

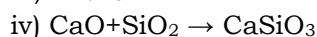
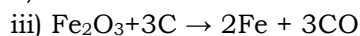
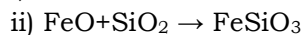
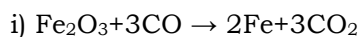
DR ACADEMY

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FINAL KCET EXAMINATION CHEMISTRY – 2019

HELD ON 29-04-2019 (TIME : 02.30 PM TO 03.50 PM)

1. Among the following the main reactions occurring in blast furnace during extraction of iron from haematite are



- 1) i and iii 2) iii and iv
3) ii and iii 4) i and iv

ANS : 4

2. Which of the following pair contains 2 lone pair of electrons on the central atom?

- 1) I_3^+ , H_2O 2) H_2O , NF_3
3) XeF_4 , NH_3 4) SO_4^{2-} , H_2S

ANS : 1

3. Which of the following statement is correct?

- 1) Cl_2 oxidises H_2O to O_2 but F_2 does not
2) Cl_2 is a stronger oxidizing agent than F_2 .
3) F_2 oxidises H_2O to O_2 but Cl_2 does not
4) Fluoride is a good oxidising agent

ANS : 3

4. 0.1 mole of XeF_6 is treated with 1.8 g of water. The product obtained is

- 1) XeO_3 2) XeO_2F_2
3) XeOF_4 4) $\text{Xe} + \text{XeO}_3$

ANS : 3

5. In the reaction of gold with aquaregia, oxidation state of Nitrogen changes from

- 1) +4 to +2 2) +6 to +4
3) +5 to +2 4) +3 to +1

ANS : 3

6. The vitamin that helps in clotting of blood is

- 1) A 2) C 3) B₂ 4) K

ANS : 4

7. The polymer containing five methylene groups in its repeating unit is

- 1) Nylon 6, 6 2) Nylon 6
3) Dacron 4) Bakelite

ANS : 2

8. Cis-1, 4-polyisoprene is called

- 1) Buna-N 2) Neoprene
3) Buna-s 4) Natural rubber

ANS : 4

9. Which cleansing agent gets precipitated in hard water?

- 1) Sodium lauryl sulphate
2) Sodium stearate
3) Cetyl trimethyl ammonium bromide
4) Sodium dodecyl benzene sulphonate

ANS : 2

10. Anti-histamine among the following is

- 1) Bromopheneramine
2) Morphine
3) Amoxycillin
4) Chloroxylenol

ANS : 1

11. The mass of AgCl precipitated when a solution containing 11.70g of NaCl is added to a solution containing 3.4 g of AgNO_3 is [Atomic mass of $\text{Ag}=108$. Atomic mass of $\text{Na}=23$]

- 1) 5.74g 2) 1.17g 3) 2.87g 4) 6.8g

ANS : 3

12. Two particle A and B are in motion. If the wavelength associated with 'A' is 33.33 nm, the wavelength associated with 'B' whose momentum is $\frac{1}{3}$ rd of 'A' is

- 1) $1.0 \times 10^{-8}\text{m}$ 2) $2.5 \times 10^{-8}\text{m}$
3) $1.25 \times 10^{-7}\text{m}$ 4) $1.0 \times 10^{-7}\text{m}$

ANS : 4

13. The first ionization enthalpy of the following elements are in the order

- 1) C < N < Si < P 2) P < Si < N < C
3) P < Si < C < N 4) Si < P < C < N

ANS : 4

14. Solubility of AgCl is least in

- 1) 0.1M NaCl 2) Pure water
3) 0.1 M BaCl₂ 4) 0.1M AlCl₃

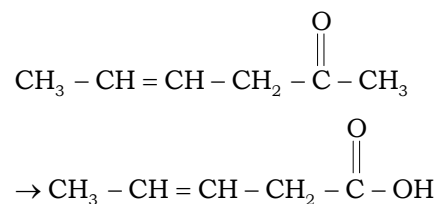
ANS : 4

15. Which of the following equations does NOT represent Charles's law for a given mass of gas at constant pressure?

- 1) $\frac{V}{T} = K$ 2) $\log V = \log K + \log T$
3) $\log K = \log V + \log T$ 4) $\frac{d(\ln V)}{dT} = \frac{1}{T}$

ANS : 3

16. Which of the most suitable reagent for the following conversion?



- 1) Tollen's reagent
2) I₂ and NaOH solution
3) Benzoyl peroxide
4) Sn and NaOH solution

ANS : 2

17. Which of following is least soluble in water at 298K ?

- 1) CH₃NH₂ 2) (CH₃)₃N
3) (CH₃)₂NH 4) C₆H₅NH₂

ANS : 2

18. If Aniline is treated with 1:1 mixture of con. HNO₃ and con. H₂SO₄, p-nitroaniline and m-nitroaniline are formed nearly in equal amounts. Thus

