

Previous Year Paper

Chemistry - 2008



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- 1. An electronic transition in hydrogen atom results in the formation of H_{α} line of hydrogen in Lyman series, the energies associated with the electron in each of the orbits involved in the transition (in kcal mol⁻¹) are
 - A. -313,6, 34.84
 - B. -313.6, 78.4
 - C. -78.4,- 34.84
 - D. -78.4,-19.6

Answer

- 2. The velocities of two particles A and B are 0.05 and 0.02 ms⁻¹ respectively. The mass of B is five times the mass of A. The ratio of their de-Broglie's wavelength is
 - A. 2 : 1
 - B. 1:4
 - C. 1:1
 - D. 4:1

Answer

- 3. The atomic numbers of elements A, B, C and D are Z 1; Z; Z + 1 and Z + 2, respectively. If 'B' is a noble gas, choose the correct answers from the following statements-
 - 1) 'A' has higher electron affinity.
 - (2) 'C' exists in +2 oxidation state.
 - (3) 'D' is an alkaline earth metal.
 - A. (1) and (2)
 - B. (2) and (3)
 - C. (1) and (3)
 - D. (1), (2) and (3)

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Answer
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4. The bond length of HCl molecule is 1.275 Å and its dipole moment is 1.03 D. The ionic character

of the molecule (in percent) (charge of the electron = 4.8×10^{-10} esu) is

- A. 100
- B. 67.3
- C. 33.66

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D. 16.83
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5. Which one of the following is a correct set ?

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- B. BCl_3 , sp^3 , angular
- C. NH4+, dsp², square planar
- D. CH₄, dsp², tetrahedral

Answer

6. Match the following:

List - I	List - II
A. 10 gm CaCO ₃ \rightarrow decomposition Δ	(i) 0.224 L CO ₂
B. 1.06 g Na₂CO₃ →Excess HCl	(ii) 4.48 L CO ₂
C. 2.4 g C →CombustionExcess O2	(iii) 0.448 L CO ₂
D. 0.56 g CO →combustionExcess O2	(iv) 2.24 L CO ₂ (v) 22. 4 L CO ₂

The correct match is

A. A - iv; B - i; C - ii; D - iii
B. A - v; B - i; C - ii; D - iii
C. A - iv; B - i; C - iii; D - ii
D. A - i; B - iv; C - ii; D - iii

Answer

7. When 25 g of a non-volatile solute is dissolved in 100 g of water, the vapour pressure is lowered

by 2.25 \times 10⁻¹ mm. If the vapour pressure of water at 20°C is 17.5 mm, what is the molecular weight of the solute ?

- A. 206
- B. 302
- C. 350
- D. 276

Answer

- 8. 50 mL of H_2O is added to 50 mL of 1×10^{-3} M barium hydroxide solution. What is the pH of the resulting solution ?
 - A. 3.0
 - B. 3.3
 - C. 11.0

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- 9. For a crystal, the angle of dilfraction (2 θ) is 90° and the second order line has a d value of 2.28 Å. The Wavelength (MA) Solved Previous Year Papers diffections and Answers. Free Forever.
 - A. 1.612
 - B. 2.00
 - C. 2.28
 - D. 4.00

Answer

- 10. In a 500 mL flask, the degree of dissociation of PCI_5 at equilibrium is 40% and the initial amount
 - is 5 moles. The value of equilibrium constant in mol $L^{\text{-}1}$ for the decomposition of PCI_{s} is
 - A. 2.33
 - B. 2.66
 - C. 5.32
 - D. 4.66

Answer

11. Calculate ΔH in kJ for the following reaction:

 $C(g) + O_2(g) \rightarrow CO_2(g)$

Given that,

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\rm H_{2}O~(g) + C (g) \rightarrow CO (g) + \rm H_{2} (g) ; \Delta\rm H = +131 kJ
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CO (g) + $12O_2$ (g) \rightarrow CO₂ (g); ΔH = -282 kJ

 $\rm H_{2}~(g)~+~12O_{2}~(g) \rightarrow \rm H_{2}O~(g);~\Delta \rm H~=~-242~kJ$

- A. -393
- B. +393
- C. +655
- D. -655

Answer

- 12. Boron halides behave as Lewis acids because of their nature.
 - A. proton donor
 - B. covalent
 - C. electron deficient
 - D. ionising

