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FIRST REVISION TEST, JANUARY - 2020

Thirunelveli District

STANDARD - XII

CHEMISTRY

Time : 3.00 hrs **Marks: 70**

Part - I

Note:- 1) Answer all the questions. ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer. **15×1=15**

1) The metal oxide which cannot be reduced to metal by Carbon is
   a) Pbo b) Al_2O_3 c) ZnO d) FeO
2) The basic structural unit of silicates is
   a) $(SiO_3)^{2-}$ b) $(SiO_4)^{2-}$ c) $(SiO)^-$ d) $(SiO_4)^{4-}$
3) Among the following which is the strongest oxidising agent?
   a) Cl_2 b) F_2 c) Br_2 d) I_2
4) How many moles of I_2, are liberated when 1 mole of pottassium dichromate react with Pottassium iodide?
   a) 1 b) 2 c) 3 d) 4
5) Which type of isomerism exhibited by $[Pt(NH_3)_2Cl_2]$?
   a) Co-oxdination isomerism b) Linkage isomerism
   c) Optical isomerism d) Geometrical isomerism
6) The vacant space in bcc Latice unit cell is
   a) 48% b) 23% c) 32% d) 26%
7) For a first order reaction, the rate constant is $0.6909 min^{-1}$. The time taken for 75% conversion in minutes is
   a) (3/2) log 2 b) (2/3) log 2 c) (3/2) log (3/4) d) (2/3) log (4/3)
8) Dissoliation constant of NH_4OH is 1.8×10^{-5}, the hydrolysis const of NH_4Cl would be
   a) 1.8×10^{-19} b) 5.5×10^{-10} c) 5.55×10^{-5} d) 1.80×10^{-5}
9) Among the following cells,
   I) Leclanche cells II) Nickel Cadmium cells
   III) Lead Storage battery IV) Mercury cell
   Primary Cells are
   a) I and IV b) I and III c) III and IV d) II and III

10) Adsorption of a gas on solid metal surface is spontaneous and exothermic then

a) ΔH increases b) ΔS increases

c) ΔG increases d) ΔS decreases

11) Assertion: Phenol is more acidic than ethanol

Reason: Phenoxide ion is resonance stabilized

a) if both assertion and reason are true and reason is the correct explanation of assertion

b) if both assertion and reason are true but reason is not correct explanation of assertion

c) assertion is true but reason is false

d) both assertion and reason are false.

12) $CH_3Br \xrightarrow{KCN} (A) \xrightarrow{H_3O^+} (B) \xrightarrow{PCl_5} (C)$ The product (C) is

a) acetyl chloride b) chloroacetic acid

c) α-chlorocyano ethanoic acid d) none of these

13) The product formed by the reaction of an aldehyde with Primary amine,

a) Carboxylic acid b) aromatic acid c) Schiff's base d) Ketone

14) Among the following the chiral amino acid is

a) 2-ethylalamine b) 2-methyl glycine

c) 2-hydroxy methyl serine d) Tryptophan

15) An example of antifertility drug is

a) novestrol b) seldane c) salvarsan d) Chloramphenicol

Part - II

Answer any six. Question No. 24 is compulsory:- **6×2=12**

16) How will you convert boric acid into boron nitride.

17) What is inert Pair effect?

18) What is linkage isomerism. Explain with an example.

19) Differentiate order and molecularity.

20) Define equivalent conductance.(^)

21) How will you prepare phenol using Dow's process.

22) Give the differences between Primary and Secondary structure of Proteins.

23) What is therapeutic index?

24) Calculate the P^{Kb} of NH_4OH, if the P^H of a buffer solution containing 0.1N NH_4OH and 0.1M NH_4Cl is 9.25.

Part - III

Answer any six questions. Question No.33 is compulsory:- **6×3=18**

25) Explain Van-Arkel method for refining Zirconium/titanium.

26) Write short note on Holme's signal.

27) Explain why compounds of Cu^{2+} are coloured but those of Zn^{2+} are colourless

28) Aluminium crystallizes in Cubic close packed structure. Its metallic radius is 125 pm. Calculate the edge length of the cell.

29) Derive Nernst Equation.

30) What is the difference between homogeneous and hetrogeneous catalysis.

31) How will you convert benzaldehyde into following compounds.
i) benzophenone ii) Benzoic acid iii) α-hydroxy phenol acetic acid

32) What are narcotic and non-norcotic drugs. Give examples.

33) Identify A, B, C and D.

$$\text{Aniline + benzaldehyde} \rightarrow A \xrightarrow[B]{\text{Con } HNO_3} C+D$$

Part - IV

Answer all the questions:- **5×5=25**

34) a) i) Write short note on alumino thermic process.
ii) Explain the preparation of Potash atom.

[or]

b) i) How is nitric acid manufactured using Ostwald's process?
ii) What are inner transition elements?

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a) i) Write the postulates of Werner's theory. [or]

ii) Write short note on metal deficiency defect.

b) i) Drive an expression for Ostwald's dilution Law.

ii) State Faraday's Law of electrolysis.

) a) i) Differentiate Physisorption and Chemisorption. [or]

ii) Write a note on electro osmosis.

b) How are the following conversions effected

i) Phenol → P.hydroxy azobenzone ii) Phenol → Phenolpthalein

iii) glycol → 1, 4 dioxon

37) a) Write short note on,

i) Hoffmann's bromamide reaction ii) Schotten-Baumann Reaction

iii) Combreg reaction. [or]

b) Elucidate the structure of glucose.

38) a) i) In a first order reaction A → product 60% of the given sample of A decomposes in 40 min. What is the half-life of the reaction.

ii) A saturated solution, prepared by disserving $CaF_{2\,(g)}$ in water has $[Ca^{2+}] = 3.3\times10^{-4}M$. What is the K_{sp} of CaF_2.

b) An alkene (A) on ozonolysis gives propanone and aldehyde (B). When (B) is oxidised (C) is obtained. (C) is treated with Br_2/P gives (D). Which on hydrolysis gives (E). When propanone is treated with HCN followed by hydrolysis gives (E). Identify A, B, C, D and E.

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