KCET CHEMISTRY ANSWER KEYS (19.04.2018)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	C	A	D	A	B	B	B	D	C	B	C	A	B	C
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
B	D	C	B	C	A	A	C	D	A	D	B	B	B	B
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
A	C	A	A	A	A	A	B	D	B	C	A	C	D	C
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
C	D	B	B	A	C	C	D	B	C	C	A	D	B	A

1. **Sol: (B)**

PbO_2 + conc. $HNO_3 \rightarrow Pb(NO_3)_2 + H_2O + O_2$

2. **Sol: (c)**

$KI + 2KMnO_4 + H_2O \rightarrow KIO_3 + 2KOH + MnO_2$

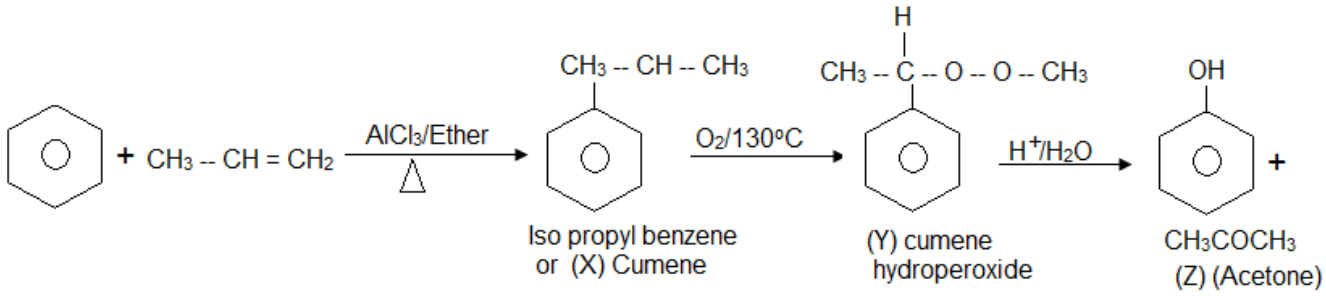
3. **Sol: (a)**

Conceptual (Ambidendate ligand shows the linkage Isomerism)