Answer

- 13. The correct order of reducing abilities of hydrides of V group elements is
 - A. $NH_3 < PH_3 < AsH_3 < SbH_3 < BiH_3$
 - B. $NH_3 > PH_3 > AsH_3 > SbH_3 > BiH_3$
 - C. $NH_3 < PH_3 > AsH_3 > SbH_3 > BiH_3$

 $D. SbH_3 > BiH_3 > AsH_3 > NH_3 > PH_3$

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Chemistry 14. The npr腔空068igma and pi bonds in per

A. 9 and 4

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C. 4 and 8

D. 4 and 9

Answer

15. The compound in which the number of $d\pi$ -p π bonds are equal to those present in ClO4-

- A. XeF₄
- B. XeO₃
- C. XeO₄
- D. XeF₆

Answer

- 16. Which one of the following reactions represents the oxidising property of H_2O_2 ?
 - A. $2KMnO_4 + 3H_2SO_4 + 5H_2O_2 \rightarrow K_2SO_4 + 2MnSO_4 + 8H_2O + 5O_2$
 - B. $2K_3[Fe(CN)_6] + 2KOH + H_2O_2 \rightarrow 2K_4[Fe(CN)_6] + 2H_2O + O_2$
 - C. $PbO_2 + H_2O_2 \rightarrow PbO + H_2O + O_2$
 - D. $2KI + H_2SO_4 + H_2O_2 \rightarrow K_2SO_4 + I_2 + 2H_2O_4$

Answer

- 17. Which of the following statements are correct for alkali metal compounds ?
 - (i) Superoxides are paramagnetic in nature.
 - (ii) The basic strengths of hydroxides increases down the group.
 - (iii) The conductivity of chlorides in their aqueous solutions decreases down the group.
 - (iv) The basic nature of carbonates in aqueous solutions is due to cationic hydrolysis.
 - A. (i), (ii) and (iii) only
 - B. (i) and (ii) only
 - C. (ii), (iii) and (iv) only
 - D. (iii) and (iv) only

Answer

18. Identify B in the following reaction

 $H_4SiO_4 \rightarrow H2O1000^{\circ}C A \rightarrow \Delta Carbon B + CO$

- A. corundum
- B. quartz
- C. silica
- D. carborundum

Answer

19. $[Co(NH_3)_5SO_4]Br$ and $[Co(NH_3)_5Br]SO_4$ are a pair of isomers.

A. ionisation

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C. coordination

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Answer

- 20. Among the following compounds, which one is not responsible for depletion of ozone layer?
 - A. CH_4
 - B. CFCl₃
 - C. NO
 - D. Cl_2

Answer

21. Which of the following compound(s) has 'Z' configuration ?



- A. (i) only
- B. (ii) only
- C. (iii) only
- D. (i) and (iii) only

Answer

- 22. According to Cahn-Ingold-Prelog sequence rules, the correct order of priority for the given groups is
 - A. $-COOH > -CH_2OH > -OH > -CHO$
 - B. $-COOH > -CHO > -CH_2OH > -OH$
 - C. $-OH > -CH_2OH > -CHO > -COOH$
 - D. $-OH > -COOH > -CHO > -CH_2OH$

Answer

23. What are X and Y respectively in the following reaction?

Z-product ←Y 2-butyne →X E-product

- A. Na/ NH $_3$ (liq) and Pd/ BaSO $_4$ + H $_2$
- B. Ni/ 140°C and Pd/ $BaSO_{\scriptscriptstyle 4}$ + $H_{\scriptscriptstyle 2}$
- C. Ni/ 140°C and Na/ $\rm NH_3$ (liq)
- D. Pd/ $BaSO_4$ + H_2 and Na/ NH_3 (liq)

Answer

24. In which of the following reactions, chlorine acts as an oxidising agent? Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com





$(II) CH_3CHO + Cl_2 \rightarrow CCl_3 \cdot CHO + HCI$

Study, Assignments, Solved Previous Year Papers . Questions and Answers. Free Forever. (iii) $CH_4 + Cl_2 \rightarrow hv CH_3Cl + HCl$

