ANGEL'S PUBLIC SCHOOL

SAMPLE PAPER

FINAL EXAM SESSION 2024 – 25

TIME: 3 HRS CLASS – XI SUBJECT: CHEMISTRY CODE – 043 M.M:70

	General Instructions : **(a)** There are 33 questions in this question paper. All questions are compulsory. **(b)** Section A: Q.no. 1 and 2 carrying 4 marks each while Q . No. 3 to 16 carry 1 mark **(c)** Section B: Q.no. 17 to 25 are short answer questions and carry 2 marks each. **(d)** Section C: Q.no. 26 to 30 are long answer questions and carry 3 marks each. **(e)** Section D: Q.no. 31 to 33 are also long answer questions and carry 5 marks each. **(f)** Use log tables if necessary, use of calculators is not allowed. **SECTION – A**
1.	Mercury cell, suitable for low current devices like hearing aids, watches, etc. consist of zinc-mercury amalgam as anode and a paste of HgO and carbon as the cathode. The electrolyte is a paste of KOH and ZnO. The electrode reactions for the cell are given below **Anode :** $Zn(Hg) + 2\ OH^- \rightarrow ZnO(s) + H_2O + 2e^-$ **Cathode :** $HgO + H_2O + 2e^- \rightarrow Hg\ (l) + 2OH^-$ The overall reaction is represented by $Zn(Hg) + HgO \rightarrow ZnO(s) + Hg(l)$ The cell potential is approximately 1.35V and remains constant during its life as the overall reaction does not involve any ion in solution whose concentration can change during its life time. (a) Name the anode used in mercury cell (b) Name the cathode used in mercury cell. (c) What is the electrolyte used in mercury cell? (d) What is the approximate cell potential of a mercury cell?
2.	(a) Define Conjugation. (b) Why 2d orbital is not possible? (c) How many electrons are present in carbocation intermediate? (d) Define STARK effect?
3.	The isomer which have dynamic equilibrium between two molecule is [a]metamerism [b] Tautomerism [c] conformational [d] Geometrical
4.	Relationship between temperature and volume[at constant pressure] was given by [a] Bohr [b] Charles [c] Avogadro [d] Boyle
5.	Which is not a reaction intermediate? [a] carbocation [b] Olefin [c] Carbene [d] Free radical
6.	Cyclohexane molecule has _____. [a]6σ & 6π bonds [b] 18σ & 0 π bonds [c] 12σ & 3π bonds [d] 6σ & 3π bonds.
7.	The hybridisation of iodine in I_3^- is _____. [a] sp^3 [b] sp^3d [c] sp^3d^2 [d] sp^3d^2
8.	Which of hybridisation is possible in destortrd octahedral molecules ? [a] sp^3d [b] dsp^3 [c] sp [d] sp^3d^3
	Which of the following is enol?

9.	[a]CH_2=CH-CHO [b] CH_2=CHOH [c] CH_2=CH-CH=CH_2 [d] CH_2=CH-COOH.
10.	Impossible orbitals among the following is_____. [a] 3s [b] 4f [c] 3p [d] 3d
	The questions given below consists of an Assertion and the reason. Use the following key to choose the appropriate answer [a] If both assertion and answers are CORRECT and the reason is the CORRECT explanation of the assertion [b] If both assertion and answers are CORRECT and the reason is NOT CORRECT explanation of the asertion [c] If assertion is CORRECT but reason is INCORRECT [d] If assertion is INCORRECT but reason is CORRECT
11.	**Assertion**: 2f orbitals are not possible **Reason** : l cannot have value ≥ n
12.	. **Assertion:** Atomic radius in general decreases along a period **Reason** : in a period effective nuclear charge decreases
13.	**Assertion** : It is impossible to determine the exact position and momentum of an electron simultaneously . **Reason** : The path of an electron in an atom is clearly defined
14.	Reaction of HBr with propene in the presence of peroxide gives [a] 3-bromopropane [b] alkyl bromide [c] n-propyl bromide [d] isopropyl bromide
15.	Bohr model was contradicted by___. [a] Pauli's excluision principle [b] Planck's quantum theory [c] Heisenbergs's uncertainty principle [d] All of these
16.	Two lone pair of electrons and two bond pair of electrons are present in _____. [a] NH_3 [b] BF_3 [c] H_2O [d] CO_2
17.	.Explain ELECTROCHEMICAL CELL with well labelled diagram **OR** A body of mass of 10g at a speed of 50m/s. if the speed can be measured with accuracy of 10%. Calculate uncertainty in position
18	Draw structures and write hybridisation of H_2SO_4 , XeO_2F_4
19.	Explain Wurt's reaction with its limitation.
20.	Round off upto 3 decimel place. [a] 5.894756 [b] 9.00
21.	With suitable reaction explain peroxide effect.
22.	Derive relation between K_p and K_c.
23.	Explain S.H.E with well labelled diagram **OR** Explain electrochemical series
24	Two particles A and B are in motion. If the wavelength associated with particle A is $25x10^{-8}$m. calculate the wavelength associated with particle B if its momentum is 1/4th of A
25.	With suitable chemical reaction, explain β-elimination .reaction

SECTION – C

26.	With suitable diagram, explain laboratory preparation of ethene.
27.	State and prove HESS'S law
28.	Calculate the solubility of silver bromide having K_{sp} 2.5×10^{-6}. **OR** Explain ozonolysis of propyne and pent-2-ene.
29.	Calculate the wavenumber and frequency for shortest wavelength of **PASCHEN** series
30.	Derive relationship between ΔH , ΔU and Δn_g **OR** Derive de-broglie relationship
31.	[a]- Balance by any method [except hit and trial method] MnO_4^- + Br^- $\rightarrow$ MnO_2 + Br_2 [Acidic medium] [b]- Explain conjugate acid –base pair effect? **OR** (1) $CH_3CH_2CH_3$ + Na [dry ether] $\longrightarrow$ (2) CH_3 CH_2-CH_2-CHCl-CH_3 +(alc) KOH $\longrightarrow$ (3) CH_3 (CH_2)$_3$ $CH=CH_2$ + HI $\longrightarrow$ (4) CH_3-C≡CH + HOH $\longrightarrow$ (5) CH_3 CH_2-$CH=CH_2$ + O_3 $\longrightarrow$
32.	(a) If beta particle have ± 0.5 % uncertainty in its velocity. What is the uncertainty in its position? (b) Why electron can not exist in nucleus? (c) Write electronic configuration of element having atomic number 101, 49 **OR** (a) With well labelled diagram explain laboratory preperation of Ethene ? (b) Draw structure and write IUPAC name of the following- (i) phthalic acid (ii) meta-cresol (iii) picric acid
33.	With chemical reaction explain (a) ozonolysis of Butene (b) reduction of pentyne (c) dehydrohalogenation of 2-chloropentane (d) pyrolysis of hexane (e) decarboxylation reaction