



CHEMISTRY

BOOKS - MODERN PUBLICATION CHEMISTRY

(KANNADA ENGLISH)

UNIT TEST - 3

Multiple Choice Questions

1. When $KMnO_4$ acts as an oxidising agent and ultimately forms MnO_4^{2-} , MnO_2O_3 and Mn^{2+} , then the number of electrons transferred in each case is

A. 4, 3, 1, 5

B. 1, 5, 3, 7

C. 1, 3, 4, 5

D. 3, 5, 7, 1

Answer: C



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2. When phosphorus reacts with caustic soda , the products are

PH_3 and NaH_2PO_2 . The reaction is an example of

A. oxidation

B. reduction

C. disproportionation

D. none of these

Answer: C



3. When Zn is added to $CuSO_4$ solution , copper is precipitated because of :

- A. reduction of Zn
- B. hydrolysis of $CuSO_4$
- C. oxidation of Zn
- D. reduction of SO_4^{2-} ions

Answer: C

4. The oxidation state of Cr in $Cr(CO)_6$ is

- A. 0

B. +2

C. -2

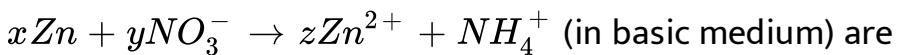
D. +6

Answer: A



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5. The coefficients x , y and z in the following balanced equation :



A. 4, 1, 4

B. 2, 2, 2

C. 4, 2, 4

D. 4, 4, 4

Answer: A

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6. In the reaction : $Cl_2 + 2OH^- \rightarrow OCl^- + Cl^- + H_2O$

- A. OH^- is oxidising and Cl^- is reducing agent
- B. Cl_2 is oxidising and OH^- is reducing agent
- C. OH^- is both oxidising and reducing agent
- D. Cl_2 is both oxidising and reducing agent

Answer: D

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7. The oxidation state of N in NH_3 is

A. +3

B. -3

C. -1/3

D. +1/3

Answer: C



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8. Oxidation number of C in

CH_3OH , CH_2O , $COOH$ and C_2H_2 is respectively :

A. -2, 0, +2, -1

B. +2, 0, +2, -2

C. -2, 0, +2, 0

D. -2, -4, +2, -2

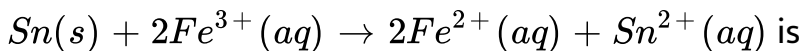
Answer: A

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9. Consider the following E° values

$$E^\circ (Fe^{3+} | Fe^{2+}) = + 0.77V, E^\circ (Sn^{2+} | Sn) = - 0.14V$$

under standard conditions , the potential for the reaction :



A. 0.19 V

B. 0.140 V

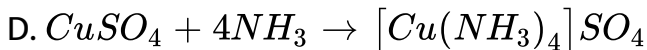
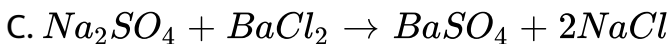
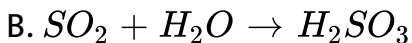
C. 1.68 V

D. 0.63 V

Answer: A

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10. Which of the following is a redox reaction ?

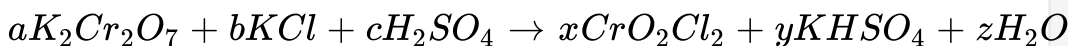


Answer: A



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11.



The above equation balances when

A. $a = 2, b = 4, c = 6$ and $x = 2, y = 6, z = 3$

B. $a = 4, b = 2, c = 6$ and $x = 6, y = 2, z = 3$

C. $a = 6, b = 4, c = 2$ and $x = 6, y = 3, z = 2$

D. $a = 1, b = 4, c = 6$ and $x = 2, y = 6, z = 3$

Answer: D



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12. The standard reduction potential values of the three metallic cations X, Y and Z are 0.52, -3.03 and -1.18 V respectively . The order of reducing power of the corresponding metal is ?

