



CHEMISTRY

BOOKS - KCET PREVIOUS YEAR PAPERS

KARNATAKA CET 2009

Chemistry

1. A 6% solution of urea is isotonic with

A. 0.05 M solution of glucose

B. 6% solution of glucose

C. 25% solution of glucose

D. 1M solution of glucose

Answer: D



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2. In countries nearer to polar region, the roads are sprinkled with $CaCl_2$. This is

A. to minimise the snow fall

B. to minimise pollution

C. to minimise the accumulation of dust on
the road

D. to minimise the wear and tear of the roads.

Answer: A



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3. For the reaction $H_2O_{(i)} \rightleftharpoons H_2O_{(g)}$ at 373 K
and 1 atmospheric pressure

A. $\Delta E = 0$

B. $\Delta H = T\Delta S$

C. $\Delta H = \Delta E$

D. $\Delta = 0$

Answer: B



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4. A compound A_xB_y crystallises on a fcc lattice in which A occupies each corner of a cube and B occupies the centre of each face of the cube.

What is the formula of the compound ?

A. A_3B

B. AB

C. AB_3

D. AB_2

Answer: C



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5. In electrophilic aromatic substitution reaction, the nitro group is meta directing because it :

A. decreases electron density at meta position

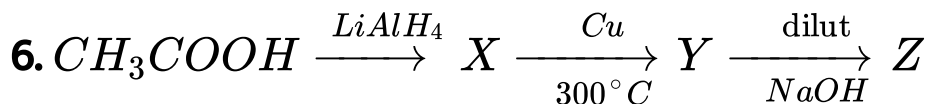
B. increases electron density at meta position

C. increases electron density at ortho and para positions.

D. decreases electrons density at orto and para positions.

Answer: D

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In the above reaction Z is

A. Aldol

B. Ketol

C. Acetol

D. Butanol

Answer: A



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7. The best method for the conversion of an alcohol into an alkyl chloride is by treating the alcohol with

A. PCl_5

B. $SOCl_2$ in presence of pyridine

C. Dry HCl in the presence of anhydrous



D. PCl_3

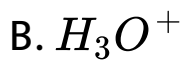
Answer: B



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8. The electrophile involved in the sulphonation of benzene is :



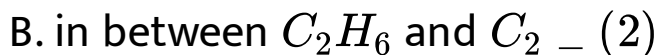


Answer: C



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9. The carbon-carbon bond length in benzene is :



C. in between C_2H_4 and C_2H_2

D. in between C_2H_6 and C_2H_4

Answer: D



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10. The compound which is not formed during the dry distillation of a mixture of calcium formate and calcium acetate is

A. Propanal

B. Propanone

C. Ethanal

D. Methanal

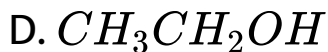
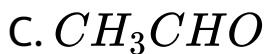
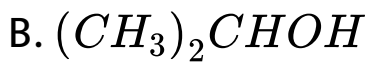
Answer: A



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11. An organic compound X is oxidised by using acidified $K_2Cr_2O_7$. The product obtained reacts with phenyl hydrazine but does not answer silver mirror test. The possible structure of X is

A. CH_3COCH_3



Answer: B



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12. The reaction involved in the oil of Winter

Green test is: salicylic acid $\xrightarrow[\text{Conc. } H_2SO_4]{X, \Delta}$ Product.

The product is treated with Na_2CO_3 solution.

The missing reagent X in the above reaction is

A. NaOH

B. Ethanol

C. Methanol

D. Phenol

Answer: C



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13. The compound which forms acetaldehyde when heated with dilute NaOH is

A. 1,1,1-Trichloroethane

B. 1-Chloroethane

C. 1,2-Dichloroethane

D. 1,1-Dichloroethane

Answer: D



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14. Arrange the following in the increasing order of their basic strengths :



A.



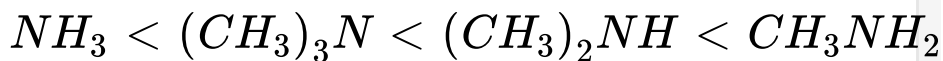
B.



C.



D.