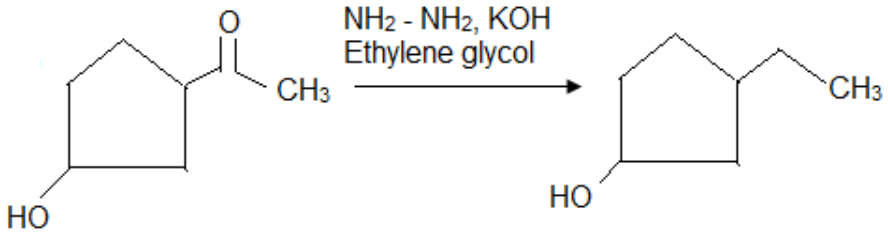
4. **Sol: (d)**

Conceptual

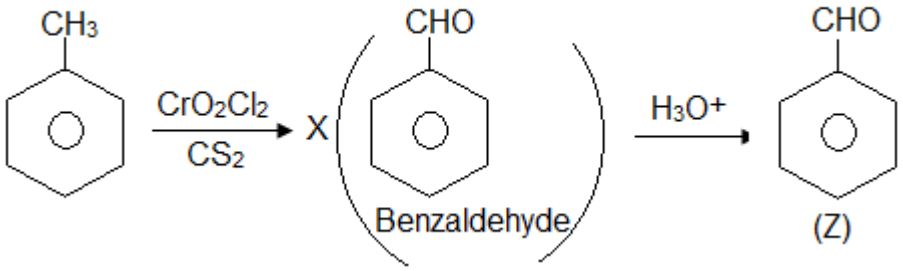
5. **Sol: (a)**



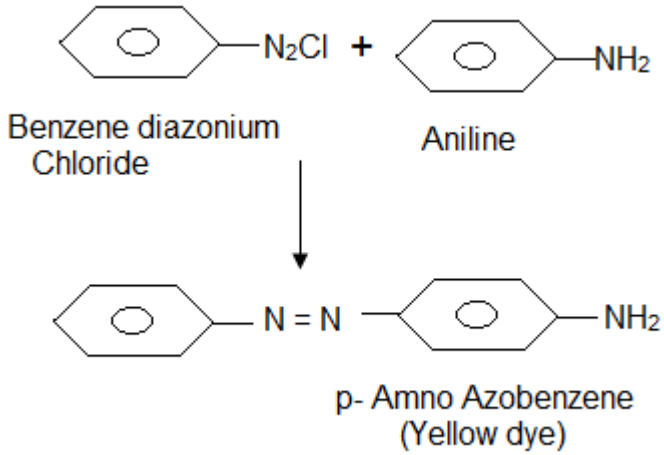
6. **Sol: (b)**



7. **Sol: (b)**



8. **Sol: (b)**

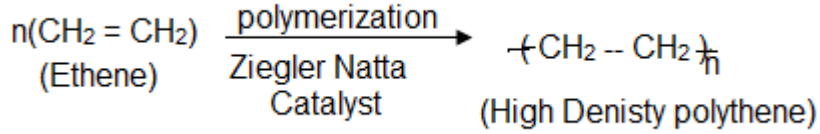


9. **Sol: (d)**

$C_1 - C_4$ α-linkage

10. **Sol: (c)**

Zeigler Natta Catalyst is $(C_2H_5)3Al + TiCl_4$ which is used to prepare High Density polythene.



14. **Sol: (b)**

$2Mg + O_2 \rightarrow 2MgO$

∴ 1 mole of O_2 reacts with 2 moles of Mg

.00875 mole of O_2 reacts with $\frac{2}{1} \times .00875$ moles of Mg

= .0175 Moles of Mg

[∵ Moles of O2 = $\frac{0.28}{32}$ = .00875]

Hence, mass of magnesium that reacts

= moles × molar mass

= .0175 × 24 = 0.42 g

That means, that of the 1 g of Mg that reacts only 0.42 g is used.

Therefore Magnesium is in excess and by (1 – 0.42) = 0.58 g.

12. **Sol: (c)**

Conceptual

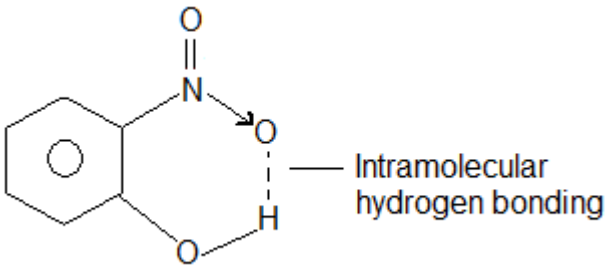
's' orbital is always nearer to the nucleus.

13. **Sol: (a)**

Conceptual

Size of Anion is bigger than the neutral atoms and size of cation is smaller than the neutral atom from which they are formed.

14. **Sol: (b)**



15. **Sol: (c)**

Conceptual

16. **Sol: (b)**

Conceptual (For Ideal gas Z = 1)

Compressibility factor

17. **Sol: ()**

$K_p = K_c (RT)^{\Delta n}$

$NH_4Cl_{(s)} \rightleftharpoons NH_{3(g)} + HCl_{(g)}$

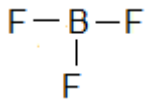
∴ $\Delta n = n_P = n_R$

= 2 – 0 = 2

18. **Sol: (c)**

Conceptual

According to Lewis "Acid" are those who can accept a lone pair of electrons. Hence, BF_3 accept lone pair of electrons since it is electron deficient.



