



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2003

Chemistry

1. Enthalpy of formation of HF and HCl are -161 kJ and -92 kJ respectively. Which of the following statements is incorrect?

- A. HCl is more stable than HF
- B. HF and HCl are exothermic compounds
- C. the affinity of fluorine to hydrogen is greater than the affinity of chlorine to hydrogen
- D. HF is more stable than HCl.

Answer: A



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2. Heat liberated when 100 mL of 1N NaOH is neutralised by 300 ml of 1N HCl

A. A) 11.46 kJ

B. B)5.73 kJ

C. C) 22.92 kJ

D. D) 17.19 kJ

Answer: B



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3. 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. $1\frac{1}{2}$

D. $1\frac{1}{3}$

Answer: C



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4. In Goldschmidt aluminothermic process, thermite contains

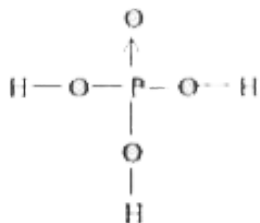
- A. 3 parts of Al_2O_3 and 4parts of Al
- B. 3 parts of Fe_2O_3 and 2 parts of Al
- C. 3 parts of Fe_2O_3 and 1 part of Al
- D. 1 part of Fe_2O_3 and 1 part of Al

Answer: C

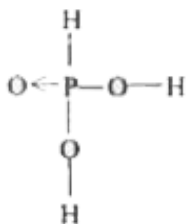


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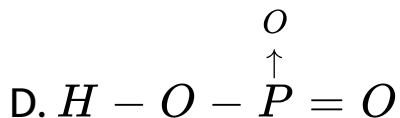
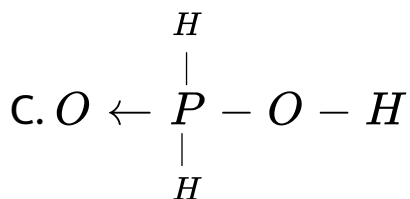
5. The structure of orthophosphoric acid is



A.



B.



Answer: A



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6. 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. $10^{-4} M$

B. $10^{-7} M$

C. $10^{-6} M$

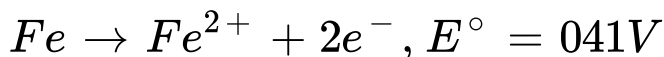
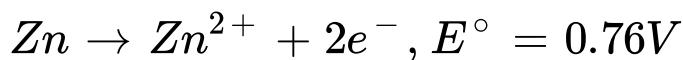
D. $10^{-5} M$

Answer: D

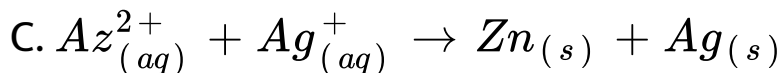
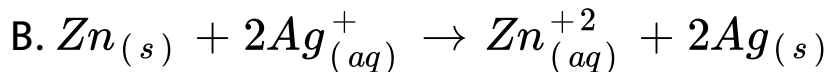
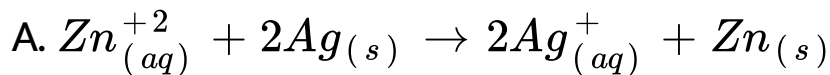
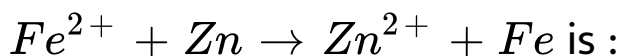


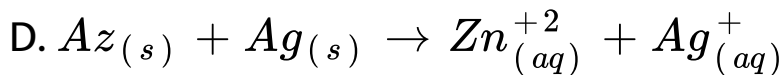
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7. The standard electrode potentials E° for the half cell reactions are as :



The EMF of the cell reaction





Answer: B



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8. The ratio of cationic radius to anionic radius in an ionic crystal is greater than 0.732. its coordination number is

A. 6

B. 8

C. 1

D. 4

Answer: B



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9. Dacron is obtained by the condensation polymerisation of

A. dimethyl terephthalate and ethylene glycol

B. terephthalic acid and formaldehyde

C. phenol and phthalic acid

D. phenol and formaldehyde

Answer: A



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10. 4-chloro-3,5-dimethyl phenol is called

A. chloramphenicol

B. paracetamol

C. barbital

D. dettol

Answer: D



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11. The volume of water to be added $\frac{N}{2}$ HCl to prepare 500cm^3 of $\frac{N}{10}$ solution is