A. $Y > Z > X$

B. $X > Y > Z$

C. $Z > Y > X$

D. $Z > X > Y$

Answer: A

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13. The ionisation enthalpy values of alkali metals indicate that lithium should be poorest reducing agent because of its high ionization energy. However, it is the strongest reducing agent among alkali metals. This may be explained because of:

- A. low sublimation energy of lithium.
- B. reducing power of an element is reverse to its ionization potential..
- C. high heat of hydration of lithium
- D. high lattice energy of lithium compounds.

Answer: C

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14. Beryllium chloride can be prepared by passing chlorine vapours over heated mixture of :

A. BeO and CO_2

B. BeCO_3 and C

C. BeO and C

D. $\text{Be}(\text{OH})_2$ and C

Answer: C

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15. On dissolving moderate amount of sodium metal in liquid ammonia at low temperature, which one of the following does

not occur ?

- A. Blue coloured solution is obtained
- B. Na^+ ions are formed in the solution
- C. Liquid ammonia becomes good conductor of electricity
- D. Liquid ammonia remains diamagnetic.

Answer: D

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16. Which of the following statement regarding difference between lithium and other alkali metals is incorrect ?

- A. Lithium is much softer than other alkali metals.
- B. Unlike other alkali metals, it forms Li_2O mainly in air.

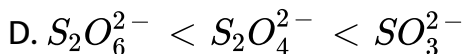
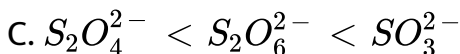
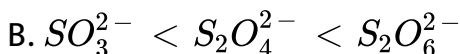
C. Lithium nitrate on heating gives Li_2O whereas other alkali metal nitrates decompose to give corresponding nitrites.

D. LiF and Li_2O are comparatively less soluble in water than corresponding compounds of other alkali metals.

Answer: A

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17. The oxidation states of sulphur in the anions SO_3^{2-} , $S_2O_4^{2-}$ and $S_2O_6^{2-}$ follow the order :



Answer: A

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18. 25 volumes of H_2O_2 means

- A. 25 % H_2O_2
- B. 25cm^3 of the solution contains 1 g of H_2O_2
- C. 1cm^3 of solution liberates 25cm^3 of O_2 at N.T.P.
- D. 25cm^3 of the solution contains 1 mole of H_2O_2 .

Answer: C

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19. Decomposition of hydrogen peroxide is prevented by

A. NaOH

B. MnO_2

C. glycerol

D. oxalic acid

Answer: C



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20. Dihydrogen reacts with CO at 700 k in presence of a catalyst

$Zn \xrightarrow{C} r_2O_3$ to form

A. CH_4

B. HCHO

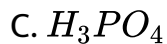
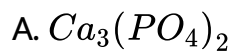
C. C_6H_6

D. CH_3OH

Answer: D

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21. Calcium phosphide gets hydrolysed and give



Answer: D

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22. In context with the industrial preparation of hydrogen from water gas ($CO + H_2$) which of the following is the correct statement

- A. CO is oxidised to CO_2 with steam in the presence of a catalyst followed by absorption of CO_2 in alkali
- B. CO and H_2 are fractionally separated using differences in their densities
- C. CO is removed by absorption in aqueous Cu_2Cl_2 solution
- D. H_2 is removed through occlusion with Pd.

Answer: A



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

A. 3 %

B. 1 %

C. 9 %

D. 10 %

Answer: A



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24. The oxidation number of O in H_2O_2 is ?

A. -2

B. -1

C. +1

D. +2

Answer: B



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25. Polyphosphates are used as water softening agents because they

A. form soluble complexes with anionic species

B. precipitate anionic species

C. form soluble complexes with cationic species

D. precipitate cationic species

Answer: C



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26. Which one of the following processes will produce hard water

- A. Addition of Na_2SO_4 to water
- B. Saturation of water with $CaCO_3$
- C. Saturation of water with $MgCO_3$
- D. Saturation of water with $CaSO_4$

Answer: D

27. The oxide which gives H_2O_2 on treatment with dilute acid is

- A. PbO_2

B. Na_2O_2

C. MnO_2

D. TiO_2

Answer: B



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28. The structure of H_2O_2 is

