



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2019

Chemistry

1. Relative lowering of vapour pressure of a dilute solution of glucose dissolved in 1kg of water is 0.002. The molality of the solution is

- A. 0.004
- B. 0.222
- C. 0.111
- D. 0.021

Answer: C



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2. 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 Mg=24)

A. 5×10^{-3} M

B. 5×10^{-2} M

C. 0.5×10^{-3} M

D. 1.0×10^{-2} M

Answer: A



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3. An aqueous solution of $CuSO_4$ is subjected to electrolysis using inert electrodes. The pH of the solution will

A. increase

B. remains unchanged

C. decrease

D. increase or decrease depending on the strength of the current.

Answer: C

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4. $E_{Mn}^{\circ} + 7 | Mn + 2 = 1.5 \text{ V}$ $E_{Mn}^{\circ} + 4 | Mn + 2 = 1.2 \text{ V}$, then

$E_{Mn}^{\circ} + 7 | Mn + 4$ is

A. A) $0.3V$

B. B) $0.1V$

C. C) $1.7V$

D. D) $2.1V$

Answer: C

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5. The plot of $t \frac{1}{2} V/s [R]_0$ for a reaction is a straight-line parallel to x-axis. The unit for the rate constant of this reaction is

A. $\text{mol L}^{-1} \text{s}$

B. $\text{mol L}^{-1} \text{s}^{-1}$

C. $\text{L mol}^{-1} \text{s}^{-1}$

D. s^{-1}

Answer: D

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6. Addition of excess of AgNO_3 to an aqueous solution of 1 mole of $\text{PdCl}_4 \cdot 4\text{NH}_3$ gives 2 moles of AgCl . The conductivity of this solution corresponds to

A. 1: 1 electrolyte

B. 1: 3 electrolyte

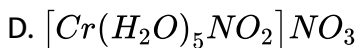
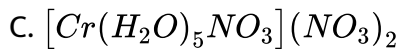
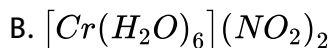
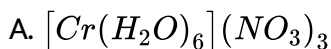
C. 1: 2 electrolyte

D. 1: 4 electrolyte.

Answer: C

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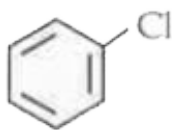
7. The formula of pentaaquanitratochromium(III)nitrate is



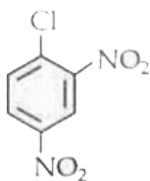
Answer: C

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



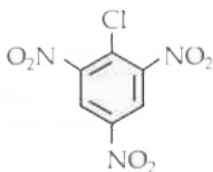
A.



B.



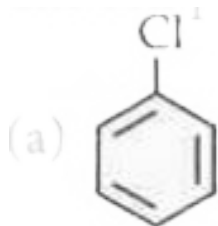
C.



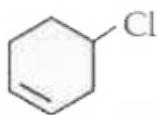
D.

Answer: D

9. The compound having longest C-Cl bond is



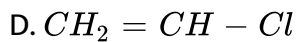
A.



B.



C.



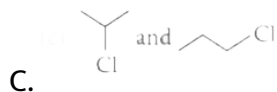
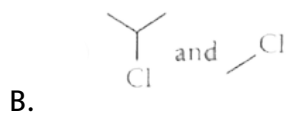
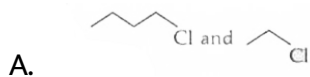
Answer: B

10. The alkyl halides required to prepare



by Wurtz

reaction are

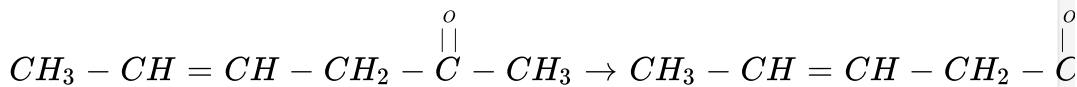




Answer: C

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11. Which is the most suitable reagent for the following conversion?



