KJB SCIENCE SCHOOL
A PREMIER INSTITUTE OF EDUCATION
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TEST SERIES - {CHEMISTRY: XII } :-   CHAPTER: - CHEMISTRY {full syllabus }   { MM =70]   [set-A]

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Kashish Goyal -99	**Astha Nigam-98**	**Nidhi Saraswat-98**	**Siddesh Tripathi-98**	**Nikita Saraswat-97**
Saurabh Lalwani-97	**Sweta Sikarwar-97**	**Rishabh Singh- 96**	**Ishu Yadav-96**	**Srijan Mehta -- 95**
Rashmi Dhanwani-95	**Raksha – 95**	**Adesh Choudhary-95**	**Suyash Goyal --95**	**Pushpanjali -- 95**
Rishi Amoriya -- 95	**Yash Saxena-95**	**Salil Gupta – 95**	**Vardhan Dogre—95**	**Lalit Gaur -- 95**

GENERAL INSTRUCTIONS:
* Answer all the questions:
* Questions 1 to 8 carry one mark each. Answer them in one word or a sentence.
* Questions 9 to 18 carry 2 marks each. Answer them in 20 to 30 words.
* Questions 19 to 27 carry 3 marks each. Answer them in 40 to 50 words.
* Questions 28 to 30 carry 5 marks each. Answer them in 70 words.
* There is no overall choice. However there is internal choice in one question each of two mark and three marks questions. All 5 marks questions have internal choice.
* Calculator or any other electronic items are not allowed. However logarithm book may be used for calculations.

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1.   Name the monomer of Glyptal
2.   Predict the order of reaction & determine its half-life if rate constant is $12.87hr^{-1}$
3   Write the IUPAC name of the following compound: $C_6H_5CH_2NCH_2Cl$
4.   What is the role of desorption in the process of catalysis?
5.   How many lattice points are there in a end centered cubic unit cell?
6.   Why do phenols can be easily nitrated as compared to Benzene?
7.   Explain the term "OLIGOSACCHARIDES" with an example ?
8.   How is Zirconium purified ?
9.   a) What is the effect of temperature on conductance of semiconductors & why ?
        b) Silver has edge length 218pm crystallizes in FCC cell. Calculate the radius of Ag atom?
10.   Compute the cell potential for the following cell
        $Ni(s) \mid Ni^{2+}(aq) (0.01M) \mid\mid Ni^{2+}(aq) (0.1M) \mid Ni(s)$ while $E^0_{Ni^{2+}(aq)/Ni(s)} = – 0.25V$ at 25^0C
11.   Explain one main difference between the following pairs of each with suitable examples
        a) Physisorption & Chemisorption
        b) Intrinsic & Extrinsic colloids
12.   Explain the following
        a) Enzyme catalysis
        b) Zeta Potential
13.   a) Draw the structure of Perchloric acid
        b) Why is electron affinity of Group 15 almost zero ?
                or
        (a)Draw the structure of Pyrosulphuric acid
        (b) SF_6 is an inert non-toxic gas, why?
14.   What happens when

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a) Conc. Sulphuric acid is added to calcium fluoride

b) SO_3 is passed through water

       or

An organic compound 'A' (molecular formula C_4H_8O) when reduced with $NaBH_4$ gives 'B' which reacts with HBr to give 'C' which is optically active. Identify A, B, C & write the two enantiomers of 'C'

15. **Convert**

    a) Ethyl benzene to benzoic acid
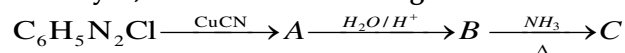
    b) Benzyl alcohol to Phenylethanoic acid

16. a) Among noble gases Xe forms maximum no of compounds, why ?

    b) How will you account for the difference in reactivity of nitrogen & phosphous

17. a) Account for the acidic nature of carboxylate ion

    b) Write 2 chemical tests to distinguish butanal & butanone

18. **Identify A, B & C in the following reactions**

$$C_6H_5N_2Cl \xrightarrow{CuCN} A \xrightarrow{H_2O/H^+} B \xrightarrow[\Delta]{NH_3} C$$

19. a) Why does cell potential of a mercury cell remain constant during its life ?

    b) Give the reaction at standard hydrogen electrode when its act as anode

    c) What is the effect of an increase in concentration of Zn^{2+} on the electrode potential.

