CHEMISTRY

BOOKS - CAREER POINT

PRACTICE TEST-6

Chemistry

1. How many P-O bonds and lone pairs respectively are present in P_4O_6 molecule ?

A. 12,4

B. 8,8

C. 12, 16

D. 12,12

Answer: C

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2. Solid PCl_5 exists as -

A. dimer P_2Cl_{10}

B. $[PCl_4]^+[PCl_6]^-$

C. $[PCl_3][Cl_2]$ s

D. PCl_5 as such

Answer: B

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3. The nitrogen oxide that does not contain N-N bond is

A. N_2O_5

B. N_2O_3

C. N_2O

D. N_2O_4

Answer: A

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4. One mole of H_3PO_3 on reaction with excess of NaOH gives -

A. two moles of Na_2HPO_3

B. two moles of NaH_2PO_3

C. one mole of Na_2HPO_3

D. one mole of Na_3PO_3

Answer: C

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5. The decreasing order of the boiling points of the following hydrides is -

$(i)NH_3(ii)PH_3(iii)AsH_3(iv)SbH_3(v)H_2O$

A. (v) gt (iv) gt (i) gt (iii) gt (ii)

B. (v) gt (i) gt (ii) gt (iii) gt (iv)

C. (v) gt (iv) gt (iii) gt (ii) gt (i)

D. (iv) gt (iii) gt (i) gt (ii) gt (v)

Answer: A

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6. The number of P-O-P and P-O-H bonds present respectively in are pyrophosphoric acid molecule -

A. 1,2

B. 2,2

C. 1,4

D. 1,8

Answer: C

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7. The reaction of yellow phosphorus and aqueous NaOH gives -

A. PH_3, Na_3PO_4

B. PH_3, NaH_2PO_2

C. NaH_2PO_4, Na_3PO_4

D. Na_3P, Na_3PO_4

Answer: B

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8. The number of lone pairs and the number of S-S bonds in S_8 molecules are respectively -

A. 8,8

B. 16,8

C. 8,16

D. 8,4

Answer: B

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9. Among the oxides given below which are acidic?

$Mn_2O_7, CuO, CO, SO_2, N_2O_5$

A. Mn_2O_7 and CO

B. CuO and SO_2

C. Mn_2O_7 and SO_2, N_2O_5

D. CO and SO_2

Answer: C

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10. Acidified $KMnO_4$ is dropped over sodium peroxide taken in a flask at room temperature, vigorous reaction occurs to produce

A. hydrogen peroxide

B. a mixture of hydrogen and oxygen

C. a colourless gas hydrogen

D. a colourless gas oxygen

Answer: D

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11. Which of the following reactions shows the oxidising behaviour of H_2SO_4 ?

A. $2HI + H_2SO_4 \rightarrow I_2 + SO_2 + 2H_2O$

B. $Ca(OH)_2 + H_2SO_4 \rightarrow CaSO_4 + 2H_2O$

C. $NaCl + H_2SO_4 \rightarrow NaHSO_4 + HCl$

D.

$$PCl_5 + H_2SO_4 \rightarrow 2POCl_3 + 2HCl + SO_2Cl_2$$

Answer: A

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12. Which of the following elements forms $p\pi - d\pi$ bonding in its oxide ?

A. Lithium

B. Boron

C. Sulphur

D. Nitrogen

Answer: C

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13. A yellow coloured crystalline substance gave a colourless gas X on reaction with fluorine, which is thermally stable and has octahedral geometry. X can be

A. SF_4

B. S_2F_6

C. SF_6

D. S_2F_6

Answer: C

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14. Compounds A and B treated with dil. HCI separately. The gas liberated are Y and Z respectively. Y turns acidified $K_2Cr_2O_7$ paper green while Z tums lead acetate paper black. The compounds A and B are respectively

A. $NaCl$ and Na_2CO_3

B. Na_2S and Na_2SO_3

C. Na_2S and Na_2SO_3

D. Na_2SO_3 and Na_2SO_4

Answer: B

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15. Select the correct statement(s) -

A. Cl_2O and ClO_2 are used as bleaching agents and as germicides

B. ClO_2 is the anhydride of $HClO_2$ and $HClO_3$

C. Cl_2O_7 is the anhydride of $HClO_4$

D. all the above are correct

Answer: D

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16. The property of halogens which is not correctly matched ?

A. F gt Cl gt Br gt I ..... ionisation energy

B. F gt Cl gt Br gt I ..... electronegativity

C. F gt Cl gt Br gt I..... electron affinity

D. I gt Br gt Cl gt F..... density in liquid state

Answer: C

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17. The property of halogen acids which is not properly matched ?