A. 450cm^3

B. 100cm^3

C. 45cm^3

D. 400cm^3

Answer: D



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12. The equivalent weight of a certain trivalent element is 20. molecular weight of its oxide is

A. 152

B. 56

C. 168

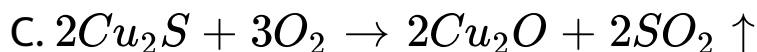
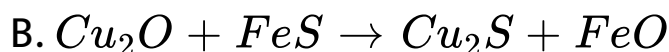
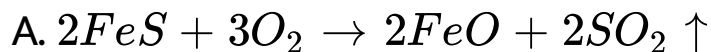
D. 68

Answer: C



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13. Identify the reaction that doesn't take place during the smelting process of copper extraction

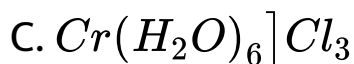
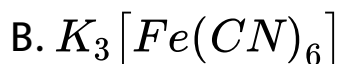
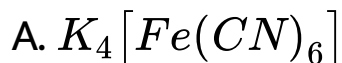


Answer: C



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14. Pick out the complex compound in which the central metal atom obeys EAN rule strictly?



Answer: A



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15. In a reversible reaction, the catalyst

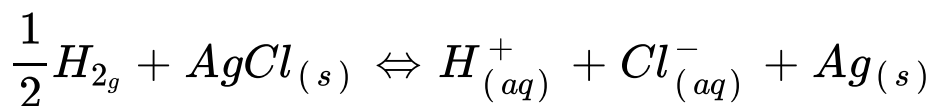
- A. increases the activation energy of the backward reaction
- B. increases the activation energy of the forward reaction
- C. decreases the activation energy of both, forward and backward reaction
- D. decreases the activation energy of forward reaction.

Answer: C



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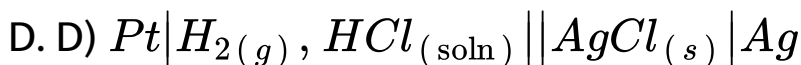
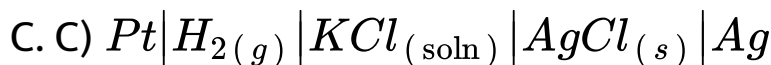
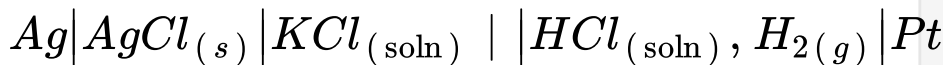
16. A galvanic cell is constructed using the redox reaction,



It is represented as



B. B)



Answer: D



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17. Same amount of electric current is passed through solutions of $AgNO_3$ and HCl. If 1.08g of silver is obtained in the first case, the amount of hydrogen liberated at S.T.P. in the second case is

A. $224cm^3$

B. $1.008g$

C. $112cm^3$

D. $22400cm^3$

Answer: C



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18. The flame colours of metal ions are due to

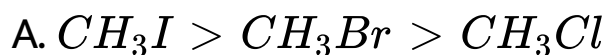
- A. frenkel defect
- B. schottky defect
- C. metal deficiency defect
- D. metal excess defect

Answer: D



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19. The order of reactivities of methyl halides in the formation of Grignard reagent is



Answer: A



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20. The reaction of an organic compound with ammonia followed by nitration of the product gives a powerful explosive, called RDX. The organic compound is

- A. phenol
- B. toluene
- C. glycerine
- D. formaldehyde

Answer: D



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21. The percentage S-character of the hybrid orbitals in methane, ethene and ethyne are respectively

A. 25,33,50

B. 25,50,75

C. 50,75,100

D. 10,20,40

Answer: A



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22. In the manufacture of sulphuric acid by contact process, Tyndall box is used to

- A. filter dust particles
- B. remove impurities
- C. convert SO_2 to SO_3
- D. test the presence of dust particles.

Answer: D



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23. The pH value of gastric juice in human stomach is about 1.8 and in the small intestine it is about 7.8. The pK_a value of aspirin is 3.5. aspirin will be

A. completely ionised in the small intestine and in the stomach

B. unionised in the small intestine and in the stomach

C. ionised in the small intestine and almost unionised in the stomach

D. ionised in the stomach and almost unionised
in the small intestine

Answer: C



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24. The number of α and β particles emitted during the transformation of ${}_{90}\text{Th}^{232}$ to ${}_{82}\text{Pb}^{208}$ are respectively

A. 4,2

B. 2,2

C. 8,6

D. 6,4

Answer: D



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25. When chlorine is passed through warm benzene in presence of the sunlight, the product obtained is

A. benzotrichloride

B. chlorobenzene

C. gammexane

D. D.D.T.

Answer: C



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26. A colourless crystalline salt 'x' is soluble in dilute HCl. On adding NaOH solution, it gives a white precipitate which is insoluble in excess of $NaOH$, 'x' is

A. $Al_2(SO_4)_3$

B. $ZnSO_4$

C. $MgSO_4$

D. $SnCl_2$

Answer: C



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27. Which metal is used to make alloy steel for armour plates, safes and helmets?

