JEE MAIN-2018

CHEMISTRY

45. **Sol. (C)**

IUPAC name is tetraamminenickel (II) – tetrachloronickelate (II)

46. **Sol. (C)**

In the crystalline form CuF_2 is blue coloured.

47. **Sol. (B)**

$Ni(CO)_4 = sp^3$

$[Ni(CN)_4]^{2} = dsp^3$

48. **Sol. (A)**

Critical concentration for micelle formation decreases as the molecular weight of hydrocarbon chain of surfactant grows because in this case true solubility diminishes and the tendency of surfactant molecule to associate increases.

49. **Sol. (D)**

Solubility of $(MX) = \sqrt{4\times10^{-8}} = 2\times10^{-4}$

Solubility of $(MX_2) = 8\times10^{-5}$

Solubility of $(M_3X) = 1\times10^{-4}$

$\therefore MX > M_3X > MX_2$

50. **Sol. (B)**

$Q = i \times t$

$Q = 10 \times 10^{-3} \times t$

$2H_2O + 2e^- \rightarrow H_2 + 2OH^-$

To liberate 0.01 mole of H_2, 0.02 Faraday charge is required

$Q = 0.02 \times 96500\,C$

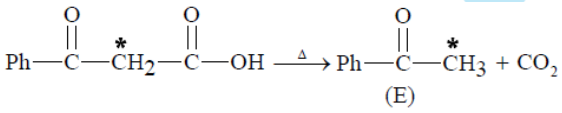
$\therefore 0.02 \times 96500 = 10^{-2} \times t$

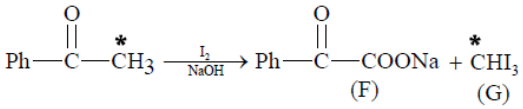
$t = 19.30 \times 10^4$ sec

51. **Sol. (A)**

As in cellulose β1-4 glycosidic linkage is present.

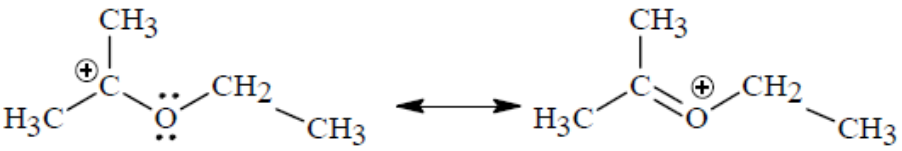
52. **Sol. (C)**





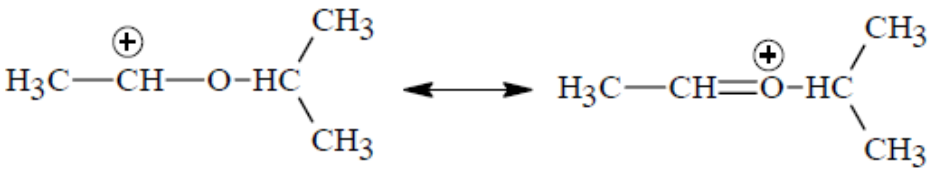
53. **Sol. (D)**

(I)



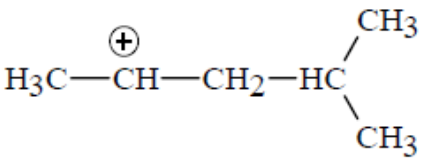
Stabilizes by resonance and have six α - hydrogen atoms (hyperconjugation)

(III)



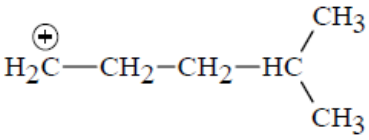
Stabilizes by resonance and have only three α - hydrogen atoms.

(II)



have five α - hydrogen atoms.

(IV)



have only two α - hydrogen atoms.

$\therefore$ I > III > II > IV

54. **Sol. (B)**

The molecule should not posses alternate axis of symmetry to be optically active.

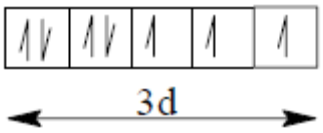
55. **Sol. (A)**

$\left[Fe(H_2O)_5\,NO\right]SO_4$

Here Fe has +1 oxidation state.

$Fe^{+} = 3d^{6}4s^{1}$ in presence of NO^{+} $4s^{1}$ electron are paired in $3d$ sub shell.

So electronic configuration of Fe^{+} is

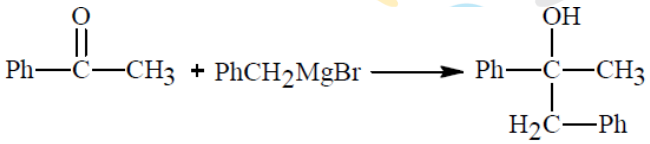


56. **Sol. (D)**

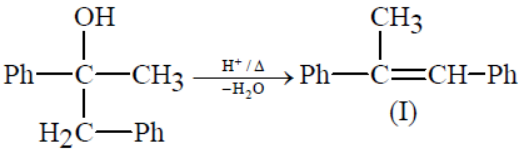
$C_6H_5\overset{\oplus}{N}_2\overset{\ominus}{Cl}$ gives scarlet red coloured dye with β - naphthol.

57. **Sol. (B)**

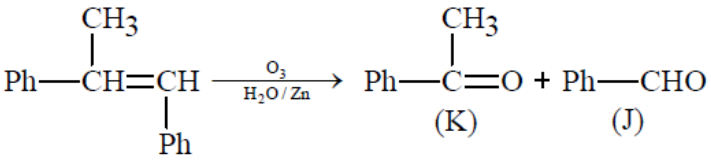
58. **Sol. (B)**



59. **Sol. (A)**

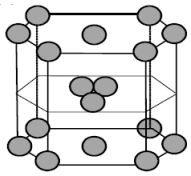


60. **Sol. (D)**



Hence, (D) is the correct answer.

61. **Sol. (B)**



Total effective number of atoms $= 12 \times \frac{1}{6} + 2 \times \frac{1}{2} + 3 = 6$

62. **Sol. (A)**

Height of unit cell $= 4r\sqrt{\frac{2}{3}}$

Base area $= 6 \times \frac{\sqrt{3}}{4}(2r)^2$

Volume = height × base area

$= 24\sqrt{2}r^3$

63. **Sol. (D)**

Packing fraction $= 74\%$

Empty space $= 26\%$

64. **Sol.**

A – r, s

B – p, q

C – p, q, r

D – p, s

65. **Sol.**

A – q

B – s

C – p, q, r

D – p, q, r

66. **Sol.**

A – p

B – q

C – p, r

D – p, s