- 1) m-directing property of -NH₂ group
2) Protonation of -NH₂ which causes deactivation of benzene ring
3) m & p directing property of -NH₂ group
4) Isomerization of some p-nitroaniline into m-nitroaniline

ANS : 2

19. In nucleic acids, the nucleotides are joined together by

- 1) Phosphoester linkage
2) Phosphodiester linkage
3) Phosphodisulphide linkage
4) Sulphodiester linkage

ANS : 2

20. Which of the following is generally water insoluble?

- 1) Fibrous protein 2) Vitamin-C
3) Amylose 4) Glycine

ANS : 1

21. Match the following acids with their pKa values

Acid	pKa
a. Phenol	i. 16
b. p-Nitrophenol	ii. 0.78
c. Ethanol	iii. 10
d. Picric acid	iv. 7.1

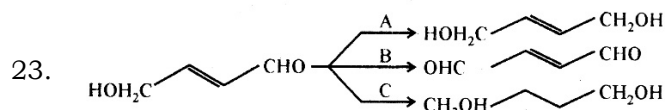
	a	b	c	d	a	b	c	d
1) iii	iv	i	ii	2) ii	i	ii	iv	
3) iii	i	iv	ii	4) iv	ii	iii	i	

ANS : 1

22. Which of the following can be used to test the acidic nature of ethanol?

- 1) Blue litmus solution 2) Na₂CO₃
3) NaHCO₃ 4) Na metal

ANS : 4



The reagents A, B and C respectively are

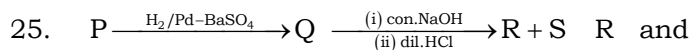
- 1) H₂ / Pd, PCC, NaBH₄
2) NaBH₄, alk.KMnO₄, H₂ / Pd
3) NaBH₄, PCC, H₂ / Pd
4) H₂ / Pd, alk.KMnO₄, NaBH₄

ANS : 3

24. Propanoic acid undergoes HVZ reaction to give chloropropanoic acid. The product obtained is

- 1) Stronger acid than propanoic acid
2) As stronger as propanoic acid
3) Weaker acid than propanoic acid
4) Stronger than dichloropropanoic acid

ANS : 1



S form benzyl benzoate when treated with each other. Hence P is

- 1) C_6H_5CHO 2) $C_6H_5CH_2OH$
3) C_6H_5COCl 4) C_6H_5COOH

ANS : 3

26. The elements in which electrons are progressively filled in 4f orbital are called

- 1) Actinoids 2) Transition elements
3) Lanthanoids 4) Halogens

ANS : 3

27. Incorrect statements with reference to Ce (Z=58)

- 1) Ce^{4+} is reducing agent
2) Ce in +3 oxidation state is more stable than in +4
3) Atomic size of Ce is more than that of Lu
4) Ce shows common oxidation states of +3 and +4

ANS : 1

28. A mixture of NaCl and $K_2Cr_2O_7$ is heated with conc. H_2SO_4 , deep red vapours are formed. Which of the following statement is false?

- 1) The vapours give a yellow solution with NaOH
2) The vapours contain CrO_2Cl_2 only
3) The vapours contain CrO_2Cl_2 and Cl_2
4) The vapours when passed into lead acetate in acetic acid gives a yellow precipitate.

ANS : 3

29. Which of the following statement is wrong?

- 1) In highest oxidation states, the transition metals show acidic character
2) Mn^{3+} and Co^{3+} are oxidizing agents in aqueous solution
3) Metals in highest oxidation states are more stable in oxides than in fluorides
4) All elements of 3d series exhibit variable oxidation states

ANS : 4

30. Which among the following is the strongest ligand?

- 1) CN^- 2) NH_3 3) CO 4) en

ANS : 3

31. Which of the following possess net dipole moment?

- 1) SO_2 2) BF_3 3) $BeCl_2$ 4) CO_2

ANS : 1

32. The number of π -bonds and σ -bonds present in naphthalene are respectively

- 1) 6, 19 2) 5, 19 3) 5, 11 4) 5, 20

ANS : 2

33. The reaction which $\Delta H > \Delta U$ is

- 1) $N_{2(g)} + O_{2(g)} \rightarrow 2NO_{(g)}$
2) $CaCO_{3(s)} \rightarrow CaO_{(s)} + CO_{2(g)}$
3) $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$
4) $CH_{4(g)} + 2O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_{(l)}$