A. Al

B. Mn

C. Cr

D. Pb

Answer: B



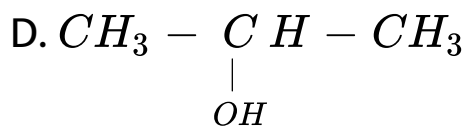
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28. Iodoform reaction is answered by all, except

A. C_2H_5OH

B. CH_3OH

C. CH_3COCH_3



Answer: B

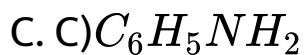


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29. A gaseous carbon compound is soluble in dilute HCl. The solution on treating with NaNO_2 gives off nitrogen leaving behind a solution which smells of wood spirit. The carbon compound is

A. A) HCHO

B. B) CO



Answer: D



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30. Which of the following statements is incorrect regarding benzyl chloride?

A. it gives white precipitate with alcoholic



- B. it is an aromatic compound with substitution in the side chain
- C. it undergoes nucleophilic substitution reaction
- D. it is less reactive than vinyl chloride.

Answer: D

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31. A signature, written in carbon pencil weighs 1 mg. what is the number of carbon atoms present

in the signature?

A. 5.02×10^{23}

B. 5.02×10^{20}

C. 6.02×10^{20}

D. 0.502×10^{20}

Answer: D



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32. NH_3 and HCl gas are introduced simultaneously from the two ends of a long tube.

A white ring of NH_3Cl appears first

- A. A) nearer to the HCl end
- B. B) at the centre of the tube
- C. C) throughout the tube
- D. D) nearer to the NH_3 end

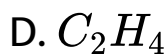
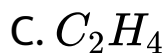
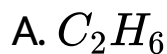
Answer: A



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33. A gas formed by the action of alcoholic KOH on ethyl iodide, decolourises alkaline $KMnO_4$. The gas

is



Answer: D



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34. Which of the following is not a characteristic of chemisorption ?

A. A) ΔH is of the order of 240J

B. B) adsorption is irreversible

C. C) adsorption may be multimolecular layer

D. D) adsorption is specific

Answer: C



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35. The concentration of electrolyte required to coagulate a given amount of As_2S_3 sol is minimum in the case of

A. magnesium nitrate

B. potassium nitrate

C. potassium sulphate

D. aluminium nitrate

Answer: D



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36. Identify the organic compound which, on heating with strong solution of NaOH, partly converted into an acid salt and partly into alcohol

A. benzyl alcohol

B. acetaldehyde

C. acetone

D. benzaldehyde

Answer: D



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37. The process by which synthesis of protein takes place based on the genetic information present in m-RNA is called

A. translation

B. transcription

C. replication

D. messenger hypothesis

Answer: A



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38. The enthalpies of formation of Al_2O_3 and Cr_2O_3 are -1596 kJ and -1134 kJ respectively. ΔH for the reaction, $2Al + Cr_2O_3 \rightarrow 2Cr + Al_2O_3$ is

A. -2730kJ

B. -462kJ

C. -1365kJ

D. $+2730\text{kJ}$

Answer: B



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39. The gaseous reaction

$A + B \rightleftharpoons 2C + D, + Q$ is most favoured at

A. low temperature and high pressure

B. high temperature and high pressure

C. high temperature and low pressure

D. low temperature and low pressure

Answer: D



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40. Temperature coefficient of a reaction is 2. when temperature is increased from $30^{\circ}C$ to $100^{\circ}C$, rate of the reaction increases by

A. 128 times

B. 100 times

C. 500 times

D. 250 times

Answer: A



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41. Two gas cylinders having same capacity have been filled with 44 g of H_2 and 44g of CO_2 respectively. If the pressure in CO_2 cylinder is 1 atmosphere at a particular temperature, the

pressure in the hydrogen cylinder at the same temperature is

- A. 2 atmosphere
- B. 1 atmosphere
- C. 22 atmosphere
- D. 44 atmosphere

Answer: C



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42. Angular momentum of an electron in the n^{th} orbit of hydrogen atom is given by

