CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2013

Chemistry

1. Methane can be converted into ethane by the reactions

A. chlorination followed by the reaction with alcoholib KOH

B. chlorination followed by the reaction with aqueous KOH

C. chlorination followed by Wurtz reaction

D. chlorinatin followed by decarboxylation.

Answer: C

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2. Intramolecular hydrogen bonding is formed in

A. H_2O

B. salicylaldehyde

C. NH_3

D. benzophenone

Answer: B

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3. If 50% of the reactant is converted into a product in a first order reaction in 25 minutes, how much of it would react in 100 minutes?

A. 0.9375

B. 0.875

C. 0.75

D. 1

Answer: A

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4. The number of optical isomers of the compound, $CH_3 - \underset{\underset{|}{Br}}{CH} - \underset{\underset{|}{Br}}{CH} - COOH$ is :

A. 0

B. 1

C. 3

D. 4

Answer: D

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5. When limestone is heated, CO_2 is given off. The metallurgical operation is

A. smelting

B. reducting

C. calcination

D. roasting

Answer: C

6. The rate of reaction increases with rise in temperature because of

A. increase in number of activated molecules

B. increase in energy of activation

C. decrease in energy of activation

D. increase in the number of effective collisions

Answer: A::D

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7. Meso compounds do not show optica activity because :

A. they do not contain chiral carbon atoms

B. they have non-superimposable mirror images

C. they contain plane of symmetry

D. they do not contain plane of symmetry

Answer: C

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8. When formic acid is heated with concentrated H_2SO_4, the gas evolved is

A. only CO_2

B. only 'CO'

C. a mixture of 'CO' and $'CO_2'$

D. a mixture of $'SO_2'$ and $'CO_2'$

Answer: B

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9. The temperature coefficient of a reaction is 2. When the temperature is increased from 30° C to 90° C, the rate of reaction is increased by

A. 60 times

B. 64 times

C. 150 times

D. 400 times

Answer: B

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10. Conversion of benzene to acetophenone can be brought by

A. Wurtz reaction

B. Wurtz-Fitting's reaction

C. Friedel Crafts alkylation

D. Friedel Crafts acylation

Answer: D

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11. Excess of PCl_5 reacts with conc , H_2SO_4 giving

A. chlorosulphuric acid

B. sulphurous acid

C. sulphuryl chloride

D. thionyl chloride

Answer: C

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12. An example for a neutral buffer is :

A. ammonium hydroxide and ammonium chloride

B. acetic acid and sodium acetate

C. acetic acid and ammonium hydroxide

D. citric acid and sodium citrate

Answer: C

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13. Least energetic conformation of cyclohexane is

A. chair conformation

B. boat conformation

C. cis conformation

D. E-Z form

Answer: A

14. Which of the following is employed in flash tubes in photography?

A. Ar

B. Ne

C. Kr

D. Xe

Answer: C::D

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15. Conjugate base of $H_2PO_4^-$ is

A. HPO_4^-

B. HPO_4^{2-}

C. H_3PO_4

D. PO_4^{3-}

Answer: B

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16. An alkyl bromide (X) reacts with sodium in ether to form 4,5-diethyloctane, the compound 'X' is

A. $CH_3(CH_2)_3Br$

B. $CH_3(CH_2)_5Br$

C. $CH_3(CH_2)_3CH(Br)CH_3$

D.

$$CH_3 - (CH_2)_2 - CH(Br) - CH_2 - CH_3$$

Answer: D

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17. Which one of the following shows highest magnetic moment?

A. Fe^{2+}

B. Co^{2+}

C. Cr^{3+}

D. Ni^{2+}

Answer: A

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18. The emf of a galvanic cell constituded with the electrodes

$Zn^{2+}/Zn(-0.76V)$ and $Fe^{2+}/Fe(-0.41V)$ is

A. $-0.35V$

B. $+1.17V$

C. $+0.35V$

D. $-1.17V$

Answer: C

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19. Which of the following pairs are correctly matched?