Answer: A



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15. The one which has least iodine value is

A. ginger oil

B. ghee

C. groundnut oil

D. sunflower oil

Answer: B



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16. A diabetic person carries a packet of glucose with him always, because

A. glucose increases the blood sugar level slowly

B. glucose reduces the blood sugar level

C. glucose reduces the blood sugar level almost instantaneously

D. glucose reduces the blood sugar level slowly.

Answer: C



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17. There are 20 naturally occurring amino acids.

The maximum number of tripeptides that can be obtained is

A. 6470

B. 7465

C. 5360

D. 8000

Answer: D



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18. Cooking is fast in a pressure cooker because :

A. water boils at high temperature inside the pressure cooker

B. food is cooked at constant volume

C. loss of heat due to radiation is minimum

D. food particles are effectively smashed.

Answer: A



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19. The ore that is concentrated by froth floatation process is

A. Cinnabar

B. Bauxite

C. Malachite

D. Zincite

Answer: A



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20. The correct set of four quantum numbers for outermost electron of potassium ($Z=19$) is

A. $3, 1, 0, \frac{1}{2}$

B. $4, 0, 0, \frac{1}{2}$

C. $3, 0, 0, \frac{1}{2}$

D. $4, 1, 0, \frac{1}{2}$

Answer: B



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21. A body of mass x g is moving with a velocity of 100m/s. Its de Broglie wavelength is $6.62 \times 10^{-35}m$. Hence x is

$$(h = 6.62 \times 10^{-34} J - s)$$

A. 0.25kg

B. 0.15 kg

C. 0.2 kg

D. 0.1 kg

Answer: D



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22. The correct order of ionisation enthalpy of C, N, O, F is

A. $F < N < C < O$

B. $C < N < O < F$

C. $C < O < N < F$

D. $F < O < N < C$

Answer: C



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23. The oxide of an element whose electronic configuration is $1s^2 2s^2 2p^6 3s^1$ is

A. amphoteric

B. basic

C. acidic

D. neutral

Answer: B



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24. The characteristic not related to alkali metal is

- A. their ions are isoelectronic with noble gases
- B. low melting point
- C. low electronegativity
- D. high ionisation energy

Answer: D



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25. Among the following, the compound that contains ionic, covalent and coordinate linkage is :



Answer: A



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26. A covalent molecule AB_3 has pyramidal structure. The number of lone pair and bond pair electrons in the molecule are respectively.

A. 0 and 4

B. 3 and 1

C. 1 and 3

D. 2 and 2

Answer: C



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27. Excess of carbon dioxide is passed through 50 mL of 0.5 M calcium hydroxide solution. After the completion of the reaction, the solution was evaporated to dryness. The solid calcium carbonate was completely neutralised with 0.1 N hydrochloric acid. The volume of hydrochloric acid required is

A. 200cm^3

B. 500cm^3

C. 400cm^3

D. 300cm^3

Answer: B



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28. A bivalent metal has an equivalent mass of 32.

The molecular mass of the metal nitrate is

A. 168

B. 192

C. 188

D. 182

Answer: C



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29. The r.m.s. velocity of molecules of a gas of density $4\text{kg}/\text{m}^3$ and pressure $1.2 \times 10^5 \text{N}/\text{m}^2$ is

A. 900m.s^{-1}

B. 120m.s^{-1}

C. 600m.s^{-1}

D. 300m.s^{-1}

Answer: D



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30. 0.5 mol each of H_2 , SO_2 and CH_4 are kept in a container. A hole was made in the container. After 3 hours, the order of partial pressure in the container will be :

A. $pSO_2 > pCH_4 > pH_2$

B. $pH_2 > pSO_2 > pCH_4$

C. $pH_2 > pCH_4 > pSO_2$

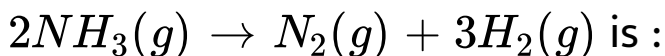
D. $pSO_2 > pH_2 > pCH_4$

Answer: A



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31. The enthalpy of formation of NH_3 is -46kJ/mol The enthalpy change for reaction :



A. $+23\text{kJ}$

B. $+92\text{kJ}$

C. $+46\text{kJ}$

D. $+184\text{kJ}$

Answer: B



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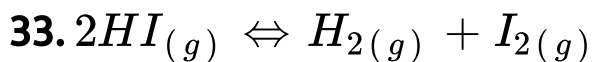
32. 5 moles of SO_2 and 5 moles of O_2 are allowed to react, At equilibrium, it was found that 60% of SO_2 is used up. If the partial pressure of the equilibrium mixture is one atmosphere, the partial pressure of O_2 is