A. $\frac{nh}{2\pi}$

B. nh

C. $\frac{2\pi}{nh}$

D. $\frac{\pi}{2nh}$

Answer: A



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43. The element with atomic number 36 belongs to
block in the periodic table

A. p

B. s

C. f

D. d

Answer: A



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44. The function of $AlCl_3$ (anhydrous) in the Friedel Carft's alkylation reaction is to :

- A. to absorb HCl
- B. to absorb water
- C. to produce nucleophile
- D. to produce electrophile

Answer: D



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45. An important reaction of acetone is autocondensation in presence of concentrated sulphuric acid to give the aromatic compound

A. mesitylene

B. mesityl oxide

C. trioxan

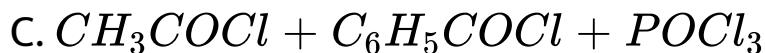
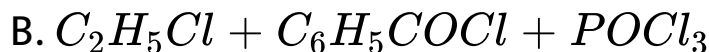
D. phorone

Answer: A



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46. Ethyl benzoate reacts with PCl_5 to give



Answer: B



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47. Pick out the statement which is not relevant in the discussion of colloids

- A. sodium aluminium silicate is used in the softening of hard water
- B. potash alum is used in shaving rounds and as a styptic in medicine
- C. artificial rain is caused by throwing electrified sand on the clouds from an aeroplane
- D. deltas are formed at a place where the river pours its water into the sea.

Answer: A



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48. A wooden box excavated from Indus valley had an activity of 9.3 disintegration per minute per gm of carbon. What is the approximate age of this civilization?

- A. 2000 years
- B. 5700 years
- C. 8100 years
- D. Data insufficient

Answer: A



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49. For a reaction if $K_p > K_c$, the forward reaction is favoured by

- A. A) low pressure
- B. B) high pressure
- C. C) high temperature
- D. D) low temperature

Answer: A



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50. In a lime kiln, to get higher yield of CO_2 , the measure that can be taken is

- A. to remove CaO
- B. to add more $CaCO_3$
- C. to maintain high temperature
- D. to pump out CO_2

Answer: A



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51. Kinetic energy of one mole of an ideal gas at 300 K in kJ is

A. A) 3.74

B. B) 348

C. C) 34.8

D. D) 3.48

Answer: A



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52. The tripeptide hormone present in most living cells is

A. glutathione

B. glutamine

C. oxytocin

D. ptyalin

Answer: A



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53. Phenol $\xrightarrow{NaNO_2 / H_2SO_4}$ B $\xrightarrow{H_2O}$ C \xrightarrow{NaOH} D name

of the reaction is

- A. Liebermann's reaction
- B. Phthalein fusion test
- C. Reimer-Tiemann reaction
- D. Schotten-Baumann reaction

Answer: A



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54. Energy is stored in our body in the form of

A. ATP

B. ADP

C. fats

D. carbohydrates

Answer: C



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55. An organic compound answers Molisch's test as well as Benedict's test. But it does not answer Seliwanoff's test. Most probably, it is

- A. sucrose
- B. protein
- C. fructose
- D. maltose

Answer: D



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56. What is the volume of 20 volume H_2O_2 required to get 5000cm^3 of oxygen at S.T.P ?

A. 250cm^3

B. 50cm^3

C. 100cm^3

D. 125cm^3

Answer: A



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57. The IUPAC name of $(CH_3)_3C - CH = CH_2$ is

- A. 1,1,1-trimethyl-2-propene
- B. 3,3,3-trimethyl-2-propene
- C. 2,2-dimethyl-3-butene
- D. 3,3-dimethyl-1-butene

Answer: D



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58. Railway wagon axles are made by heating iron rods embedded in charcoal powder. This process is known as

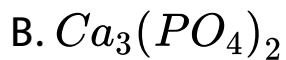
- A. tempering
- B. case hardening
- C. sherardising
- D. annealing

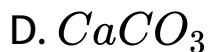
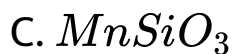
Answer: B



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59. Thomas slag is :





Answer: B



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60. Urea is preferred to ammonium sulphate as a nitrogenous fertilizer because

A. it is more soluble in water

B. it is cheaper than ammonium sulphate

C. it is quite stable

D. it does not cause acidity in the soil.

Answer: D



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