A. Tollens' reagent

B. I_2 and NaOH solution

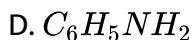
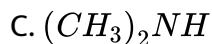
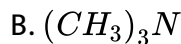
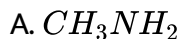
C. Benzoyl peroxide

D. Sn and NaOH solution

Answer: B

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



Answer: D



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13. If Aniline is treated with 1:1 mixture of con HNO_3 and con. H_2SO_4 , p-nitroaniline and m-nitroaniline are formed nearly in equal amounts. This is due to

A. m-directing property of $-NH_2$ group

B. protonation of $-NH_2$ which causes deactivation of benzene ring

C. m- and p-directing property of $-NH_2$ group

D. isomerization of some p-nitroaniline into m-nitroaniline.

Answer: B



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

- A. phosphoester linkage
- B. phosphodiester linkage
- C. phosphodisulphide linkage
- D. sulphodiester linkage.

Answer: B



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15. Which of the following is generally water insoluble?

A. Fibrous protein

B. Vitamin C

C. Amylose

D. glycine

Answer: A

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16. Which is a wrong statement?

A. Rate constant, $k = \text{Arrhenius constant } A: \text{ if } E_a = 0$

B. $e^{-E_a / RT}$ gives the fraction of reactant molecules that are activated at the given temperature.

C. $\ln k$ vs $\frac{1}{T}$ plot is a straight line.

D. presence of catalyst will not alter the value of E_a .

Answer: D



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17. 1L to 2M CH_2COOH is mixed with 1L to 3M C_2H_5OH 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

- A. 0.25 times
- B. 2 times
- C. 0.5 times
- D. 4 times.

Answer: A



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18. Which of the following is an example of homogeneous catalysis ?

- A. Oxidation of NH_3 in Ostwald's process

B. Oxidation of SO_2 in contact process

C. Oxidation of SO_2 in lead chamber process

D. Manufacture of NH_3 by Haber's process

Answer: C

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19. 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 $\text{mol } L^{-1}$ is

A. 2.0×10^{-3}

B. 4.6×10^{-5}

C. 7.5×10^{-5}

D. 1.1×10^{-4}

Answer: A



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20. Oxidation state of copper is +1 in

- A. malachite
- B. cuprite
- C. azurite
- D. chalcopyrite.

Answer: B::D



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21. Which of the following possess net dipole moment?

- A. SO_2
- B. BF_3
- C. $BeCl_2$

D. CO_2

Answer: A

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

A. 6, 19

B. 5, 19

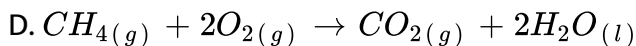
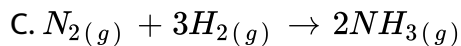
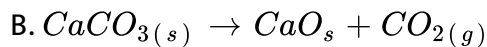
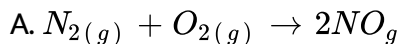
C. 5, 11

D. 5, 20

Answer: B

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23. The reaction in which $\Delta H > \Delta U$ is

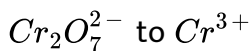


Answer: B



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24. The number of moles of electron required to reduce 0.2 mole of



A. 1.2

B. 6

C. 12

D. 0.6

Answer: A



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25. In the reaction,



A. protonic acid

B. Lewis base

C. Bronsted acid

D. Lewis acid.

Answer: D



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26. The metal nitrate that liberates NO_2 on heating

A. NaNO_3

B. LiNO_3

C. KNO_3

D. RbNO_3

Answer: B



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27. Which of the following is not true regarding the usage of hydrogen as a fuel?

A. High calorific value

B. The combustible energy of hydrogen can be directly converted to electrical energy in a fuel cell.

C. Combustion product is eco-friendly.

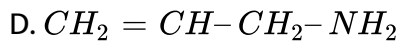
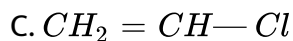
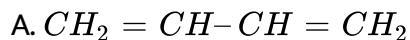
D. Hydrogen gas can be easily liquefied and stored.

