



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2005

Chemistry

1. 15 moles of H_2 and 5.2 moles of I_2 are mixed and allowed to attain equilibrium at $500^\circ C$. At equilibrium, the concentration of HI is found

to be 10 moles. The equilibrium constant for the formation of HI is

A. 50

B. 15

C. 100

D. 25

Answer: a



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2. If, in the reaction $N_2O_4 \leftrightarrow 2NO_2$ x is that part of N_2O_4 which dissociates, then the number of molecules at equilibrium will be

A. 1

B. 3

C. $(1 + x)$

D. $(1 + x)^2$

Answer: c



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3. Which of these does not influence the rate of reaction?

A. nature of the reactants

B. concentration of the reactants

C. temperature of the reaction

D. molecularity of the reaction

Answer: d



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4. 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. 4

B. $3/2$

C. 3

D. 1

Answer: c



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5. The rate at which a substance reacts depends on its

- A. atomic weight
- B. atomic number
- C. molecular weight
- D. active mass.

Answer: d



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6. A compound A has a molecular formula C_2Cl_3OH . It reduces Fehling's solution and on oxidation, gives a monocarboxylic acid B. A can be obtained by the action of chlorine on ethyl alcohol. A is

A. chloroform

B. chloral

C. methyl chloride

D. monochloroacetic acid

Answer: a



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7. Which of the following haloalkanes is most reactive?

A. 1-chloropropane

B. 1-bromopropane

C. 2-chloropropane

D. 2-bromopropane

Answer: d



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8. The reaction in which phenol differs from alcohol is

A. it undergoes esterification with
carboxylic acid

B. it reacts with ammonia

C. it forms yellow crystals of iodoform

D. it liberates H_2 with Na metal

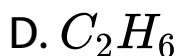
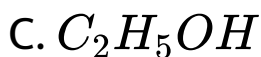
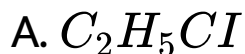
Answer: c



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9. An organic compound A containing C, H and O has a pleasant odour with boiling point of $78^\circ C$. On boiling A with concentrated H_2SO_4 , a colourless gas is produced which

decolourises bromine water and alkaline $KMnO_4$. The organic liquid A is



Answer: c



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10. Which of the following is an amphoteric acid?

A. glycine

B. salicylic acid

C. benzoic acid

D. citric acid

Answer: a



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11. Gold is extracted by hydrometallurgical process based on its property

A. of being electropositive

B. of being less reactive

C. to form complexes which are water soluble

D. to form salts which are water soluble

Answer: c



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12. In blast furnace, iron oxide is reduced by

A. hot blast of air

B. carbon monoxide

C. carbon

D. silica

Answer: b



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13. Which of the following pairs of elements cannot form an alloy?

A. Zn, Cu

B. Fe, Hg

C. Fe, C

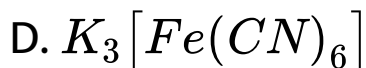
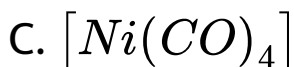
D. Hg, Na.

Answer: b



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14. Which compound is zero valent metal complex?



Answer: c



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15. Alum is a water purifier because it

A. coagulates the impurities

B. softens hard water

C. gives taste

D. destroys the pathogenic bacteria

Answer: a



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16. For the reaction



the value of K , at $800^\circ C$ is 0.1. When the equilibrium

concentrations of both the reactants is 0.5

mol, what is the value of K_p at the same

temperature?

A. 0.5

B. 0.1

C. 0.01

D. 0.025

Answer: b



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17. The extent of adsorption of a gas on a solid depends on

- A. nature of the gas
- B. pressure of the gas
- C. temperature of the gas
- D. all are correct

Answer: d



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18. An emulsifier is a substance which

- A. stabilises the emulsion
- B. homogenises the emulsion
- C. coagulates the emulsion
- D. accelerates the dispersion of liquid in liquid.

Answer: a



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19. Which of the following types of metals form the most efficient catalysts?

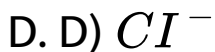
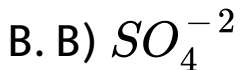
- A. alkali metals
- B. alkaline earth metals
- C. transition metals
- D. all of these

Answer: c



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20. The species among the following, which can act as an acid and a base is



Answer: a



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21. Benzyl alcohol and sodium benzoate is obtained by the action of sodium hydroxide on benzaldehyde. This reaction is known as

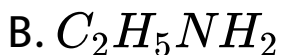
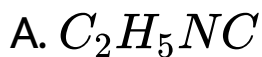
- A. A) Perkin's reaction
- B. B) Cannizzaro's reaction
- C. C) Sandmeyer's reaction
- D. D) Claisen condensatio

Answer: b



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22. Ethyl chloride on heating with AgCN forms a compound X. The functional isomer of X is



