



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2006

Chemistry

1. Which of the following is not an ore of magnesium ?

A. carnallite

B. dolomite

C. calamine

D. sea water

Answer: C



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2. The atomic number of Ni and Cu are 28 and 29 respectively. The electronic configuration

$1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10}$ represents

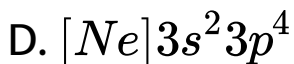
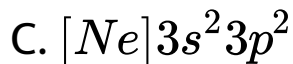
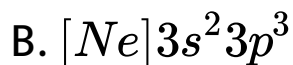
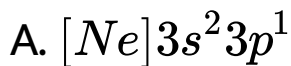


Answer: A



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3. In the following, the element with the highest ionisation energy is



Answer: B



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4. In the conversion of Br_2 to BrO_3^- , the oxidation number of Br changes from

A. zero to + 5

B. + 1 to + 5

C. zero to - 3

D. + 2 to + 5

Answer: A



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5. Among the alkali metals cesium is the most reactive because

A. its incomplete shell is nearest to the nucleus

B. it has a single electron in the valence shell

C. it is the heaviest alkali metal

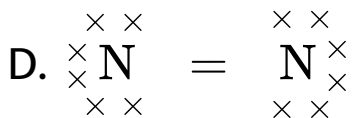
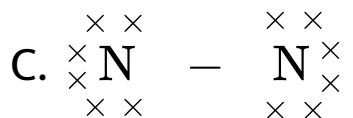
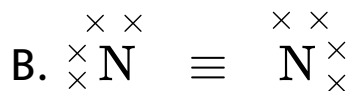
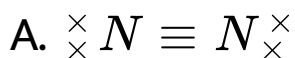
D. the outermost electron is more loosely bound than the outermost electron of the other alkali metals.

Answer: D



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6. Which of the following represents the Lewis structure of N_2 molecule ?

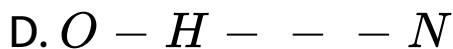
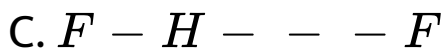
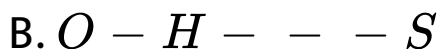
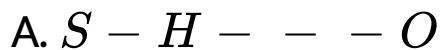


Answer: A



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7. Hydrogen bond is strongest in



Answer: C



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8. The decomposition of a certain mass of CaCO_3 gave 11.2dm^3 of CO_2 gas at STP. The mass of KOH required to completely neutralise the gas is

A. 56 g

B. 28 g

C. 42 g

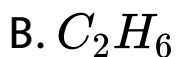
D. 20 g

Answer: B



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9. The density of a gas is 1.964 g dm^{-3} at 273 K and 76 cm Hg. The gas is



Answer: C



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10. 0.06 mole of KNO_3 solid is added to 100cm^3 of water at 298 K. The enthalpy of KNO_3 aq solution is 35.8kJmol^{-1} . After the solute is dissolved the temperature of the solutions will be

A. 293 K

B. 298 K

C. 301 K

D. 304 K

Answer: A



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11. 4 moles each of SO_2 and O_2 gases are allowed to react to form SO_3 in a closed vessel. At equilibrium 25% of O_2 is used up. The total number of moles of all the gases at equilibrium is

A. 6.5

B. 7.0

C. 8.0

D. 2.0

Answer: A



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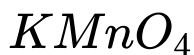
12. An example for autocatalysis is

A. oxidation of NO to NO_2

B. oxidation of SO_2 to SO_3

C. decomposition of $KClO_3$ to KCl and O_2

D. oxidation of oxalic acid by acidified



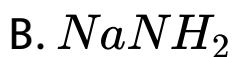
Answer: D



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13. During the fusion of organic compound with sodium metal, nitrogen present in the organic compound is converted into



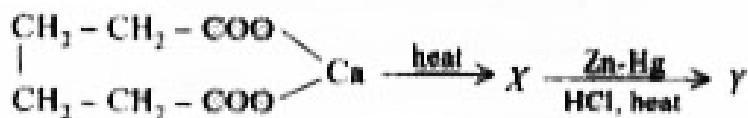


Answer: C



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14. Identify the product Y in the following reaction sequence.



