

## THIRD REVISION TEST - 2023

12

CHEMISTRY

Marks : 70

Time : 3.00 hrs.

PART - I

Answer all the questions. Choose the most appropriate answer from the given options.

1. The crystal with a metal deficiency defect is :  
 (a) ZnO      (b) NaCl      (c) KCl      (d) FeO
2. In  $K_4[Fe(CN)_6]$ , the co-ordination number of  $Fe^{2+}$  is —  
 (a) 4      (b) 2      (c) 3      (d) 6
3. Packing efficiency of Body Centered Cube (BCC)  
 (a) 52.31%      (b) 68%      (c) 86%      (d) 52.13%
4. Inorganic benzene is :  
 (a)  $B_2H_6$       (b)  $B_3N_3H_6$       (c)  $H_3BO_3$       (d)  $H_2B_4O_7$
5. Laptops have :  
 (a) Lead storage battery      (b) Fuel cell  
 (c) Mercury button cell      (d) Lithium-ion battery
6. The actual position of Lanthanoids in the periodic table is at :

- (a) Group number 3 and Period number 4
- (b) Group number 6 and Period number 3
- (c) Group number 4 and Period number 4
- (d) Group number 3 and Period number 6

7. The rate constant of a reaction is  $5.8 \times 10^{-2} \text{ s}^{-1}$ . The order of a reaction is

- (a) First order
- (b) Zero order
- (c) Second order
- (d) Third order

8. match the following:

- (1) Emulsion - (i) Whipped Cream
- (2) Gel - (ii) Ink
- (3) Foam - (iii) Cream
- (4) Sol - (iv) Butter

- (a) (1)-(iv), (2)-(iii), (3)-(ii), (4)-(i)
- (b) (1)-(iii), (2)-(i), (3)-(ii), (4)-(iv)
- (c) (1)-(ii), (2)-(i), (3)-(iv), (4)-(iii)
- (d) (1)-(iii), (2)-(iv), (3)-(i), (4)-(ii)

9. Aniline + benzoyl chloride  $\xrightarrow{\text{NaOH}}$   $\text{C}_6\text{H}_5\text{-NH-CO-C}_6\text{H}_5$

This reaction is known as

- (a) Friedel-Crafts reaction
- (b) HVZ reaction
- (c) Schotten-Baumann reaction
- (d) Kolbe's reaction

10. Which of the following amino acids are achiral?  
(a) Proline (b) Alanine (c) Glycine (d) Leucine
11. Formula for hyponitrous acid:  
(a)  $\text{HOONO}$  (b)  $\text{H}_2\text{N}_2\text{O}_2$  (c)  $\text{HNO}_2$  (d)  $\text{HNO}_4$
12. The oxidation state of chlorine in  $\text{Cl}_2\text{O}_7$  is:  
(a) +6 (b) +7 (c) +4 (d) +5.
13. Assertion: Phenol is more acidic than ethanol  
Reason: Phenoxide ion is resonance stabilized  
(a) both assertion and reason are true and reason is the correct explanation of assertion  
(b) both assertion and reason are true and reason is not the correct explanation of assertion  
(c) assertion is true but reason is false  
(d) both assertion and reason are false
14. At  $25^\circ\text{C}$ , the ionic product of water is  
(a)  $1 \times 10^{-14}$  (b)  $1 \times 10^{-12}$  (c)  $1 \times 10^{-10}$  (d)  $1 \times 10^{-8}$
15. Which is analgesics among the following?  
(a) Aspirin (b) Morphine (c) Omeprazole  
(d) Penicillin.

PART-II

Answer any six questions. Question No. 24 is  $6 \times 2 = 12$  compulsory.

16. How is bleaching powder prepared?
17. What is the role of limestone in the extraction of iron from its oxide  $Fe_2O_3$ ?
18. State Ostwald's dilution law.
19. Define unit cell
20. Give examples for the first order reaction
21. Define Coordination number
22. Write a note on Electrophoresis.
23. Write a note on Rosenmund reduction
24. Draw the structure of D(+) Fructose.