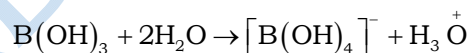
ANS : 2

34. The number of moles of electron required to reduce 0.2 mole of $Cr_2O_7^{2-}$ to Cr^{+3}

- 1) 1.2 2) 6 3) 12 4) 0.6

ANS : 1

35. In the reaction



- 1) Protonic acid 2) Lewis base
3) Bronsted acid 4) Lewis acid

ANS : 4

36. Addition of excess of $AgNO_3$ to an aqueous solution of 1 mole of $PdCl_2 \cdot 4NH_3$ gives 2 moles of $AgCl$. The conductivity of this solution corresponds to

- 1) 1:1 electrolyte 2) 1:3 electrolyte
3) 1:2 electrolyte 4) 1:4 electrolyte

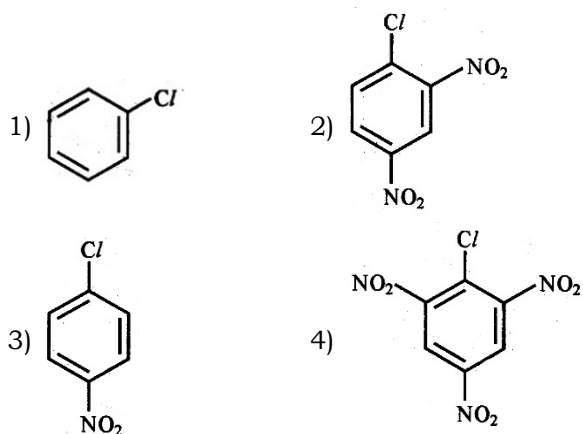
ANS : 3

37. The formula of penta aquanitrato chromium (III) nitrate is,

- 1) $[Cr(H_2O)_6](NO_3)_3$
2) $[Cr(H_2O)_6](NO_2)_2$
3) $[Cr(H_2O)_5NO_3](NO_3)_2$
4) $[Cr(H_2O)_5NO_2]NO_3$

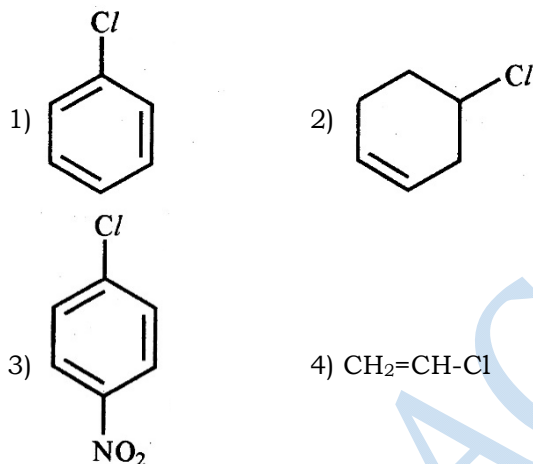
ANS : 3

38. Which of the following halide undergoes hydrolysis on warming with water/aqueous NaOH?

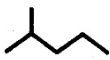


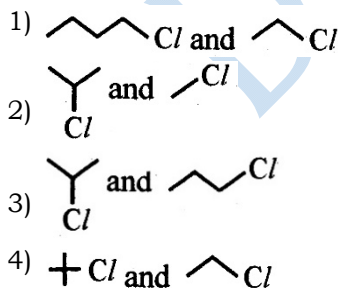
ANS : 4

39. The compound having longest C-Cl bond is



ANS : 2

40. The alkyl halides required to prepare  by Wurtz reaction are



ANS : 3

41. The metal nitrate that liberates NO_2 on heating
1) NaNO_3 2) LiNO_3 3) KNO_3 4) RbNO_3

ANS : 2

42. Which of the following is NOT true regarding the usage of hydrogen as a fuel ?

- 1) High calorific value
- 2) The combustible energy of hydrogen can be directly converted to electrical energy in a fuel cell
- 3) Combustion product is eco-friendly
- 4) Hydrogen gas can be easily liquefied and stored

ANS : 4

43. Resonance effect is not observed in

- 1) $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$
- 2) $\text{CH}_2=\text{CH}-\text{C}=\text{N}$
- 3) $\text{CH}_2=\text{CH}-\text{Cl}$
- 4) $\text{CH}_2=\text{CH}-\text{CH}_2-\text{NH}_2$

ANS : 4

44. 2-butyne is reduced to trans-but-2-ene using

- 1) $\text{H}_2 | \text{Ni}$
- 2) Na in liq. NH_3
- 3) $\text{H}_2 | \text{Pd}-\text{C}$
- 4) Zn in dil. HCl

ANS : 2

45. Eutrophication causes

- 1) increase of nutrients in water
- 2) reduction in water pollution
- 3) reduction in dissolved oxygen
- 4) decreases BOD