A. pentane

B. cyclobutane

C. cyclopentane

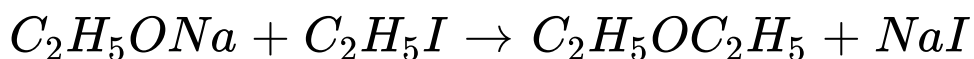
D. cyclopentanone

Answer: C



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15. The reaction



is known as

A. Kolbe's synthesis

B. Wurtz's synthesis

C. Williamson's synthesis

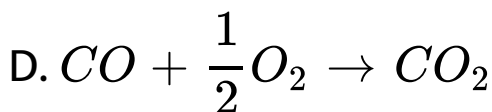
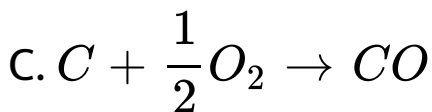
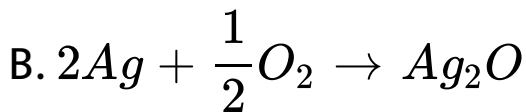
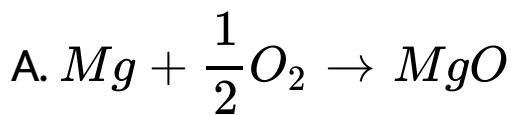
D. Grignard's synthesis

Answer: C



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16. ΔG° vs T plot in the Ellingham's diagram slopes downward for the reaction

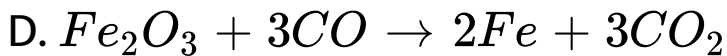
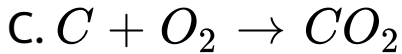
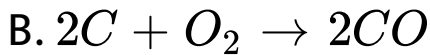
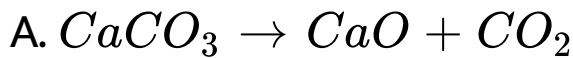


Answer: A::B::D



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17. Which of the following taking place in the Blast fuenace is endothermic ?



Answer: A



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18. Liquor ammonia bottles are opened only after cooling. This is because

A. it is a mild explosive

B. it is a corrosive liquid

C. it is a lachrymatory

D. it generates high vapour pressure

Answer: A::D



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19. The formation of $O_2^+ [PtF_6]^-$ is the basis for the formation of xenon fluorides. This is because

A. O_2 and Xe have comparable sizes

B. both O_2 and Xe are gases

C. O_2 and Xe have comparable ionisation energies

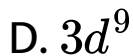
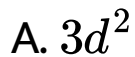
D. O_2 and Xe have comparable electronegativities

Answer: A::C



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20. The highest magnetic moment is shown by the transition metal ion with the configuration



Answer: B



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21. A transition metal ion exists in its highest oxidation state. It is expected to behave as

A. a chelating agent

B. a central metal in a coordination compound

C. an oxidising agent

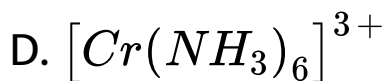
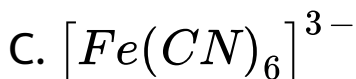
D. a reducing agent

Answer: C



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22. In which of the following complex ion, the central metal ion is in a state of sp^3d^2 hybridisation ?

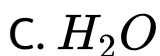
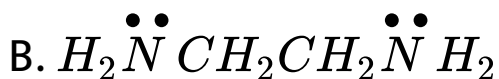


Answer: A



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23. Which of the following can participate in linkage isomerism ?

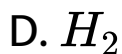
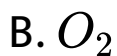


Answer: A



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24. Which of the following has the highest bond order ?

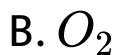
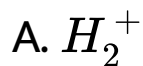


Answer: A



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25. Which of the following is diamagnetic ?



Answer: C



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26. The concentration of a reactant X decreases from 0.1 M to 0.025 M in 40 minutes. If the reaction follows 1 order kinetics, the rate of the reaction when the concentration of X is 0.01 M will be

A. $1.73 \times 10^{-4} \text{M min}^{-1}$

B. $3.47 \times 10^{-4} \text{M min}^{-1}$

C. $3.47 \times 10^{-5} \text{M min}^{-1}$

D. $1.73 \times 10^{-5} \text{M min}^{-1}$

Answer:



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27. Chemical reactions with very high E_a values are generally

- A. very fast
- B. very slow
- C. moderately fast
- D. spontaneous.