A. HF gt HCI gt HBr gt HI ..... acidic strength

B. HI gt HBr gt HCI gt HF ..... reducing nature

C. HI gt HBr gt HCI gt HF ..... bond length

D. HF gt HCI gt HBr gt HI ..... thermal stability

Answer: A

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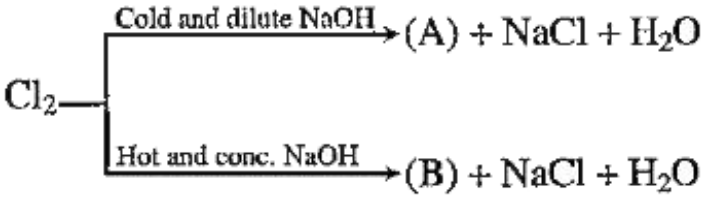

18.

Compounds (A) and (B) are -

A. $NaClO_3, NaClO$

B. $NaOCl_2, NaOCl$

C. $NaClO_4, NaClO_3$

D. $NaOCl, NaClO_3$

Answer: D

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19. In the known interhalogen compounds, the maximum number of halogen atoms is -

A. 4

B. 8

C. 5

D. 7

Answer: B

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20. The number of lone pairs of electrons present in the central atom of CIF_3 is -

A. 0

B. 1

C. 2

D. 3

Answer: C

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21. Which of the following is correct about the reaction?

$$3NaClO \xrightarrow{\text{heat}} NaClO_3 + 2NaCl$$

A. It is disproportionation reaction

B. Oxidation number of chlorine decreases as well as increases in this reaction

C. This reaction is used for the preparation of halates

D. All of the above

Answer: D

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22. Which of the two have same hybridisation of the central atom?

$XeF_2, XeF_4, XeO_3, XeOF_4$

A. XeF_2, XeF_4

B. XeF_4 and $XeOF_4$

C. XeF_4, XeO_3

D. XeO_3 and $XeOF_4$

Answer: B

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23. The noble gas which shows abnormal behaviour in liquid state and behaves as a superfluid is -

A. Neon

B. Helium

C. Argon

D. Xenon

Answer: B

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24. The correct order of ionic radii of Ce, La, Pm and Yb in +3 oxidation state is -

A. $La^{3+} < Pm^{3+} < Ce^{3+} < Yb^{3+}$

B. $La^{3+} < Ce^{3+} < Pm^{3+} < Yb^{3+}$

C. $Yb^{3+} < Ce^{3+} < Pm^{3+} < La^{3+}$

D. $Yb^{3+} < Pm^{3+} < Ce^{3+} < La^{3+}$

Answer: D

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25. The maximum state exhibited by actinide ions is -

A. $+7$

B. $+6$

C. $+5$ s

D. $+4$

Answer: A

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26. Cerium (Z = 58) is an important member of lanthanides. Which of the following statements about cerium is incorrect?

A. The common oxidation states of cerium are +3 and +4

B. The +3 state of cerium is more stable than +4 oxidation state

C. +4 oxidation state of cerium is not known in solutions

D. Cerium (IV) acts as an oxidising agent

Answer: C

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27. Highest molar conductivity is exhibited by -

A. $\left[Co(NH_3)_6\right]Cl_3$

B. $\left[Co(NH_3)_4Cl_2\right]Cl$

C. $\left[Co(NH_3)_5Cl\right]Cl_2$

D. $\left[Co(NH_3)_3Cl_3\right]$

Answer: A

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28. Aqueous solution of Ni^{2+} contains $\left[Ni(H_2O)_6\right]^{2+}$ and its magnetic moment is 2.83 BM. When ammonia is added in it, comment on the magnetic moment of solution -

A. It will remain same

B. It increases from 2.83 BM

C. It decreases from 2.83 BM

D. It cannot be predicated theoretically

Answer: A

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29. The number of geometrical isomers of $\left[CO(NH_3)_3(NO_2)_3\right]$ are -

A. 4

B. 3

C. 2

D. nil

Answer: C

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30. Which of the following systems has maximum number of unpaired electrons of maximum paramagnetism?

A. d^4 (octahedral)

B. d^9 (ocetahedral)

C. d^7(octahendral)

D. d^5 (octahedral)

Answer: D

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31. $\left[Fe(H_2O)_6\right]^{2+}$ and $\left[Fe(CN)_6\right]^{4-}$ differ in

A. geometry, magnetic moment

B. magnetic, moment, colour

C. geometry, hybridisation

D. geometry, number of unpaired electrons

Answer: B

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32. When excess of ammonia is added to copper sulphate solution the deep blue coloured complex is formed. The complex is -

A. tetrahedral, paramagnetic

B. tetrahedral, diamagnetic

C. square planar, paramagnetic

D. square planar, diamagnetic

Answer: C

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33. Which order is correct in spectrochemical series of ligands?