	Reactants	Products
I.	$RX + Ag(OH)_{(aq)}$	RH
II.	$RX + AgCN_{(alc)}$	RNC
III.	$RX + KCN_{(alc)}$	RNC
IV.	$RX + Na_{(ether)}$	$R—R$

A. I alone

B. I and II

C. II and III

D. II and IV

Answer: D

20. In a transition series, with the increase in atomic number, the paramagnetism

A. increases gradually

B. decreases gradually

C. first increases to a maximum and then decreases

D. first decreases to a minimum and then increases

Answer: C

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21. Identify a species which is 'NOT' a Bronsted acid but a Lewis acid.

A. BF_3

B. H_3^+O

C. NH_3

D. HCl

Answer: A

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22. The compound formed when calcium acetate and calcium formate is dry distilled

A. Acetone

B. Acetaldehyde

C. Benzaldehyde

D. Acetophenone

Answer: B

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23. d^2sp^3 hybridisation of the atomic orbitals gives :

A. square planar structure

B. triangular structure

C. tetrahedral structure

D. octahedral structure

Answer: D

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24. The pH of 10^{-8} M HCl solution is :

A. 8

B. 6.9586

C. more than 8

D. slightly more than 7

Answer: B

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25. Which of the following is strongly acidic?

A. Phenol

B. o-cresol

C. p-nitrophenol

D. p-cresol

Answer: C

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26. A group of atoms can function as a ligand only when

A. it is a small molecule

B. it has an unshared electron pair

C. it is a negatively charged ion

D. it is a positively charged ion

Answer: B

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27. Which of the following is not a colligative property ?

A. Elevation in boiling point

B. Depression in freezing point

C. Osmotic pressure

D. Lowering of vapour pressure

Answer: D

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28. Acetone and propanal are :

A. functional isomers

B. position isomers

C. geometrical isomers

D. optical isomers

Answer: A

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29. Which of the following is diamagnetic ?

A. H^{2+}

B. He^{2+}

C. O_2

D. N_2

Answer: D

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30. 3g of urea is dissolved in 45g of H_2O. The relative lowering in vapour pressure is

A. 0.05

B. 0.04

C. 0.02

D. 0.01

Answer: C

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31. The reagent used to distinguish between acetaldehyde and benzaldehyde is

A. Tollen's reagent

B. Fehling's solution

C. 2,4-dinitrogphenlydrazine

D. semicarbazide

Answer: B

32. Metallic lustre is due to

A. high density of metals

B. high polish on the surface of metals

C. reflection of light by mobile electrons

D. chemical inertness of metals

Answer: C

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33. Which of the following solutions will exhibit highest boiling point ?

A. 0.01M urea

B. $0.01MKNO_3$

C. $0.01MNa_2SO_4$

D. $0.015MC_6H_{12}O_6$

Answer: C

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34. Which one of the following gives amine on heating with amide?

A. Br_2 in aqueous KOH

B. Br_2 in alcoholic KOH

C. Cl_2 is sodium

D. Sodium in ether

Answer: A

35. The number of anti - bonding electrons present in O_2^- molecular ion is :

A. 8

B. 6

C. 5

D. 4

Answer:

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36. The process is spontaneous at the given temperature, if

A. ΔH is $+ve$ and ΔS is $-ve$

B. ΔH is $-ve$ and ΔS is $+ve$

C. ΔH is $+ve$ and ΔS is $+ve$

D. $\Delta H$is and ΔS is equal to zero.

Answer: B

37. Glucose when reduced with HI and red phosphorus gives

A. n-hexane

B. n-heptane

C. n-pentane

D. n-octane

Answer: A

38. The stability of a lyophobic colloid is due to

A. adsorption of covalent molecules on the colloid

B. the size of the particles

C. the charge on the particles

D. Tyndall effect

Answer: C

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39. Oils are liquids at room temperature since they contain higher percentage of

A. oleates

B. palmitates

C. stearates

D. myristates

Answer: A

40. Which of the following cations will have minimum flocculation value for arsenic sulphide sol?

A. Na^+

B. Mg^{2+}

C. Ca^{2+}

D. Al^{3+}

Answer: D

41. The value of entropy of solar system is

A. increasing

B. decreasing

C. constant

D. zero

Answer: A

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42. In F.C.C. the unit cell is shared equally by how many unit cells ?