PART-III

25. Answer any six questions. Question no. 33 is  $6 \times 3 = 18$  compulsory.

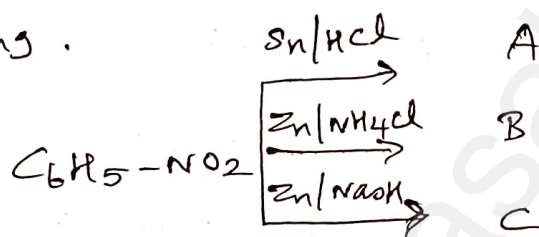
25. Write the IUPAC ligand name for the following  
(a)  $C_2O_4^{2-}$  (b)  $H_2O$  (c)  $Cl^-$
26. What is called zwitter ion? Give an example
27. What are the uses of Boric acid?
28. Write the tests for Carboxylic Acid group



29. What are interstitial compounds?
30. State any three advantages of food additives.
31. Write a note on Carbylamine reaction.
32. Classify the following elements into d and f block element.

(i) Tungsten (ii) Ruthenium  
 (iii) Promethium (iv) Einsteinium

33. Identify compounds A, B and C for the following.



PART-IV

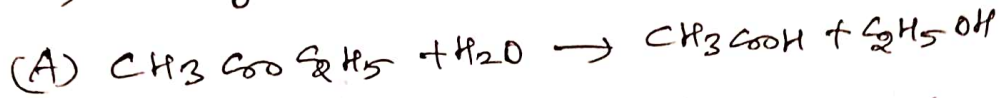
5x5=25

Answer all the questions

34. (a) Explain froth flotation process. 5  
 (OR)  
 (b) (i) Explain the bleaching action of Sulphur dioxide  
 (ii) Write any two uses of Helium
35. (a) What is Lanthanoid contraction. Explain its consequences.  
 (OR)

b) (i) Explain Schottky defect 3

(ii) Identify the auto catalyst in the following reaction. 2

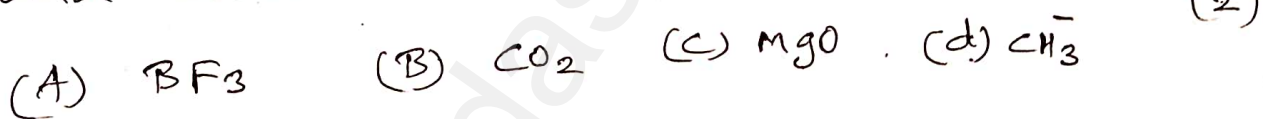


36. (a) Derive integrated rate law for a first order reaction  $\text{A} \rightarrow \text{Product}$  (5)

(OR)

(b) (i) Derive an expression for Nernst equation (3)

(ii) Classify the following into Lewis acids and Lewis bases.



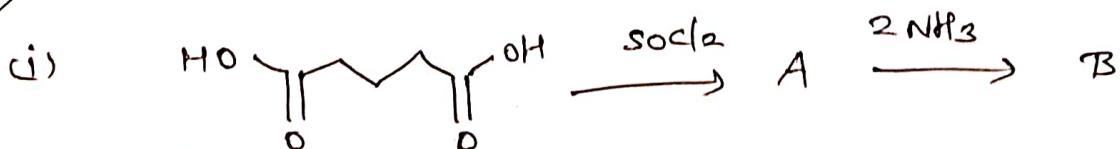
37. a) Write the mechanism of aldol condensation reaction 5

(OR)

(b) (i) Differentiate the  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  alcohols using Lucas test 3

(ii) Write mustard oil reaction

38. a) Identify A and B (by bondline structure)



(ii) How are RNA molecules classified? Explain

(OR)

- b) (i) Give an account on Antioxidants  
(ii) How ~~do~~ do you classify the following into various class of drugs?

(A) Milk of magnesia (B) Aspirin

(C) Penicillin (D) Procaine