A. $Cl^- < F^- < [C_2O_4]^{2-} < NO_2^- < CN^-$

B. $CN^- < [C_2O_4]^{2-} < Cl^- < NO_2^- < F^-$

C. $[C_2O_4]^{2-} < F^- < Cl^- < NO_2^- < CN^-$

D. $F^- < Cl^- < NO_2 < CN^- < [C_2O_4]^{2-}$

Answer: A

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34. Which one of the following cyano complexes would exhibit the lowest value of paramagnetic behaviour ?

A. $\left[Cr(CN)_6\right]^{3-}$

B. $\left[Co(CN)_6\right]^{3-}$

C. $\left[Fe(CN)_6\right]^{3-}$

D. $\left[Mn(CN)_6\right]^{3-}$

Answer: B

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35. The correct name of $\left[Pt(NH_3)_4Cl_2\right]\left[PtCl_4\right]$ is

A. Tetraammine dichloro platinum (IV) tetrachloroplatinate (II)

B. Dichloro tetra ammine platinum (IV) tetrachloro platinate (II)

C. Tetrachloro platinum (II) tetraammine platinate (IV)

D. Tetrachloro platinum (II) dichloro tetraammine platinate (IV)

Answer: A

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36. Out of $\left[Fe(CN)_6\right]^{4-}$, $\left[Ni(CN)_4\right]^{2-}$ and $Ni(CO)_4$ -

A. all have identical shapes

B. all are paramagnetic

C. all are diamagnetic

D. $\left[Fe(CN)_6\right]^{4-}$ is diamagnetic but $\left[Ni(CN)_4\right]^{2-}$ and $Ni(CO)_4$ are paramagnetic

Answer: C

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37. When $AgNO_3$ is added to a solution of $Co(NH_3)_5Cl_3$, the precipitate of AgCl shows two ionisable chloride ions. This means -

A. Two chlorine atom satisfy primary valency and one secondary valency

B. One chlorine atom satisfies primary as well as secondary valency

C. Three chlorine atoms satisfy primary valency

D. Three chlorine atoms satisfy secondary valency

Answer: A

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38. The chemical reaction that involves roasting process is -

A. $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

B. $2Al + Fe_2O_3 \rightarrow 2Fe + Al_2O_3$

C. $2ZnS + 3O_2 \rightarrow 2ZnO + 3SO_2$

D. $FeO + SiO_2 \rightarrow FeSiO_3$

Answer: C

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39. When copper pyrites is roasted in excess of air, a mixture of Cu_2O and FeO is formed. FeO is present as impurities. This can be removed by slag during reduction of Cu_2O . The flux added to form slag is -

A. silica, which is an acidic flux

B. limestone, which is a basic flux

C. SiO_2 which is a basic flux

D. CaO, which is a basic flux

Answer: A

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40. Copper is extracted from sulphide ore using the method -

A. carbon reduction

B. carbon monoxide reduction

C. auto-reduction

D. none of the above

Answer: C

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41. Electrolytic reduction of alumina to aluminium by Hall-Hevoult process is carried out -

A. in the presence of NaCl

B. in the presence of fluorite

C. in the presence of cryolite which forms a melt with higher melting temperature

D. in the presence of cryolite which forms a melt with lower melting temperature

Answer: D

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

A. $Mg + \frac{1}{2}O_2 \rightarrow MgO$

B. $2Al + \frac{3}{2}O_2 \rightarrow Al_2O_3$

C. $C + \frac{1}{2}O_2 \rightarrow CO$

D. $CO + \frac{1}{2}O_2 \rightarrow CO_2$

Answer: C

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43. Which of the following is/are correct statements for the Hoope's process for the refining of aluminium?

(i) It is an electrolytic process (ii) It consists three layers in which the bottom layer is molten impure

aluminium (iii) It involves the electronation of aluminium ion at cathode (iv) The middle layer consists of anhydrous $AlCl_3$

A. (i) and (iv)

B. (ii), (iii) and (iv)

C. (i), (ii) and (iii)

D. (iii) and (iv)

Answer: C

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44. When alumina is heated with carbon in nitrogen atmosphere, the products are -

A. Al + CO

B. $AlN + CO$

C. $Al + CO_2$

D. $Al + CO + CO_2$

Answer: B

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45. The methods chiefly used for the extraction of lead and tin from their ores are respectively -

A. Self reduction and Carbon reduction

B. Self reduction and Electrolytic reduction

C. Carbon reduction and Self reduction

D. Cyanide process and Carbon reduction

Answer: A

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