Answer: D



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28. Resonance effect is not observed in

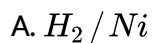


Answer: D



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29. 2-butyne is reduced to trans-but-2-ene using



B. Na in liq. NH_3

C. H_2 /Pd – C

D. Zn in dil. HCl.

Answer: B

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30. Eutrophication causes

A. increase of nutrients in water

B. reduction in water pollution

C. reduction in dissolved oxygen

D. decrease BOD.

Answer: C

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31. Which of the following is a network crystalline solid?

A. I_2

B. AlN

C. NaCl

D. Ice

Answer: B



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32. The number of atoms in 2.4 g of body centred cubic crystal with length 200 pm is (density = 10 g cm^{-3} , $N_A = 6 \times 10^{22}$ atoms/mol)

A. 6×10^{22}

B. 6×10^{20}

C. 6×10^{23}

D. 6×10^{19}

Answer: A



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33. 1 mol of NaCl is doped with 10^{-5} mole of $SrCl_2$. The number of cationic vacancies in the crystal lattice will be

A. 6.022×10^{18}

B. 6.022×10^{15}

C. 6.022×10^{23}

D. 12.044×10^{20}

Answer: A



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34. A non-volatile solute 'A' tetramerises in water to the extent of 80%. 2.5 g of 'A' in 100 g of water lower the freezing point by $0.3^\circ C$. The molar

mass of Å in mol 4^{-1} is (K_T For water = $1.86 \text{ K kg mol}^{-1}$)

A. 62

B. 221

C. 155

D. 354

Answer: A



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35. 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

A. positive and positive

B. positive and negative

C. negative and negative

D. negative and positive.

Answer: D



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36. The vitamin that helps to clotting of blood is

A. A

B. C

C. B_2

D. K

Answer: D



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

A. nylon-6, 6

B. nylon-6

C. dacron

D. bakelite.

Answer: B



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38. Cis-1,4- polysoprene is called

A. Buna-N

B. neoprene

C. Buna-S

D. natural rubber.

Answer: D



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39. Which cleansing agent gets precipitated in hard water?

- A. Sodium lauryl sulphate
- B. Sodium stearate
- C. Cetyl trimethyl ammonium bromide
- D. Sodium dodecyl benzene sulphonate

Answer: B



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40. Anti-histamine among the following is

- A. brompheniramine
- B. morphine
- C. amoxicillin

D. chloroxylenol.

Answer: A

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41. Match the following acids with their pK_a values :

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

- A. *a b c d*
iii iv i ii
- B. *a b c d*
ii i ii iv
- C. *a b c d*
iii i iv ii
- D. *a b c d*
iv ii iii i

Answer: A

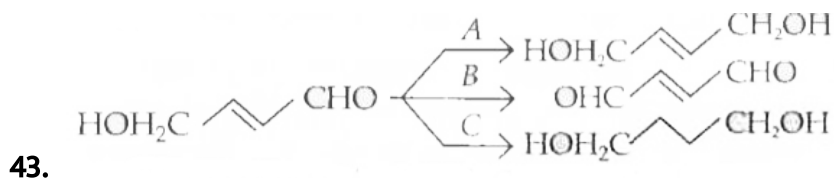
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42. Which of the following can be used to test the acidic nature of ethanol?

