

Common Half Yearly Examination – 2022

Std : XII
Marks : 70
Subject : Chemistry
Time : 3 hrs

PART - I

Choose the best answer :
15 × 1 = 15

- 1) Pyrogallol is
 - a) 1,2,4 – trihydroxy benzene
 - b) 1,2,3 - trihydroxy benzene
 - c) 1,3,5 - trihydroxy benzene
 - d) 1,3 – dihydroxy benzene
- 2) The composition of Limonite is
 - a) Fe_2O_3
 - b) $\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$
 - c) Fe_3O_4
 - d) FeCO_3
- 3) The fraction of total volume occupied by atoms in a bcc is
 - a) $\pi/6$
 - b) $\pi/4$
 - c) $\sqrt{2} \pi/6$
 - d) $\sqrt{3}/8\pi$
- 4) How many faradays of electricity are required for the following reaction to occur $\text{MnO}_4^- \rightarrow \text{Mn}^{2+}$
 - a) 5F
 - b) 7F
 - c) 1F
 - d) 8F
- 5) Which kind of isomerism is possible for a complex $[\text{Co}(\text{NH}_3)_4 \text{Br}_2] \text{Cl}$?
 - a) geometrical and ionisation
 - b) geometrical and optical
 - c) optical and ionization
 - d) geometrical only
- 6) Which of the following is weakest acid among all ?
 - a) HI
 - b) HF
 - c) HBr
 - d) HCl
- 7) Which one of the following will not undergo Hoffmann bromamide reaction.
 - a) $\text{CH}_3\text{CONHCH}_3$
 - b) $\text{CH}_3 \text{CH}_2\text{CONH}_2$
 - c) CH_3CONH_2
 - d) $\text{C}_6\text{H}_5\text{CONH}_2$
- 8) Amide linked local anesthetic is
 - a) lidocaine
 - b) procaine
 - c) isoflurane
 - d) propofol
- 9) The formation of cyanohydrin from acetone is an example of
 - a) nucleophilic substitution
 - b) electrophilic substitution
 - c) electrophilic addition
 - d) nucleophilic addition
- 10) _____ are newly synthesised allotropes of carbon.
 - a) fullerene
 - b) nanotube
 - c) graphite
 - d) graphene
- 11) In Arrhenius equation, the term A is
 - a) Threshold energy
 - b) frequency factor
 - c) activation energy
 - d) collision rate
- 12) The blue colour of the sky is due to _____ of air particles.
 - a) Tyndall effect
 - b) Brownian movement
 - c) Electrophoresis
 - d) electroosmosis
- 13) The most common oxidation state of actinoids is
 - a) +2
 - b) +4
 - c) +3
 - d) +6

14) The salt does not undergo hydrolysis is _____

- a) Sodium acetate
b) ammonium chloride
c) ammonium acetate
d) sodium nitrate

15) Match the following

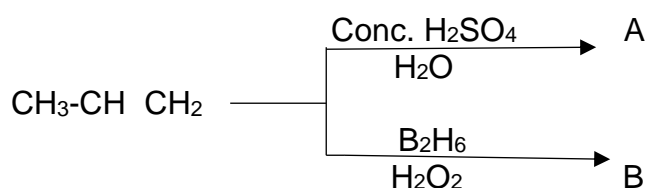
1. Sucrose - a) α - 1, 4 - glycosidic bond
2. Lactose - b) α - 1,6 - glycosidic bond
3. Maltose - c) α - 1,2 - glycosidic bond
4. Starch - d) β - 1,4 - glycosidic bond
- a) 1-d, 2-c, 3-a, 4-b
b) 1-c, 2-d, 3-b, 4-a
c) 1-c, 2-d, 3-a, 4-b
d) 1-d, 2-c, 3-b 4-a

PART - II

Answer any 6 questions : Q.No. 24 is compulsory

6 × 2 = 12

- 6) How is nitrogen prepared ?
17) What are interstitial compounds ?
18) Write any two hydrate isomers of the complex with molecular formula $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$.
19) Distinguish b/w isotropy and anisotropy.
20) Define buffer index (β).
21) Gas in gas colloid does not. Why ?
22) How you prepared benzoic acid using Grignard reagent ?
23) How is chloropicrin prepared ?
24) Complete the following reaction and identify A and B



PART - III

Answer any 6 questions : Q.NO. 33 is compulsory

6 × 3 = 18

- 25) Write chromyl chloride test.
26) $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ is green colour. Explain.
27) Explain the common ion effect with an example.
28) Explain the factors that affect electrolytic conductance.
29) What is demulsification ? give any 2 methods of demulsification.
30) How are proteins classified based on their structure? Explain.
31) Explain the oxidation of unsymmetrical ketone ?
32) Write a note on antioxidants.

33) 0.1 M solution of HF is weak acid, but 5M solution of HF is stronger acid. Why?

PART – IV

Answer the following :

5 × 5 = 25

- 34) a) i) Explain the principle of electrolytic refining with an example.
ii) What is royal water ? give the equation for dissolving platinum.
(or)
b) i) How is potash alum prepared ?
ii) What is the structure and hybridisation of XeOF₄.
- 35) a) Write the postulates of Werner theory.
(or)
b) i) Explain metal deficiency defect.
ii) Give an example for i) phase transfer catalyst ii) Nano catalyst
- 36) a) i) Explain pseudo first order reaction with an example.
ii) Classify the following into Lewis acid and Lewis base.
a) CO₂ b) FeCl₃ c) CH₃⁻ d) CaO
(or)
b) Derive an expression for Nernst equation.
- 37) a) i) How will you detect the change of sol particles ?
ii) Give the mechanism of Williamson ether synthesis.
(or)
b) i) Write dehydration reaction of glycerol.
ii) How the tranquilizers work in body.
- 38) a) Write the mechanism of Cannizzaro reaction.
(or)
b) i) Write Gattermann reaction.
ii) Why aniline is less basic than ammonia ?

By,

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PGT CHEMISTRY

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