20)

Turn over

Section B (Paragraph)

Answer questions up to 30 marks.

Each question carries 5 marks.

13. Discuss the determination of solubility product from EMF measurements.

14. Describe the moving boundary method for determination of transport number.

15. Write a short note on electrochemical theory of the corrosion of metals.

16. What are potentiometric titrations ? Illustrate with any one example.

17. What is a buffer ? How is it classified ? Discuss the mechanism of buffer action.

18. Explain the non-stoichiometric defects in crystals.

19. Write a short note on conductometric titrations involving strong acid vs strong base

(Ceiling m

Section C (Essay)

Answer any **one** *questions.*

The question carries 10 *marks.*

20. Discuss the hydrolysis of (i) Salt of weak acid and strong base ; and (ii) Salt of weak a base.

21. Derive the relations, $\Delta T_b = K_b \times m$ and $\Delta T_f = Kf \times m$.

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