- A. 0.52 atm
- B. 0.21 atm
- C. 0.41 atm
- D. 0.82 atm

Answer: C



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The equilibrium constant of the above reaction is 6.4 at 300 K. If 0.25 mole of H_2 and I_2 are added to the system, the equilibrium constant will be

- A. 0.8
- B. 3.2
- C. 1.6
- D. 6.4

Answer: D



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34. Rate of physical adsorption increases with

A. decrease in temperature

B. decrease in pressure

C. increase in temperature

D. decrease in surface area

Answer: A



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35. IUPAC name of $(CH_3)_3CCl$

- A. 3-chlorobutane
- B. 2-chloro-2-methylpropane
- C. t-butyl chloride
- D. n-butyl chloride

Answer: B



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36. Lucas test is associated with

- A. Phenol
- B. Carboxylic acid
- C. Alcohols
- D. Aldehydes

Answer: C



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37. An organic compound on heating with CuO produces CO_2 but not water. The organic compound may be

- A. Chloroform
- B. Methane
- C. Ethyl iodide
- D. Carbon tetrachloride

Answer: D



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38. The condensation polymer among the following is

A. Protein

B. PVC

C. Polythene

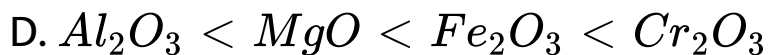
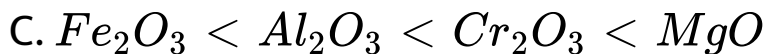
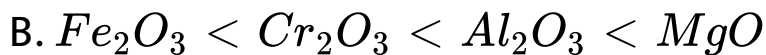
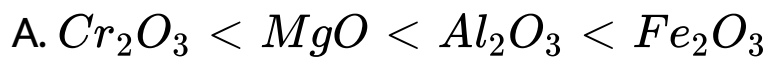
D. Rubber

Answer: A



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39. The order of stability of metal oxides is

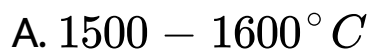


Answer: B



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40. The temperature of the slag zone in the metallurgy of iron using blast furnace is



B. $400 - 700^{\circ} C$

C. $800 - 1000^{\circ} C$

D. $1200 - 1500^{\circ} C$

Answer: C



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41. The function of $Fe(OH)_3$ in the contact process is

A. to detect colloidal impurity

B. to remove moisture

C. to remove dust particles

D. to remove arsenic impurity.

Answer: D



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42. In which of the following NH_3 is not used?

A. Nessler's reagent

B. Group reagent for the analysis of IV group
basic radical

C. Group reagent for the analysis of III group
basic radical.

D. Tollen's reagent.

Answer: A



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43. Argon is used

A. to obtain low temperature

B. in high temperature welding

C. in radiotherapy welding

D. in radiotherapy for treatment of cancer

Answer: B



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44. The incorrect statement in respect of chromyl chloride test is

A. formation of lead chromate

B. formation fo chromyl chloride

C. liberation of chlorine

D. formation of red vapours

Answer: C



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45. The magnetic moment of a transition metal ion is $\sqrt{15}$ B.M. Therefore the number of unpaired electrons present in it is

A. 4

B. 1

C. 2

D. 3

Answer: D



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46. The IUPAC name of $[Co(NH_3)_5ONO]^{2+}$ ion is

- A. Pentaamminenitritocobalt (III) ion
- B. Pentaamminenitro cobalt (II) ion
- C. Pentaamminenitrocobalt (IV) ion
- D. Pentaamminenitritocobalt(IV) ion

Answer: A



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47. The oxidation state of Fe in the brown ring complex $[Fe(H_2O)_5NO]SO_4$ is

A. 0

B. +2

C. +1

D. +3

Answer: B



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48. The correct statement with regard to H_2^+ and H_2^- is :

- A. both H_2^+ and H_2^- do not exist
- B. H_2^- is more stable than H_2^+
- C. H_2^+ is more stable than H_2^-
- D. both H_2^+ and H_2^- are equally stable