- A. Blue litmus solution
- B. Na_2CO_3
- C. $NaHCO_3$
- D. Na metal

Answer: D

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The reagents A, B and C respectively are

A. H_2 / Pd , PCC, $NaBH_4$

B. $NaBH_4$, alk. $KMnO_4$, H_2 / Pd

C. $NaBH_4$, PCC, H_2 / Pd

D. H_2 / Pd , alk. $KMnO_4$, $NaBH_4$

Answer: B

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

A. stronger acid than propanoic acid

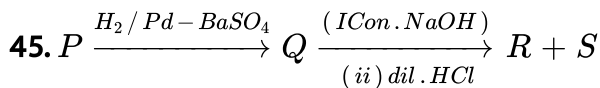
B. as stronger as propanoic acid

C. weaker acid than propanoic acid

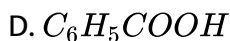
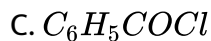
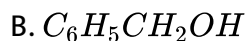
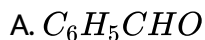
D. stronger than dichloropropanoic acid.

Answer: A

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



Answer: C

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46. The main reactions occurring in blast furnace during extraction of iron from haematite are



A. i and ii

B. iii and iv

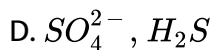
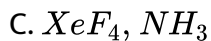
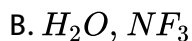
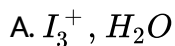
C. ii and iii

D. i and iv.

Answer: B::D

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



Answer: A

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48. Which of the following statements is correct?

A. Cl_2 oxidises H_2O to O_2 but F_2 does not.

B. Cl_2 is a stronger oxidising agent than F_2 .

C. F_2 oxidises H_2O to O_2 but Cl_2 does not.

D. Fluoride is a good oxidising agent.

Answer: C

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49. 0.1 mole of XeF_6 is treated with 1.8 g of water. The product obtained is

A. XeO_3

B. XeO_2F_2

C. $XeOF_4$



Answer: C



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

A. +4 to +2

B. +6 to +4

C. +5 to +2

D. +3 to +1

Answer: C



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

- A. actinoids
- B. transition elements
- C. lanthanoids
- D. halogens.

Answer: C



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52. Incorrect statement with reference to Ce (Z=58)

- A. Ce^{4+} is a reducing agent.
- B. Ce in +3 oxidation state is more stable than in +4.
- C. Atomic size of Ce is more than that of Lu.
- D. Ce shows common oxidation states of +3 and +4.

Answer: A

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53. 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 statements is false?

- A. The vapours give a yellow solution with NaOH.
- B. The vapours contain CrO_2Cl_2 only
- C. The vapours contain CrO_2Cl_2 and Cl_2 .
- D. The vapours when passed into lead acetate in acetic acid give a yellow precipitate.

Answer: C

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54. Which of the following statements is wrong ?

- A. In highest oxidation states, the transition metals show acidic character.
- B. Mn^{3+} and Co^{3+} are oxidising agents in aqueous solution.
- C. Metals in highest oxidation states are more stable in oxides than in fluorides.
- D. All elements of 3d series exhibit variable oxidation states.

Answer: D



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55. Which among the following is the strongest ligand?

- A. CN^-
- B. NH_3
- C. CO
- D. en

Answer: C

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56. The mass of AgCl precipitated when a solution containing 11.70 g of NaCl is added to a solution containing 3.4g of $AgNO_3$, is [Atomic mass of Ag -108, Atomic mass of Na - 23]

A. 5.74 g

B. 1.17 g

C. 2.87 g

D. 6.8 g

Answer: C

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57. 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 $1/3^{rd}$ of 'A' is

A. 1.0×10^{-8} m

B. 2.5×10^{-8} m

C. 1.25×10^{-7} m

D. 1.0×10^{-7} m

Answer: D



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

A. $C < N < Si < P$

B. $P < Si < N < C$

C. $P < Si < C < N$

D. $Si < P < C < N$.

Answer: D

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59. Solubility of AgCl is least in

A. 0.1 M NaCl

B. pure water

C. 0.1 M $BaCl_2$

D. 0.1 M $AlCl_3$

Answer: D

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

A. $\frac{V}{T} = K$

B. $\log V = \log K + \log T$

C. $\log K = \log V + \log T$

D. $\frac{d(\ln V)}{dT} = \frac{1}{T}$

Answer: C



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