

Series-B

Roll No.....

Total No. of Questions-29] [Total No. of Printed Pages-15

A-855-B-XII-2324

CHEMISTRY

(Theory)

Time Allowed—3 Hours Maximum Marks—60

Candidates are required to give their answers in their own words as far as practicable.

Marks allotted to each question are indicated against it.

Special Instructions :

- (i) You must write Question Paper Series in the circle at top left side of title page of your Answer-book.

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- (ii) While answering your Questions, you must indicate on your Answer-book the same Question No. as appears in your Question Paper.
- (iii) Do not leave blank page/pages in your Answer-book.
- (iv) All questions are compulsory. Answer all parts of a question together.
- (v) Internal choices are given in some questions.
- (vi) Answers should be brief and to the point.
- (vii) Question Nos. 1 to 12 are MCQ (Multiple Choice Questions) carrying 1 mark each. Question Nos. 13 to 21 are short answer type questions carrying 2 marks each. Question Nos. 22 to 26 carrying 3 marks each. Question Nos. 27 to 29 carrying 5 marks each.

1. Which of the following is not an Artificial sweetener?

- (a) Sucrose
- (b) Alitame
- (c) Sucralose
- (d) Aspartame.

1

2. What is the IUPAC name of monomer of Neoprene rubber?

- (a) 3-Methyl-1, 2-Butadiene
- (b) 2-Methyl-1, 3-butadiene
- (c) 2-Chloro-1, 3-butadiene
- (d) 1-Chloro-1, 3-butadiene.

1

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3

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3. The Sugar present in RNA is :

(a) β -D-2-deoxyribose

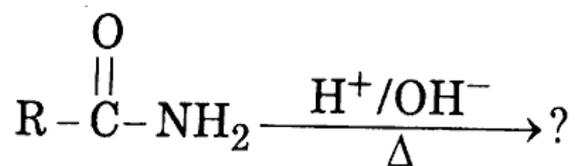
(b) β -D-(+)-Glucose

(c) α -D-(+)Glucose

(d) β -D-ribose.

1

4. What will be the product of following reaction :



(a) RCH_2OH

(b) RCOOH

(c) RCH_2NH_2

(d) RCH_3 .

1

5. Arrange the following compounds in order of their increasing boiling points : 1

(ii) Pentan-1-ol

(ii) Butan-1-ol

(iii) Ethanol

(iv) Methanol.

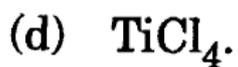
(a) (i), (ii), (iii), (iv)

(b) (ii), (iii), (iv), (i) ✓

(c) (iv), (iii), (ii), (i) ✓

(d) (iii), (iv), (i), (ii).

6. In Wacker process the Oxidation of ethyne to ethanal is catalysed by :



1

7. What was the first compound of noble gases?



1

8. The Units of reaction rate constant are $\text{mol}^{-1}\text{L s}^{-1}$, what is the order of this reaction?

(a) 1

(b) 2

(c) 3

(d) 0.

1

9. Cathode in an Electrochemical cell is that electrode on which the following is an essential?

(a) +ve charge

(b) -ve charge

(c) oxidation occurs

(d) reduction occurs.

1

10. Which of the following methods to express concentration has no units?

- (a) Molality
- (b) Molarity
- (c) Mole fraction
- (d) Normality.

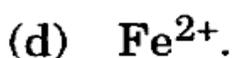
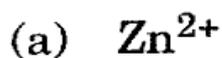
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11. What percentage of a face centred cubic structure is occupied by spheres?

- (a) 52.4%
- (b) 68%
- (c) 32%
- (d) 74%.

1

12. Which of the following has equal unpaired electrons with Manganese (M_n) $Z = 25$?

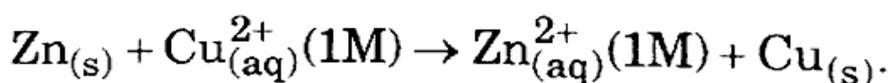


1

13. Write atleast four differences between Crystalline and Amorphous solids.

2

14. Represent the cell in which following reaction takes place <https://www.hpboardonline.com>



Calculate its $E_{(cell)}$ if $E^{\circ}_{(cell)} = 1.10V$.

2

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9

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15. What do you mean by :

(i) Kraft temperature

(ii) Zeta Potential.

16. Explain construction and working of Dry cell.

2

17. Calculate half-life of a first order reaction whose rate constant is 200 s^{-1} .

2

18. What do you mean by Pyrometallurgy? Discuss Hall-Heroult process.

2

19. On the basis of VBT explain that $[\text{Ni}(\text{CN})_4]^{2-}$ ion with square planar structure is diamagnetic and the $[\text{NiCl}_4]^{2-}$ ion with tetrahedral geometry is paramagnetic.

2

20. Why is Chlorine an Ortho-Para director in electrophilic aromatic substitution reactions although it is an electron withdrawing group? 2

21. Why do Soaps not work in hard water? Explain. 2

22. (a) 45 g of an unknown non-electrolyte solute when added to 600 g water lowers the freezing point of water to 270.95 K, Find the molar mass of this solute. Molal freezing point depression constant of water is $1.86 \text{ K kg mol}^{-1}$. 2

(b) Define the Osmotic pressure. 1

Or

(a) What do you mean by Leaching? Explain with examples. 2

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- (b) Define the Molecularity of reaction. 1
23. (a) Differentiate Antiseptics and disinfectants with suitable examples. 1
- (b) What are the Monomeric units of Nylon-6,6 ? 1
- (c) Write IUPAC name of monomer of PVC. 1
24. (a) Differentiate between Fibrous proteins and Globular proteins with examples. 2
- (b) What is Gabriel phthalimide synthesis? 1
25. (a) How will you convert methanol into ethanol? Give chemical reaction. 1
- (b) Why are aldehydes generally more reactive than Ketones in nucleophilic addition reactions? 1

(c) What is Kolbe's Reaction? Give chemical equation. 1

26. (a) What is the IUPAC name of $[\text{CoCl}_2(\text{en})_2]\text{Cl}$? 1

(b) What is Lanthanoid contraction? 1

(c) Draw structure of permanganate ion. 1

27. (a) Why are radii of transition elements of 5d series the same as those of corresponding members of 4d series? 1

(b) What do you mean by Interhalogen compounds? 1

(c) Why does PCl_3 fume in moisture? 1

(d) What happens when H_3PO_3 is heated? 1

- (e) Write chemical reaction for preparation of XeO_3 . 1

Or

- (a) Explain in detail 'Contact Process'. 3

- (b) Draw the structure of H_3PO_4 . 1

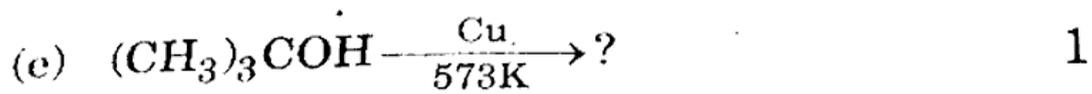
- (c) Why, OF_6 does not exist while SF_6 exists? 1

28. (a) What do you mean by Peptisation? 1

- (b) Write chemical formula of Tailing of mercury? 1

- (c) Why does NH_3 act as Lewis base? 1

- (d) What is Cottrell precipitator? 1



29. (a) What is Fittig reaction? 1

(b) State Kohlrausch Law. 1

(c) Write IUPAC name of Aspirin. 1

(d) What is Hinsberg's reagent? 1

(e) What is Aldol condensation? Give reactions. 1

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