Answer: B



28. Which of the following does not conduct electricity ?

- A. fused NaCl
- B. solid NaCl
- C. brine solution
- D. copper

Answer: B



29. When a quantity of electricity is passed through $CuSO_4$ solution, 0.16 g of copper gets deposited. If the same quantity of electricity is passed through acidulated water, then the volume of H_2 liberated at STP will be [given : at.wt. of Cu = 64].

A. $4.0cm^3$

B. $56cm^3$

C. $604cm^3$

D. $8.0cm^3$

Answer: B



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30. Solubility product of a salt AB is $1 \times 10^{-8} M^2$ in a solution in which the concentration of A^+ ions is $10^{-3} M$. The salt will precipitate when the concentration of B^- ions is kept

A. between $10^{-8} M$ to $10^{-7} M$

B. between $10^{-7} M$ to $10^{-8} M$

C. $> 10^{-5} M$

D. $< 10^{-8} M$

Answer: C



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31. Which one of the following condition will increase the voltage of the cell represented by the equation :



A. increase in the dimension of Cu electrode

B. increase in the dimension of Ag electrode

C. increase in the dimension of Cu^{2+} ions

D. increase in the dimension of Ag^+ ions

Answer: D



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

A. 8

B. more than 8

C. between 6 and 7

D. slightly more than 7

Answer: C



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33. The mass of glucose that should be dissolved in 50 g of water in order to produce the same lowering of vapour pressure as is produced by dissolving 1 g of urea in the same quantity of water is

A. 1 g

B. 3 g

C. 6 g

D. 18 g

Answer: B



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34. Osmotic pressure observed when benzoic acid is dissolved in benzene is less than that expected from theoretical considerations. This is because

A. benzoic acid is an organic solute

B. benzoic acid has higher molar mass than benzene

C. benzoic acid gets associated in benzene

D. benzoic acid gets dissociated in benzene

Answer: C



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35. For a reaction to be spontaneous at all temperatures

A. ΔG and ΔH should be negative

B. ΔG and ΔH should be positive

C. $\Delta G = \Delta S = 0$

D. $\Delta H < \Delta G$

Answer: A

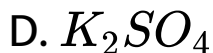
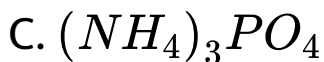


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36. Which of the following electrolyte will have maximum flocculation value for $Fe(OH)_3$ sol ?

A. NaCl

B. Na_2S

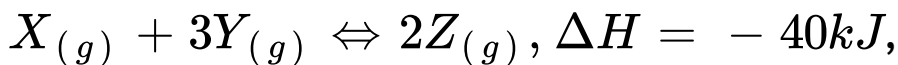


Answer: A



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37. For a reversible reaction :



the standard entropies of X,Y and Z are 60, 40

and $50JK^{-1}mol^{-1}$ respectively. The

temperature at which the above reaction attains equilibrium is about

A. 400 K

B. 500 K

C. 273 K

D. 373 K

Answer: B



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38. The radii of Na^+ and Cl^- ions are 95 pm and 181 pm respectively. The edge length of NaCl unit cell is

A. 276 pm

B. 138 pm

C. 552 pm

D. 415 pm

Answer: C



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39. Inductive effect involves

A. displacement of σ - electrons

B. delocalisation of π - electrons

C. delocalisation of σ - electrons

D. displacement of π - electrons

Answer: A



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40. The basicity of aniline is less than that of cyclohexylamine. This is due to

A. + R - effect of $-NH_2$ group

B. $-I$ effect of $-NH_2$ group

C. $-R$ effect of $-NH_2$ group

D. hyperconjugation effect

Answer: A



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41. Methyl bromide is converted into ethane by heating it in ether medium with

A. Al

B. Zn

C. Na

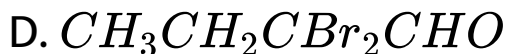
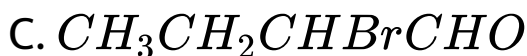
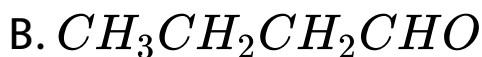
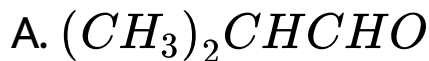
D. Cu

Answer: C



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42. Which of the following compound is expected to be optically active ?



