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- (vii) The electrode potential of a saturated calomel electrode at 25⁰C is
a) 24.15 Volt
b) 2.415 Volt
c) 0.2415 Volt
d) 0.02415 Volt
- (viii) The critical constant (V_C) of a Vander Waal's gas is given by
a) $V_C=3b$
b) $V_C=2b$
c) $V_C=b/3$
d) $V_C=b/2$
- (ix) 1-Propene reacts with HBr in presence of peroxide to produce as major product
a) $CH_3-CH(Br)-CH_3$
b) $CH_3-CH_2-CH_2-Br$
c) $CH_2=CH-CH_2-Br$
d) Both a and b
- (x) The screening effect of 'd' electrons is:
a) much less than s- electrons
b) Much more than s-electrons
c) Equal to s-electrons
d) Equal to p-electrons.
- (xi) In anilinium ion the wavelength decreases as compared to aniline due to
a) Auxochrome
b) Red shift
c) Blue Shift
d) Chromophore
- (xii) Magnetic moment of a transition metal can be calculated from
a) Number of paired electrons
b) Number of valence electrons
c) Number of total electrons
d) Number of unpaired electrons
- (xiii) Which statement is true?
a) The electronegative nature of elements increases along the period
b) The electropositive nature of elements increases along the period
c) The chemical reactivity of elements increases along the period
d) The ionization energy decreases along the period
- (xiv) For a particle inside a box, the potential is maximum at $x = \dots\dots\dots$
a) L
b) 2L
c) L / 2
d) 3L
- (xv) In which of the following coordination entities the magnitude of Δ_0 (CFSE in octahedral field) will be maximum?
a) $[Co(H_2O)_6]^{3+}$
b) $[Co(NH_3)_6]^{3+}$
c) $[Co(CN)_6]^{3-}$
d) $[Co(C_2O_4)_3]^{3-}$

Group-B
(Short Answer Type Questions) 3 x 5=15

2. State and explain the Hess's law. (3)
3. Determine the products when formaldehyde and acetaldehyde react with NH_3 separately. (3)
4. Define chromophore and auxochrome. Give examples. (3)
5. Differentiate between atomic and ionic radii with examples. (3)
6. Differentiate between reversible and irreversible process. (3)

OR

Deduce the relation between ΔG and ΔH of a chemical process.

(3)

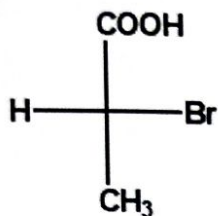
Group-C
(Long Answer Type Questions)

5 x 6=30

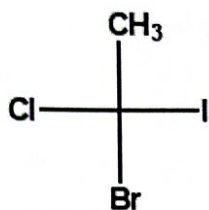
7.

(5)

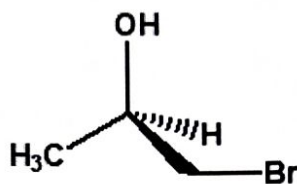
Assign R/S nomenclature for the following compounds



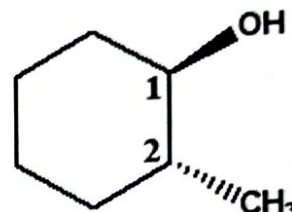
(a)



(b)



(c)



(d)

8. State two main applications of UV-Vis spectroscopy.

(5)

9. What is meant by standard electrode potential? Write down the Nernst equation. state its utility.

(5)

10. Calculate CFSE for Mn^{3+} in both strong and weak fields.

(5)

11. Distinguish between E1 and E2 elimination with examples.

(5)

12. $RT_c/P_c V_c = 8/3$. Justify. (where the terms have usual meaning.)

(5)

OR

S-trans 1,3-butadiene absorbs at higher wavelength than S-cis 1,3-butadiene. Justify.

(5)