19. **Sol: (b)**

$2MnO_4^- + 5H_2C_2O_4 + 6H^+ \rightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$

20. **Sol: (c)**

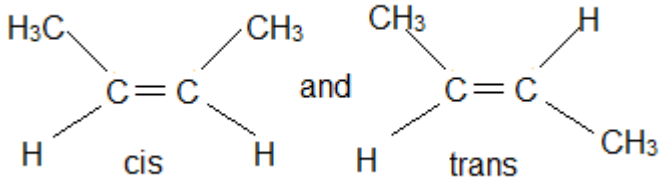
Conceptual

21. **Sol: (a)**

Conceptual

22. **Sol: (a)**

But – 2 – ene

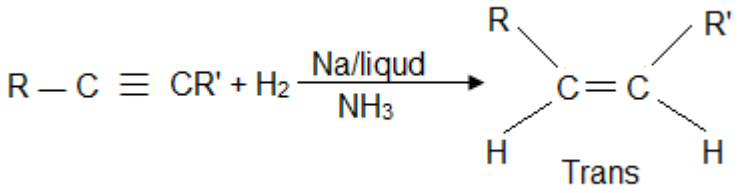


23. **Sol: (c)**

Conceptual

$C + Na + N \rightarrow NaCN$

24. **Sol: (d)**



We can cis alkene by lindlar's catalyst and trans alkene by Na/liquid NH_3.

25. **Sol: (a)**

Hardness in H_2O is generally caused by calcium and magnesium salts.

26. **Sol: (d)**

Conceptual

27. **Sol: (b)**

Highest boiling point means the solution should have more number of particles.

In, Na_2SO_4 we are having highest number of particles i.e.

[$Na_2SO_4 \rightarrow 2Na^+ + SO_4^{2-}$]

28. **Sol: (b)**

MnO_4^- → MnO_2

↓ ↓

x + 4(–2) = –1 x + 2(–2) = 0

x = +7 x = +4

∴ Change in 0.N = 7 – 4 = 3

Hence charge required will be 3F

29. **Sol: (b)**

$2SO_2 + O_2 \rightleftarrows 2SO_3$

$$-\frac{1}{2}\frac{d[SO_2]}{dt} = -\frac{d[O_2]}{dt} = \frac{1}{2}\frac{d[SO_3]}{dt}$$

$$\therefore \frac{d[SO_3]}{dt} = \frac{2d[O_2]}{dt}$$

$= 2 \times 2 \times 10^{-4}$

$= 4 \times 10^{-4}$ mol l^{-} s^{-1}

30. **Sol: (b)**

According to Hardy-Schulze rule, greater is the valency of oppositely charged ions, greater will be the coagulating value.

31. **Sol: (a)**

Conceptual

32. **Sol: (c)**

Conceptual

33. **Sol: (a)**

Conceptual

[Both V_2O_5 and Cr_2O_3 can show the property of Acidic as well as basic oxide]

34. **Sol: (a)**

$[Co(NH_3)_4\ Cl(NO_2)]Cl$

Tetra ammine chloridonitrito-N-Cobalt (III) Chloride.

35. **Sol: (a)**

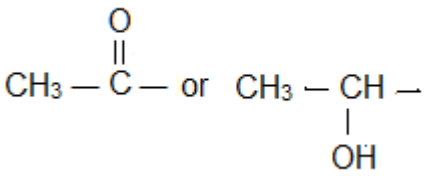
Conceptual

36. **Sol: (a)**

Phenol reacts with bromine water whereas ethanol does not react.

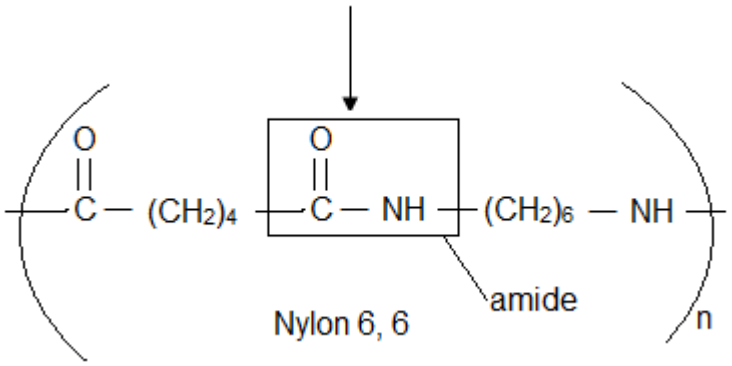
37. **Sol: (a)**

For halogen reaction like Iodoform compounds must have either of these groups.