D. none of these.

Answer: c



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23. A compound, containing only carbon, hydrogen and oxygen, has a molecular weight of 44. On complete oxidation it is converted into a compound of molecular weight 60. The original compound is

A. an aldehyde

B. an acid

C. an alcohol

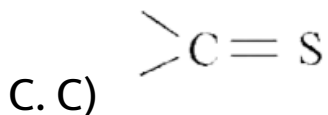
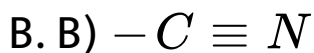
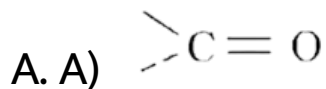
D. an ether

Answer: a



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24. Grignard reagent adds to



D. D) all of the above

Answer: d



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25. Which of the following biomolecules contain non transition metal ion?

A. vitamin B_{12}

B. chlorophyll

C. haemoglobin

D. insulin

Answer: b



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26. A mixture of 2 moles of carbon monoxide and one mole of oxygen in a closed vessel is ignited to get carbon dioxide. If ΔH is the enthalpy change and ΔU is the change in internal energy, then

A. $\Delta H > \Delta E$

B. $\Delta H < \Delta E$

C. $\Delta H = \Delta E$

D. the relationship depends on the capacity
of the vessel

Answer: b



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27. The cooling in refrigerator is due to

A. reaction of the refrigerator gas

B. expansion of ice

C. the expansion of the gas in the
refrigerator

D. the work of the compressor

Answer: c



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28. For a system in equilibrium, $\Delta G = 0$
under conditions of constant

A. temperature and pressure

B. temperature and volume

C. pressure and volume

D. energy and volume

Answer: a



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29. Molar heat of vaporisation of a liquid is $6kJmol^{-1}$. If the entropy change is

$16 \text{ J mol}^{-1} \text{ K}^{-1}$ the boiling point of the liquid

is

A. A) 375° C

B. B) 375 K

C. C) 273 K

D. D) 102° C

Answer: b



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30. The temperature of the system decreases
in an

- A. adiabatic compression
- B. isothermal compression
- C. isothermal expansion
- D. adiabatic expansion.

Answer: d



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31. A buffer solution has equal volumes of 0.2 M NH_4OH and 0.02M NH_4Cl The pK_b of the base is 5. The pH is

A. A) 10

B. B) 9

C. C) 4

D. D) 7

Answer: a



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32. The hydrogen electrode is dipped in a solution of pH 3 at $25^{\circ}C$. The potential of the cell would be ($2.303RT / F = 0.059V$) :

A. $0.177V$

B. $0.087V$

C. $0.059V$

D. $-0.177V$

Answer: d



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33. 20 ml of 0.5 N HCl and 35 ml of 0.1 N NaOH are mixed. The resulting solution will

A. be neutral

B. be basic

C. turn phenolphthalein solution pink

D. turn methyl orange red

Answer: c



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34. Corrosion of iron is essentially an electrochemical phenomenon where the cell reactions are

A. Fe is oxidised to Fe^{2+} and dissolved oxygen in water is reduced to OH^{\ominus}

B. Fe is oxidised to Fe^{3+} and H_2O is reduced to O_2^{2-}

C. Fe is oxidised to Fe^{2+} and H_2O is reduced to O_2^{-}

D. Fe is oxidised to Fe^{2+} and H_2O is reduced to O_2

Answer: a



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35. The standard electrode potential is measured by

A. electrometer

B. voltmeter

C. potentiometer

D. galvanometer.

Answer: b



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36. A precipitate of AgCl is formed when equal volumes of the following are mixed. [K_{sp} for

$$\text{AgCl} = 10^{-10}$$

A. 10^{-4}M AgNO_3 and 10^{-7}M HCl

B. $10^{-5} M AgNO_3$ and $10^{-6} M HCl$

C. $10^{-5} M AgNO_3$ and $10^{-4} M HCl$

D. $10^{-6} M AgNO_3$ and $10^{-6} M HCl$

Answer: c



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37. Which one of the following defects in the crystals lowers its density?

A. Frenkel defect

B. Schottky defect

C. F-centres

D. interstitial defect.

Answer: b



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38. A radioactive isotope has $t_{1/2}$ of 10 days. If today 125 g of it is left, what was its weight 40 days earlier ?

A. 2g

B. 600g

C. 1g

D. 1.5g

Answer: a



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39. Which of the following cannot be accelerated?