Answer: C



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43. Which cycloalkane has the lowest heat of combustion per CH_2 group ?

A. cyclopropane

B. cyclobutane

C. cyclopentane

D. cycloheptane

Answer: D



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44. The catalyst used in the preparation of an alkyl chloride by the action of dry HCl on an alcohol is

A. anhydrous $AlCl_3$

B. $FeCl_3$

C. anhydrous $ZnCl_2$

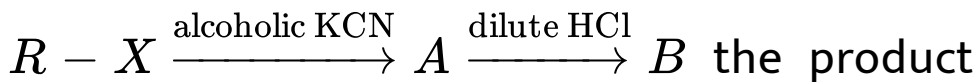
D. Cu

Answer: C



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45. In the reaction,



B is

- A. alkyl chloride
- B. aldehyde
- C. carboxylic acid
- D. ketone

Answer: C



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46. Which of the following compound would not evolve CO_2 when treated with $NaHCO_3$ solution ?

A. salicylic acid

B. phenol

C. benzoic acid

D. 4-nitrobenzoic acid

Answer: B



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47. By heating phenol with chloroform in alkali, it is converted into

- A. salicylic acid
- B. salicylaldehyde
- C. anisole
- D. phenyl benzoate

Answer: B



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48. When a mixture of calcium benzoate and calcium acetate is dry distilled, the resulting compound is

- A. acetophenone
- B. benzaldehyde
- C. benzophenone
- D. acetaldehyde

Answer: A



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49. Which of the following does not give benzoic acid on hydrolysis ?

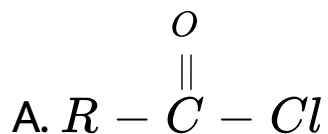
- A. phenyl cyanide
- B. benzoyl chloride
- C. benzyl chloride
- D. methyl benzoate

Answer: C



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50. Which of the following would undergo Hoffmann reaction to give a primary amine ?



Answer: C



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51. Glucose contains in addition to aldehyde group

A. one secondary OH and four primary OH groups

B. one primary OH and four secondary OH groups

C. two primary OH and three secondary OH groups

D. three primary OH and two secondary OH groups

Answer: B



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52. A distinctive and characteristic functional group of fats is

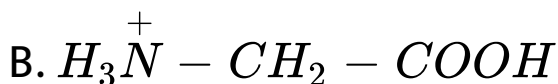
- A. a peptide group
- B. an ester group
- C. an alcoholic group
- D. a ketonic group

Answer: B



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53. At pH = 4, glycine exists as



Answer: B



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54. Insulin regulates the metabolism of

A. minerals

B. amino acids

C. glucose

D. vitamins

Answer: C



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55. The formula mass of Mohr's salt is 392. The iron present in it is oxidised by $KMnO_4$ in acid medium. The equivalent mass of Mohr's salt is

A. 392

B. 31.6

C. 278

D. 156

Answer: A



56. The brown ring test for nitrates depends on

A. the reduction of nitrate to nitric oxide

B. oxidation of nitric oxide to nitrogen dioxide

C. reduction of ferrous sulphate to iron

D. oxidising action of sulphuric acid

Answer: A



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57. Acrolein test is positive for

A. polysaccharides

B. proteins

C. oils and fats

D. reducing sugars

Answer: C



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58. An organic compound which produces a bluish green coloured flame on heating in presence of copper is

A. chlorobenzene

B. benzaldehyde

C. aniline

D. benzoic acid

Answer: A



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59. For a reaction $A + B \rightarrow C + D$ if the concentration of A is doubled without altering the concentration of B, the rate gets doubled. If the concentration of B is increased by nine times without altering the concentration of A, the rate gets tripled. The order of the reaction is

A. 2

B. 1

C. $3/2$

D. 4/3

Answer: C



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

A. $0.01M Na_2SO_4(aq)$

B. $0.01M KNO_3(aq)$

C. $0.015M \text{ urea}(aq)$

D. 0.015M glucose (*aq*)

Answer: A



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