38. **Sol: (b)**
$C_6H_5N_2^+X^-$ is the most stable one because of resonance.

40. **Sol: (b)**
n(400 C – $(CH_2)_4$ – COOH) + n(H_2N – $(CH_2)_6$ – NH_2)
(Adipic Acid) (Hexamethylene diamine)



41. **Sol: (c)**
Conceptual

42. **Sol: (a)**
$\Lambda_m = \frac{K \times 1000}{M}$

$\Rightarrow \frac{\Lambda_m}{K} = \frac{1000}{M} = \frac{1000}{10^{-2}} = 10^5\ cm^3\ mol^{-1}$

43. **Sol: (c)**
Conceptual

44. **Sol: (d)**
For every 10°C rise in temperature the rate of reaction doubles.

∴ From 30°C to 90°C
it is 64 times

45. **Sol: (c)**
Conceptual

46. **Sol: (c)**
Bauxite mainly contains Fe_2O_3 and SiO_2 as the impurities.

47. **Sol: (c)**

$2NaN_3 \xrightarrow{300^oC} 2Na + 3N_2$

48. **Sol: (b)**

The most common oxidation states of lanthanides is +3

49. **Sol: (b)**

$X \rightarrow [Ar]3d^5$

If X is at +3 oxidation state than initially,

$X \rightarrow [Ar]4s^2\ 3d^6$

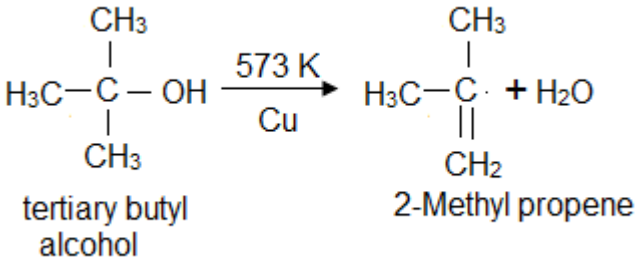
∴ Atomic Number is 26.

50. **Sol: (a)**

Wurtz reacition

$n(CH_3\ CH_2\ CH_2\ Cl) \xrightarrow[dry\ ether]{Na} CH_3 - (CH_2)_4 - CH_3$

51. **Sol: (c)**



tertiary butyl alcohol

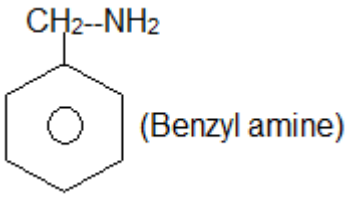
2-Methyl propene

52. **Sol: (c)**

+I effect decreases the acidic strength and – I effect increases acidic strength.

53. **Sol: (d)**

+ I effect increases the Basic strength



(Benzyl amine)

54. **Sol: (b)**

Conceptual

55. **Sol: (c)**

Conceptual

56. **Sol: (c)**

Body diagonal = $\sqrt{3}$ a

= $\sqrt{3} \times 300$ = 519.6 pm

57. **Sol: (a)**
Conceptual

58. **Sol: (d)**
E^o_{cell} = $\frac{.0591}{2}$ log K_c

0.3 = $\frac{.0591}{2}$ log K_c

⇒ log K_c = 10.15

⇒ Kc = Antilog(10.15) ≡ 10^{10} (approx.)

59. **Sol: (b)**
Conceptual

60. **Sol: (a)**
Conceptual

Byju's