A. α – *particle*

B. β – *particle*

C. protons

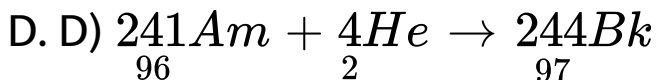
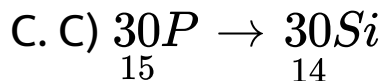
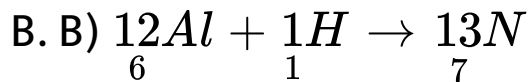
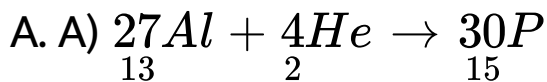
D. neutrons

Answer: d



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40. In which of the following nuclear reactions neutron is emitted?



Answer: a



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41. Molarity of $0.2\text{NH}_2\text{SO}_4$ is

A. A) 0.2

B. B) 0.4

C. C) 0.6

D. D) 0.1

Answer: d



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42. In the equation of state of an ideal gas $PV = nRT$, the value of the universal gas constant would depend only on

- A. the nature of the gas
- B. the pressure of the gas
- C. the units of the measurement
- D. none of these

Answer: c



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43. A commercial sample of hydrogen peroxide is labelled as 10 volume its percentage strength

A. 0.01

B. 0.03

C. 0.1

D. 0.9

Answer: b



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44. Activated charcoal is used to remove colouring matter from pure substances. It works by

A. oxidation

B. reduction

C. bleaching

D. adsorption.

Answer:



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45. When plants and animals decay, the organic nitrogen is converted into inorganic

nitrogen. The inorganic nitrogen is in the form of

A. ammonia

B. elements of nitrogen

C. nitrates

D. nitrides.

Answer: a



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46. Three dimensional molecules with cross links are formed in the case of a

- A. thermoplastic
- B. thermosetting plastic
- C. both
- D. none

Answer: b



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47. Sucrose molecule is made up of

- A. a gluco pyranose and a fructo pyranose
- B. a gluco pyranose and a fructo furanose
- C. gluco furanose and a fructo pyranose
- D. a gluco furanose and a fructo furanose.

Answer: b



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48. a) Name the water insoluble component of starch.

A. amylopectin

B. amylose

C. cellulose

D. none of the above

Answer: a



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49. An example for a saturated fatty acid, present in nature is

A. oleic acid

B. linoleic acid

C. linolenic acid

D. palmitic acid

Answer: d



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50. A nanopeptide containspeptide linkages.

A. A) 10

B. B) 8

C. C) 9

D. D) 18

Answer: b



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51. A gas decolourised by $KMnO_4$ solution but gives no precipitate with ammoniacal cuprous chloride

A. ethane

B. ethene

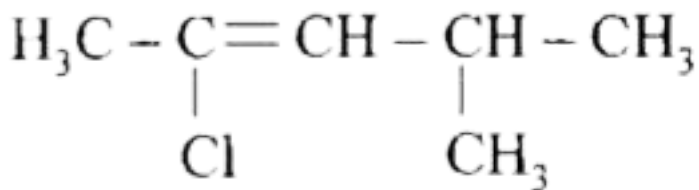
C. methane

D. acetylene.

Answer: c



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52.

The

IUPAC name is

- A. 2-chloro-4-methyl-2-pentene
- B. 4-chloro-2-methyl-3-pentene
- C. 4-methyl-2-chloro-2-pentene
- D. 2-chloro-4,4-dimethyl-2-butene.

Answer: a



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53. Amongst the following , the compound that can be most readily sulphonated is

A. benzene

B. toluene

C. nitrobenzene

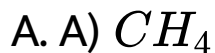
D. chlorobenzene

Answer: b



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54. Household gaseous fuel (LPG) mainly contains



Answer: d



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55. Use of chlorofluoro carbons is not encouraged because

A. they are harmful to the eyes of people that use it

B. they damage the refrigerators and air conditioners

C. they eat away the ozone in the atmosphere

D. they destroy the oxygen layer.

Answer: c



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56. Sulphur containing amino acids are

A. lysine

B. serine

C. cysteine

D. tyrosine.

Answer: c



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57. Which of the following is not present in a nucleotide?

A. A) cytosine

B. B) guanine

C. C) adenine

D. D) Thyroxin

Answer: d



58. Antiseptic chloroxylenol is

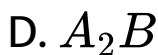
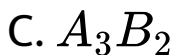
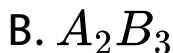
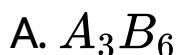
- A. 4-chloro-3,5-dimethylphenol
- B. 3-chloro-4,5-dimethylphenol
- C. 4-chloro-2,5-dimethylphenol
- D. 5-chloro-3,4-dimethylphenol.

Answer: a



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59. An atom of element A has 3 electrons in its valence shell and an atom of B has 6 electrons in its valence shell. The formula of the compound between these two atoms will be :

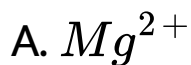


Answer: b



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60. Among $Na^+ Na$, Mg and Mg^{2+} , the largest particle



Answer: c



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