A. 6

B. 4

C. 2

D. 8

Answer: A

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43. The number of disulphide linkages present in insulin are

A. 4

B. 3

C. 2

D. 1

Answer: B

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44. The processs of zone refining is used in the purifications of

A. Al

B. Ge

C. Cu

D. Ag

Answer: B

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45. The number of water molecules present in a drop of water weighing 0.018g is

A. 6.022×10^{26}

B. 6.022×10^{23}

C. 6.022×10^{19}

D. 6.022×10^{20}

Answer: D

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46. Empricial formula of a compound is CH_2O and its molecular mass is 90, the molecular formula of the compound is

A. $C_3H_6O_3$

B. $C_2H_4O_2$

C. $C_6H_{12}O_6$

D. CH_2O

Answer: A

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47. The percentage of p-character of the hybrid orbitals in graphite and diamond are respectively.

A. sp^3, sp^3

B. sp^3, sp^2

C. sp^2, sp^2

D. sp^2, sp^3

Answer: D

48. The mass of $112cm^3$ of NH_3 gas at STP is

A. 0.085g

B. 0.85g

C. 8.500 g

D. 80.500g

Answer: A

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49. IUPAC name of $CH_3 - \underset{\underset{OH}{|}}{CH} - CH_2 - \underset{\underset{COOH}{|}}{CH} - CH_3$ is

A. 4-hydroxy-1-methyl pentanoic acid

B. 4-hydroxy-2-methyl pentanoic acid

C. 2-hydroxy-4-methyl pentanoic acid

D. 2-hydroxy -2-methyl pentanoic acid

Answer: B

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50. Alkali metals have negative reduction potential and hence they behave as :

A. oxidising agents

B. Lewis bases

C. reducing agents

D. electrolytes

Answer: C

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51. Which of the following gases has the highest value of r.m.s. velocity at 298 K ?

A. CH_4

B. CO

C. Cl_2

D. CO_2

Answer: A

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52. Cycloalkane formed when 1,4-dibromopentane is heated with sodium is

A. methyl cyclobutane

B. cyclopentane

C. cyclobutane

D. methyl cyclopentane

Answer: A

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53. In the reaction,

$2FeSO_4 + H_2SO_4 + H_2O_2 \rightarrow Fe_2(SO_4)_3 + 2H_2O$

. The oxidizing agent is :

A. $FeSO_4$

B. H_2SO_4

C. H_2O_2

D. both H_2SO_4 and H_2O_2

Answer: C

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54. For the thermochemical equation,

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_l, \Delta H = -571.6kJ$

Heat of decomposition of water is :

A. $-571.6kJ$

B. $+571.6kJ$

C. $-1143.2kJ$

D. $+285.8kJ$

Answer: D

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55. In Buna-S, the symbol 'Bu' stands for

A. 1-butene

B. n-butene

C. 2-butene

D. butadiene

Answer: D

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56. The electronic configuartion of Cu^{2+} ion is

A. $[Ar]3d^8 4s^1$

B. $[Ar]3d^9 4s^0$

C. $[Ar]3d^7 4s^2$

D. $[Ar]3d^8 4s^0$

Answer: B

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57. The yield of the products in the reaction,

$A_{2(g)} + 2B_{(g)} \Leftrightarrow C_{(g)} + Q$ kJ would be higher

at :

A. high temperature and high pressure

B. high temperature and low pressure

C. low temperature and high pressure

D. low temperature and low pressure

Answer: C

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58. Mesomeric effect involves :

A. delocalisation of π-electrons

B. delocalisation of σ-electrons

C. partial displacement of electrons

D. delocalisation of π and σ-electrons

Answer: A

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