A. Planar

B. Non-planar

C. spherical

D. linear

Answer: B

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29. Which of the following pairs of substances on reaction will not evolve H_2 gas

- A. Fe and H_2SO_4 (aqueous)
- B. Copper and HCl (aqueous)
- C. Sodium and ethyl alcohol
- D. Iron and steam

Answer: B

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

A. Epsom salt

B. Dolomite

C. Asbestos

D. Gypsum

Answer: D



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31. Magnesium is present in :

A. Haemoglobin

B. Chlorophyll

C. Vitamin B_{12}

D. Ascorbic acid

Answer: B

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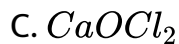
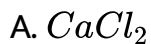
32. Lithium shows diagonal relationship with

- A. Beryllium
- B. Magnesium
- C. Calcium
- D. Boron

Answer: B

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33. Slaked lime reacts with chlorine to give :

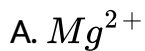


Answer: C



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34. Which of the following alkaline earth metal ion has lowest ionic mobility in aqueous solutions ?



Answer: A

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35. Which of the following is most basic ?

A. CsOH

B. KOH

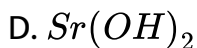
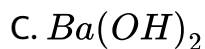
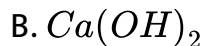
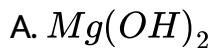
C. LiOH

D. RbOH

Answer: A

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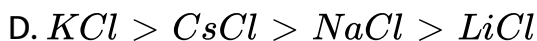
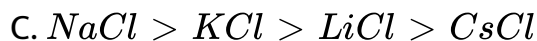
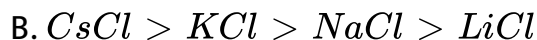
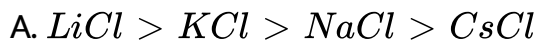
36. Which of the following has largest solubility in water ?



Answer: C

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37. The stability of the following alkali metal chlorides follows the order :



Answer: A

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38. The following compounds have been arranged in order of their increasing thermal stabilities. Identify the correct order :

$K_2CO_3(I)$, $MgCO_3(II)$, $CaCO_3(III)$, $BeCO_3(IV)$

A. $I < II < III < IV$

B. $IV < II < III < I$

C. $IV < II < I < III$

D. $II < IV < III < I$

Answer: B

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39. Among the alkaline earth metals, the element forming predominantly covalent compounds is

A. Ba

B. Sr

C. Ca

D. Be

Answer: D

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40. A metal M readily forms water soluble sulphate MSO_4 , water insoluble hydroxide $M(OH)_2$ and oxide MO which becomes inert on heating. The hydroxide is soluble in NaOH. The metal is :

A. Be

B. Mg

C. Ca

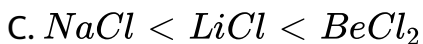
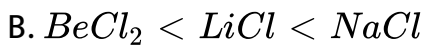
D. Sr

Answer: A



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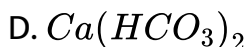
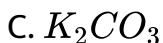
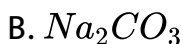
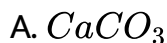
41. The correct sequence of increasing covalent character is represented by



Answer: C

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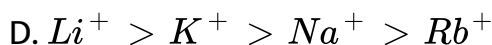
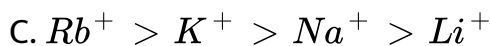
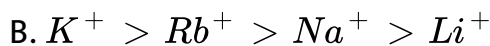
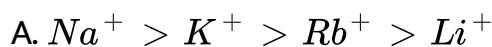
42. A solid compound 'X' on heating gives CO_2 gas and a residue. The residue mixed with water forms 'Y'. On passing an excess of CO_2 through Y in water, a clear solution 'Z' is obtained. On boiling 'Z' compound 'X' is formed. The compound 'X' is



Answer: A

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43. The correct order of the mobility of alkali metal ions in aqueous solution is :

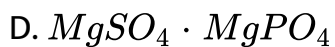
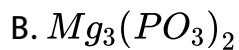