ANS : 1

46. Which is a wrong statement ?

- 1) Rate constant $k = \text{Arrhenius constant } A : \text{if } E_a = 0$
- 2) $e^{-E_a/RT}$ gives the fraction of reactant molecules that are activated at the given temp
- 3) In k vs $\frac{1}{T}$ plot is a straight line
- 4) presence of catalyst will not alter the value of E_a

ANS : 4

47. 1L of 2M CH_3COOH is mixed with 1L of 3M $\text{C}_2\text{H}_5\text{OH}$ to form an ester. The rate of the reaction with respect to the initial rate when each solution is diluted with an equal volume of water will be

- 1) 0.25 times
- 2) 2 times
- 3) 0.5 times
- 4) 4 times

ANS : 1

48. Which of the following is an example of homogeneous catalysis ?
 1) oxidation of NH_3 in Ostwald's process
 2) oxidation of SO_2 in contact process
 3) oxidation of SO_2 in lead chamber process
 4) manufacture of NH_3 by Haber's process

ANS : 3

49. Critical Micelle concentration for a soap solution is $1.5 \times 10^{-4} \text{ mol L}^{-1}$. Micelle formation is possible only when the concentration of soap solution in mol L^{-1} is
 1) 2.0×10^{-3} 2) 4.6×10^{-5}
 3) 7.5×10^{-5} 4) 1.1×10^{-4}

ANS : 1

50. Oxidation state of copper is +1 in
 1) Malachite 2) Cuprite
 3) Azurite 4) Chalcocopyrite

ANS : 2

51. Relative lowering of vapour pressure of a dilute solution of glucose dissolved in 1 kg of water is 0.002. The molality of the solution is
 1) 0.004 2) 0.222 3) 0.111 4) 0.021

ANS : 3

52. One litre solution of MgCl_2 is electrolyzed completely by passing a current of 1A for 16 min 5 sec. The original concentration of MgCl_2 solution was (Atomic mass of $\text{Mg}=24$)
 1) $5 \times 10^{-3} \text{ M}$ 2) $5 \times 10^{-2} \text{ M}$
 3) $0.5 \times 10^{-3} \text{ M}$ 4) $1.0 \times 10^{-2} \text{ M}$

ANS : 1

53. An aqueous solution of CuSO_4 is subjected to electrolysis using inert electrodes. The pH of the solution will
 1) increase
 2) remains unchanged
 3) decrease
 4) increase or decrease depending on the strength of the current

ANS : 3

54. Give : $E_{\text{Mn}^{+7}|\text{Mn}^{+2}}^0 = 1.5\text{V}$ and

$$E_{\text{Mn}^{+4}|\text{Mn}^{+2}}^0 = 1.2\text{V}, \text{ then } E_{\text{Mn}^{+7}|\text{Mn}^{+4}}^0 \text{ is}$$

- 1) 0.3V 2) 0.1V 3) 1.7V 4) 2.1V

ANS : 3

55. The plot of $t_{1/2}$ v/s $[\text{R}]_0$ for a reaction is a straight-line parallel to x-axis. The unit for the rate constant of this reaction is
 1) $\text{mol L}^{-1}\text{s}$ 2) $\text{mol L}^{-1} \text{ s}^{-1}$
 3) $\text{L mol}^{-1} \text{ s}^{-1}$ 4) s^{-1}

ANS : 4

56. Which of the following is a network crystalline solid ?
 1) I_2 2) AlN 3) NaCl 4) Ice

ANS : 2

57. The number of atoms in 2.4g of body centred cubic crystal with edge length 200 pm is (density = 10 g cm^{-3} , $N_A=6 \times 10^{23}$ atoms/mol)
 1) 6×10^{22} 2) 6×10^{20}
 3) 6×10^{23} 4) 6×10^{19}

ANS : 1

58. 1 mole of NaCl is doped with 10^{-5} mole of SrCl_2 . The number of cationic vacancies in the crystal lattice will be
 1) 6.022×10^{18} 2) 6.022×10^{15}
 3) 6.022×10^{23} 4) 12.044×10^{20}

ANS : 1

59. A non-volatile solute, 'A' tetramerises in water to the extent of 80%. 2.5g of 'A' in 100g of water, lowers the freezing point by 0.3°C . The molar mass of $\overset{0}{\text{A}}$ in mol L^{-1} is (K_f for water = $1.86 \text{ K kg mol}^{-1}$)
 1) 62 2) 221 3) 155 4) 354

ANS : 1

60. Solution 'A' contains acetone dissolved in chloroform and solution 'B' contains acetone dissolved in carbon disulphide. The type of deviations from Raoult's law shown by solutions A and B, respectively are
 1) positive and positive
 2) positive and negative
 3) negative and negative
 4) negative and positive

ANS : 4