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CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

MODEL TEST PAPER 9

Chemistry

1. The lowest degree of permagnetism per mole of the compound at 298 K will be shown by

A. $NiSO_4.6H_2O$

B. $FeSO_4.6H_2O$

C. $CuSO_4.5H_2O$

D. $MnSO_4.4H_2O$

Answer: C

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2. Which one is least basic

A. NI_3

B. NCl_3

C. NBr_2

D. NF_3

Answer: D

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3. How many unpaired electrons are there is Ni^{2+}

A. 2

B. 8

C. 0

D. 4

Answer: A

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4. The number of α and β particles emitted in the nuclear reaction, $._{90}Th^{298} \rightarrow ._{83}Bi^{212}$ are

A. 4α and 7β

B. 4α and 1β

C. 8α and $1/\beta$

D. 3α and 7β

Answer: B

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5. Which one is not an acid salt

A. NaH_2PO_3

B. NaH_2PO_4

C. NaH_2PO_2

D. All are acid salts

Answer: B

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6. Solution prepared by dissolving equal number of moles of $HOCl\left(K_a = 3.2 \times 10^{-8}\right)$ and NaOCl in a buffer of pH

A. 3.2 g

B. $8.0g$

C. 4.8 g

D. 7.5 g

Answer: D

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7. The hydrolysis of the salt of strong acid and weak base is called

A. Amphoteric hydrolysis

B. Cationic hydrolysis

C. Anonic hydrolysis

D. None

Answer: B

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8. Eq. wt. of an acid salt $NaHSO_4$ is

A. M/2

B. M/3

C. M/1

D. None

Answer: C

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9. During electrolysis of H_2O, the molar ratio of H_2 and O_2 formed is

A. $1:2$

B. $2:1$

C. $1:1$

D. $1:3$

Answer: B

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10. In which transfer of five electrons takes place

A. $Cr_2O_7^{2-} \rightarrow 2Cr^{3+}$

B. $CrO_4^{2-} \rightarrow Cr^{3+}$

C. $MnO_4^- \rightarrow MnO_2$

D. $MnO_4^- \rightarrow Mn^{2+}$

Answer: D

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11. Molecular weight of a gas is 11.2 litre of which at NTP weights 14g is

A. 28

B. 14×11.2

C. 14

D. $14 / 11.2$

Answer: A

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12. An element X decays first by positron emission and then two α - particles are emitted in successive radioactive decay. If the product nucleus has a mass number 229 and

atomic number 89, the mass number and the atomic number of element X are

A. 273, 92

B. 237, 94

C. 238, 93

D. 273, 93

Answer: B

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13. The total energy of the electron in the hydrogen atom in the ground sate is -13.6 eV. The KE of this electron is

A. 6.8 e V

B. 0

C. $-13.6eV$

D. 13.6 e V

Answer: D

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14. Helium atom is two times heavier than a hydrogen molecule. At $15^{\circ} C$ the average KE of helium atom is

A. Same as that of hydrogen

B. Half that of hydrogen

C. Twice that of hydrogen

D. Four times that of hydrogen

Answer: A

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15. $H_2 + \frac{1}{2}O_2 \rightarrow H_2O, \Delta = -68.39kcal$

$K + H_2O \rightarrow KOH + \frac{1}{2}H_2, \Delta H = -48kcal$

$KOH + Water \rightarrow KOH(aq), \Delta H = -14kcal$

The heat of formation of KOH in kcal is :

A. 69.38 + 48 + 14

B. $-68.39 + 14$

C. $68.39 - 48 + 14$

D. $-68.39 - 48 - 14$

Answer: C

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16. ΔS^0 will be highest for the reaction

A. $N_2(g) + O_2(g) \rightarrow 2NO(g)$

B. $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$

C. $C(s) + O_2(g) \rightarrow CO_2(g)$

D. $Ca(s) + \frac{1}{2}O_2(g) \rightarrow CaO(s)$

Answer: A

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17. The molecular conductance and equivalent conductances are same for the solution of