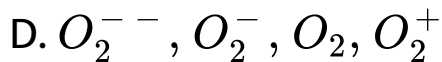
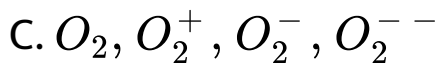
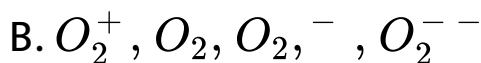
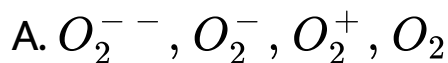
Answer: C



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49. Arrange the following in the increasing order of their bond order : O_2 , O_2^+ , O_2^- and O_2^{2-}

:



Answer: D



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50. 2 g of a radioactive sample having half life of 15 days was synthesised on 1st Jan 2009. The amount of the sample left behind on 1st March, 2009 (including both the days)

A. 0.125 g

B. 1 g

C. 0.5 g

D. 0 g

Answer: A



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51. For a chemical reaction $A \rightarrow B$ the rate of the reaction is $2 \times 10^{-3} \text{ mol dm}^{-3} \text{ s}^{-1}$, when the initial concentration is 0.05 mol dm^{-3} . The rate of the same reaction is $1.6 \times 10^{-2} \text{ mol dm}^{-3} \text{ s}^{-1}$ when the initial concentration is 0.1 mol dm^{-3} . The order of the reaction is

A. 0

B. 3

C. 1

D. 2

Answer: B



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52. For the decomposition of a compound AB at 600 K, the following data were obtained.

| $[AB]$ mol dm ⁻³ | Rate of decomposition of AB in mol dm ⁻³ s ⁻¹ |
|-----------------------------|---|
| 0.20 | 2.75×10^{-8} |
| 0.40 | 11.0×10^{-8} |
| 0.60 | 24.75×10^{-8} |

The order of the decomposition of AB is

A. 0

B. 1

C. 2

D. 1.5

Answer: C



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53. The rate equation for a reaction $A \rightarrow B$ is $r = k[A]^0$. If the initial concentration of the reactant is a mol dm^{-3} , the half life period of the reaction is

A. $\frac{k}{a}$

B. $\frac{a}{k}$

C. $\frac{2a}{k}$

D. $\frac{a}{2k}$

Answer: D



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54. 30 cc of $\frac{M}{3}$ HCl, 20 cc of $\frac{M}{2}$ HNO_3 and 40 cc of $\frac{M}{4}$ NaOH solutions are mixed and the volume was made up of $1dm^3$. The pH of the resulting solution is

A. 2

B. 1

C. 3

D. 8

Answer: A



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55. An aqueous solution containing 6.5 g of NaCl of 90% purity was subjected to electrolysis. After the complete electrolysis, the solution was

evaporated to get solid NaOH. The volume of 1 M acetic acid required to neutralise NaOH obtained above is

A. 2000cm^3

B. 100cm^3

C. 200cm^3

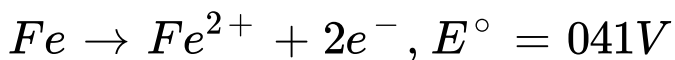
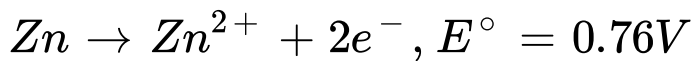
D. 1000cm^3

Answer: B

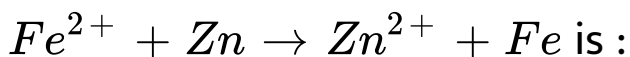


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56. The standard electrode potentials E° for the half cell reactions are as :



The EMF of the cell reaction



A. $-1.20V$

B. $+1.20V$

C. $+0.32V$

D. $-0.32V$

Answer: C



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57. $10^{-6} M$ NaOH is diluted to 100 times. The pH of the diluted base is

A. between 5 and 6

B. between 6 and 7

C. between 10 and 11

D. between 7 and 8

Answer: D



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58. In the electrolysis of acidulated water, it is desired to obtain 1.12 cc of hydrogen per second under S.T.P. condition. The current to be passed is

A. A) 9.65 A

B. B) 19.3 A

C. C) 0.965 A

D. D) 1.93 A

Answer: A



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59. The one which decreases with dilution is

A. conductance

B. specific conductance

C. equivalent conductance

D. molar conductance.

Answer: B



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