Answer: C

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44. Ammoniacal solution of $MgSO_4$ in presence of NH_4Cl is heated with Na_2HPO_4 , a white precipitate is formed of



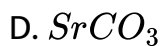
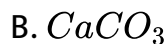
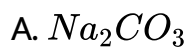


Answer: A



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45. The carbonate that will not decompose on heating is



Answer: A

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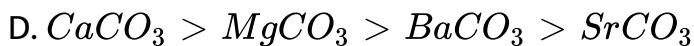
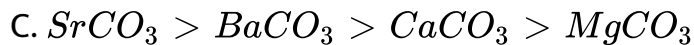
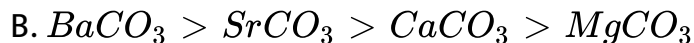
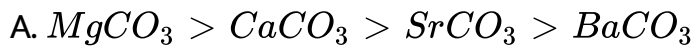
46. The alkali metals form salts like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hydrides decreases in which of the following order ?



Answer: D

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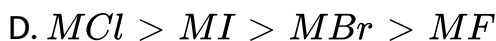
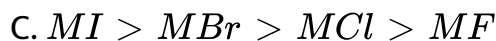
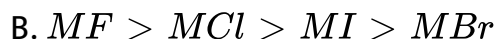
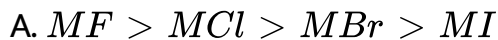
47. Correct order of stability of group II A metal carbonates is



Answer: B

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48. In case of alkali metals, the covalent character decreases in the order



Answer: C

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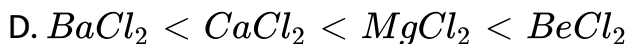
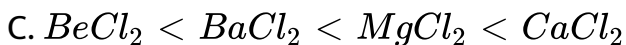
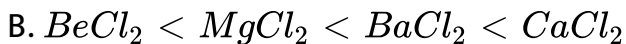
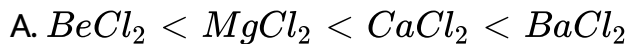
49. Solubilities of carbonates decrease down the magnesium group due to decrease in :

- A. entropy of solution formation
- B. lattice energies of solids
- C. hydration energies of cation
- D. inter-ionic attraction

Answer: C

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50. The correct order of increasing ionic character is

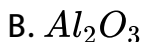


Answer: A



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51. Which of the following is not an important constituent of cement ?



C. MgO

D. Na_2O

Answer: D

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52. Which of the following is radioactive alkali metal ?

A. Fr

B. Ra

C. At

D. Rn

Answer: A

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53. What is false about H_2O_2

- A. It acts as both oxidising and reducing agent
- B. Two OH bonds lie in the same plane
- C. It is pale blue liquid
- D. It can be oxidised by O_3

Answer: B

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54. In transforming 1 mole of PbS to $PbSO_4$ the volume of '10 volume' H_2O_2 required will be

- A. 11.2 mL

B. 22.4 mL

C. 33.6 mL

D. 44.8 mL

Answer: D



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55. Which of the following is not an example of ionic hydride ?

A. LiH

B. CaH_2

C. CsH

D. GeH_2

Answer: D

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56. Hydrogen peroxide is used as an antiseptic under the name

- A. Bleaching powder
- B. Perhydrol
- C. Nessler's reagent
- D. Catechol

Answer: B

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57. The oxidation number of sulphur atoms in peroxomonosulphuric acid (H_2SO_5) and peroxodi - sulphuric acid ($H_2S_2O_8$) are respectively

A. +8 and +7

B. +3 and +3

C. +6 and +6

D. +4 and +4

Answer: C



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58. The reaction

$P_4 + 3NaOH + 3H_2O \rightarrow 3NaH_2PO_2 + PH_3$ is an example of

A. Disproportionation reaction

B. Neutralisation reaction

C. Double decomposition reaction

D. Pyrolytic reaction

Answer: A

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59. When sulphur dioxide is passed in an acidified $K_2Cr_2O_7$ solution, the oxidation state of sulphur is changed from

A. +4 to + 6

B. +6 to + 4

C. +4 to 0

D. +4 to + 2

Answer: A

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