A. 1 M th $(NO_3)_4$

B. 1 M $Ba(NO_3)_2$

C. 1 M $La(NO_3)_3$

D. 1 M NaCl

Answer: D

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18. Which does not acts as Bronsted acid

A. HSO_3^-

B. CH_3COO^-

C. HCO_3^-

D. NH_4^+

Answer: B

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19. A graph plotted between concentration of reactant consumed at any time (x) and t is found to be straight line passing through the origin. Thus reaction is of

A. Second order

B. Zero order

C. Third order

D. First order

Answer: B

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20. The molecular weight of NaCl determined from colligative properties is always

A. > 58.5

B. < 58.5

C. $= 58.5$

D. Cannot be measured

Answer: C

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21. Protons accelerate the hydrolysis of ester. This is an example of

A. A negative catalyst

B. A heterogeneous catalysis

C. A promoter

D. An acid-base catalysis

Answer: D

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22. The eq. wt. of I_2 in the change $I_2 \rightarrow IO_3^{1-}$ is

A. 2.54

B. 63.5

C. 25.4

D. 12.7

Answer: C

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23. H^+ ions are reduced at platinum electrode prior to

A. Ag^+

B. Cl

C. Zn^{2+}

D. Cu^{2+}

Answer: C

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24. The oxidation state of chlorine is highest in the compound

A. Cl_2O_7

B. HCl

C. Cl_2O

D. Cl_2O_6

Answer: A

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25. The weight of solute present in 200 ml of 0.1 M H_2SO_4

A. 3.92 g

B. 4.9 g

C. 1.96 g

D. 2.45 g

Answer: C

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26. Which of the following atoms in its ground state is likely to be diamagnetic ?

A. Al

B. O

C. N

D. Ca

Answer: D

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27. Which is likely to have the highest melting point ?

A. $CHCl_3$

B. CsF

C. NH_3

D. He

Answer: B

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28. If uncertainty in position of electron is zero, the uncertainty in its momentum would be :

A. $h/2\pi$

B. $h/4\pi$

C. zero

D. infinity

Answer: D

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29. Which contains the same number of molecules as 16 g oxygen

A. 16 g SO_2

B. $32gSO_2$

C. $16gO_3$

D. All the above

Answer: B

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30. Glucose on reduction with Na/Hg and water gives

A. Fructose

B. Sorbitol

C. Gluconic acid

D. Saccharic acid

Answer: B

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31. Aniline was acetylated. The product on nitration followed by alkaline hydrolysis gave

A. Acetanilide

B. p-nitroaniline

C. m-nitroaniline

D. o-nitracetanilide

Answer: B

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32. Substance containing an asymmetric carbon atom

A. $CFBrCl_2$

B. CH_3CH_2OH

C. $C(OH)HBr_2$

D. CHClBrF

Answer: D

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33. Nitration of Salicylic acid will give

A. 2, 4, 6-trinitrobenzene

B. 2, 4, 6-trinitrobenzoic acid

C. 2, 4, 6-trinitrophenol

D. None

Answer: C

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34. Acetaldehyde and acetone differ in their reaction with

A. NH_3

B. Phenyl hydrazine

C. $NaHSO_3$

D. PCl_5

Answer: A

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35. When C_2H_5OH is mixed with ammonia and passed over heated alumina, the compound formed is

A. CH_3OCH_3

B. $C_2H_5NH_2$

C. $C_2H_5OC_2H_5$

D. C_2H_4

Answer: B

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36. Which compound on reaction with ethyl magnesium bromide and water will form 2-methyl-2-butanol ?

A. $C_2H_5COCH_3$

B. CH_3COOCH_3

C. CH_3CH_2CHO

D. CH_3COCH_3

Answer: D

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37. The gases evolved at anode during Kolbe synthesis are

A. CO_2

B. Hydrocarbons

C. Both (a) and (b)

D. None of these

Answer: C

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38. Silica gel is used for keeping away the moisture because it

A. Reacts with H_2O

B. Adsorbs H_2O

C. Absorbs H_2O

D. None

Answer: C

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39. The molecule which behaves as electrophile and nucleophile is

A. CH_3OOH

B. CH_3Cl

C. CH_3CN

D. CH_3NH_2

Answer: C

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40. In the second group of qualitative analysis, H_2S is passed through a solution acidified with HCl in order to

A. Increase the concentration to S^{2-} ions

B. Increase the solubility of H_2S

C. Limit the concentration of S^{2-} ions

D. Add the Cl^- ions

Answer: A

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41. Which on treating with etheral solution of $AlCl_3$ gives $LiAlH_4$?