20. a) Calculate the activation energy of a reaction whose reaction rate at 310 K get doubled for 10 K rise in temperature.

    b) Differentiate between molecularity & order of a reaction

21. a) What is meant by coupled reaction

    b) How Nickel is purified?

    c) Give the composition of Dolomite

22. **How will you prepare**

    a) HF from CaF_2

    b) XeF_6 from Xe & F_2

23. a) Write the IUPAC name of $[Pt(CN)_6][Fe(H_2O)_6]$

    b) Draw the geometry of $[Ni (en)_3]^{2+}$

    c) Write the ionisation isomer of $[Co (NH_3)_5Br]SO_4$

24. a) Convert 4-Nitrotoluene to 2-Bromobenzoic acid

    b) Aniline to 1,3,5-tribromobenzene

    c) Acetone to tert-Butyl alcohol

25. a) Where does the water present in the egg go after boiling the egg ?

    b) What is glycogen? How it is different from starch ?

    c) Explain why the structure of glucose is cyclic hemiacetal structure rather than open chain structure?

26. a) Discuss the main purpose of vulcanization of rubber

    b) Write the monomers of the following: i) Bakelite   ii)Buna-N

    c) Describe the preparation of Terylene ?

27. a) What is tincture of iodine ? What is it's Use ?

    b) Explain cationic detergents with suitable example

    c) Give an example of broad spectrum antibiotics ?

28. a) Out of 1M solution of sugar & 1M solution of urea, which will have greater boiling point ?

    b) What is the molality of ammonia in a solution containing 0.85gm of NH_3 in 100ml of a liquid of density 0.85 gcm^{-3}

    c) What is the value of 'i' for $Na_2SO_4.10H_2O$ assuming complete ionisation?

    d) A solution containing 18g of non-volatile solute in 200g of water freezes at 272.07K.Calculate the molecular mass of solute? (K_f =1.86 K/m)

                or

    (a) Explain with a suitable diagram & appropriate example why some non-ideal solutions show positive deviation from ideal behavior

    (b) The freezing point of pure nitrobenzene is 278.8K. When 2.5g of unknown substance is dissolved in 100g

of nitrobenzene, the freezing point of solution is found to be 276.8K.If the freezing point depression constant of nitrobenzene is 8.0 K kg mol^{-1}.What is molar mass of unknown substance?

(c) What are maximum boiling azeotropes? Give one example

29. a) Name a transition element which does not exhibit variable oxidation states ?

b) What is misch metal? Mention its 2 important uses.

c) Actinoid contraction is greater from element to element than lanthanoid contraction, why ?

d) Explain why the Cu+ salts are colourless while Cu^{2+} salts are coloured?

e) Write the balanced chemical equation when acidified KMnO$_4$ solution reacts with Fe (II) ions.

or

a) Give one example each of amphoteric & acidic oxides of transition metals

b) Explain why Scandium being the first member of 1st transition series does not exhibit variable oxidation state

c) Indicate the steps in the preparation of potassium dichromate from chromite ore

d) Explain why transition metal fluorides are ionic in nature whereas bromides & chlorides are usually covalent in nature

e) What is meant by 'disproportion ' of an oxidation state ? Give an example.

30. An organic compound (A) (molecular formula C$_8$H$_{16}$O$_2$) was hydrolysed with dilute H$_2$SO$_4$ to give a carboxylic acid (B) & an alcohol (C). Oxidation of (C) with chromic acid produced (B). (C) on dehydration gives but-1-ene.   Write the equations for the reaction involved.

Or

a) Give simple tests to distinguish between benzoic acid & ethyl benzoate

b) Prepare phenyl acetic acid from benzene

c) Convert Benzaldehyde to 3-Phenylprpan-1-ol

d) Cannizzaro reaction

e) Cross aldol condensation.

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