A. LiOH

B. Li

C. LiH

D. LiCl

Answer: C

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42. Which of the following hydrogen halides has the lowest boiling point?

A. HCl

B. HF

C. HI

D. HBr

Answer: A

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43. SO_2 is dried by

A. P_2O_5

B. HNO_3

C. Anhyd. $CaCl_2$

D. CuO

Answer: A

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44. Nitrous acid reacts with H_2SO_4 give

A. $NO + SO_2$

B. $NO + SO_3$

C. $NO_2 + SO_2$

D. None

Answer: C

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45. When conc. H_2SO_4 is added to charcoal

A. CO and SO_2 are evolved

B. Water gas is formed

C. CO_2 and SO_2 are evolved

D. There is no reaction

Answer: C

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46. The structure of BF_3 is

A. Equilateral triangle

B. Pyramidal

C. Tetrahedral

D. None

Answer: A

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47. The highest oxidation oxidation potential is for

A. Ra

B. Be

C. Ba

D. Li

Answer: D

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48. The chloride ion is isoelectric with potassium. The size of chloride ion is

A. Same as that of K^+ ion

B. Larger than K^+ ion

C. Smaller than K^+ ion

D. None

Answer: B

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49. Radium is obtained from

A. Haematite

B. Pitchblende

C. Monazite

D. None of these

Answer: B

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50. Nitrogen exhibits its group valency in

A. Silver nitrate

B. Ammonia

C. Nitrogen dioxide

D. Hydrazine

Answer: A

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51. Primary aliphatic amines can be distinguished from secondary and tertiary amines by reaching with

A. CH_3I

B. Zn - dust

C. $CHCl_3$

D. $CHCl_3$ and KOH

Answer: D

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52. Nitromethane reacts with chlorine in presence of alkali to yield

A. Chloromethane

B. Chloropicrin

C. Nitrosyl chloride

D. Chloroform

Answer: B

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53. The compound which on reacting with aqueous nitrous acid at low temperature produces an oily nitrosamine is

A. Ethyl amine

B. aniline

C. methyl amine

D. Diethyl amine

Answer: D

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54. Benzene reacts with Cl_2 in sunlight to give a final product

A. C_6Cl_6

B. $C_6H_6Cl_6$

C. C_6H_5Cl

D. CCl_4

Answer: B

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55. Gammexane is

A. D.D.T

B. Chloral

C. Benzene hexachloride

D. Hexachloro ethane

Answer: C

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56. Toluene reacts with Cl_2 in presence of light to give

A. Benzyl chloride

B. p-chlorotoluene

C. Benzoyl chloride

D. o-chlorotoluene

Answer: A

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57. Which of the following reactions takes place when a mixture of conc. HNO_3 and H_2SO_4 reacts with benzene at 350 K ?

A. Sulphonation

B. Hydrogenation

C. Nitration

D. Dehydration

Answer: C

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58. Toluene on oxidation with dil. HNO_3 and alkaline $KmnO_4$ gives

A. Benzaldehyde

B. Nitrotoluene

C. Phenol

D. Benzoic acid

Answer: D

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59. $C_6H_6 + CH_3Cl \xrightarrow[AlCl_3]{\text{Anhy.}} C_6H_5CH_3 + HCl$ It is an example of

A. Friedel Craft's reaction

B. Wurtz reaction

C. Kolbe's reaction

D. Grignard reaction

Answer: A

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60. Benzene reacts with CH_3COCl in the presence of $AICI_3$ to give

A. C_6H_5Cl

B. $C_6H_5CH_3$

C. C_6H_5COCl

D. $C_6H_5COCH_3$

Answer: D

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