The correct answer is-

- A. (i) only
- B. (ii) only
- C. (i) and (iii)
- D. (i), (ii) and (iii)

Answer

- 25. The correct order of reactivity of hydrogen halides with ethyl alcohol is
 - A. HF > HCI > HBr > HI
 - B. HCI > HBr > HF > HI
 - C. HBr > HCl > HI > HF
 - D. HI > HBr > HCl > HF

Answer

26. The IUPAC name of the following compound is-

- A. ethoxy propane
- B. 1,1-dimethyl ether
- C. 2-ethoxy isopropane
- D. 2-ethoxy propane

Answer

27. The structure of the compound formed, when nitrobenzene is reduced by lithium aluminium hydride (LiAlH₄) is



28. If the mass defect of $_5B^{11}$ is 0.061 u, its average binding energy (in MeV) is

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C. 5.60

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Answer

- 29. What is the temperature at which the kinetic energy of 0.3 moles of helium is equal to the kinetic energy of 0.4 moles of argon at 400 K?
 - A. 400 K
 - B. 873 K
 - C. 533 K
 - D. 300 K

Answer

30. Assertion (A) : The aqueous solution of CH_3COONa is alkaline in nature.

Reason (R) : Acetate ion undergoes anionic hydrolysis.

The correct answer is

- A. both (A) and (R) are true and (R) is the correct explanation of (A).
- B. both (A) and (R) are true but (R) is not the correct explanation of (A).
- C. (A) is true but (R) is not true.
- D. A) is not true but (R) is true.

Answer

- 31. When same quantity of electricity is passed through aqueous $AgNO_3$ and H_2SO_4 solutions connected in series, 5.04 × 10^{-2} g of H_2 is liberated. What is the mass of silver (in grams) deposited ? (Eq. wts. of hydrogen = 1.008, silver = 108)
 - A. 54
 - B. 0.54
 - C. 5.4
 - D. 10.8

Answer

- 32. When electric current is passed through acidified waterfor 1930 s, 1120 mL of H_2 gas is collected (at STP) at the cathode. What is the current passed in amperes ?
 - A. 0.05
 - B. 0.50
 - C. 5.0
 - D. 50

Answer

33. Which one of the following graphs represents Freundlich adsorption isotherm ?



Answer

- 34. Which one of the following reactions does not occur?
 - A. $F_2 + 2CI^- \rightarrow 2F^- + CI_2$
 - B. $Cl_2 + 2F^- \rightarrow 2Cl^- + F_2$
 - C. $Br_2 + 2l^2 \rightarrow 2Br^2 + l_2$
 - D. $Cl_2 + 2Br^2 \rightarrow 2Cl^2 + Br_2$

Answer

Reaction coordinate

- A. Activation energy of forward reaction is greater than backward reaction
- B. The forward reaction is endothermic.
- C. The threshold energy is less than that of activation energy.
- D. The energy of activation of forward reaction is equal to the sum of heat of reaction

and the energy of activation of backward reaction. JukewShare. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com Chemistry

36. Aceton 更 200 gition to methyl magnesit de forms a complex, which opogeomposition

with acid gives X and Mg(OH)Br. Which one of the following is X?

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- B. (CH₃)₃OH
- C. (CH₃)₂CHOH
- D. CH₃CH₂OH

Answer

37. Identify A and B in the following reaction

CH3-CH3 ←B CH3COOH →A CH3CH2OH

- A. A HI + red P; B LiAlH₄
- B. A Ni/ Δ ; B LiAlH₄
- C. A LiAlH₄; B HI + red P
- D. A Pd- BaSO₄ ; B Zn HCl

Answer

38. Match the following:

List - I	List - II
A. Oxyhaemoglobin	i. Analgesic
B. Aspirin	ii. Oxygen carrier
C. Haemoglobin	iii. Photosynthesis
D. Chlorophyll	iv. Oil of winter green v. Fe ²⁺ paramagentic

The correct match is

A. A - v; B - i; C - ii; D - iii B. A - iv; B - ii; C - i; D - iii C. A - iii; B - i; C - ii; D - iv D. A - v; B - ii; C - iii; D - i

Answer

- 39. If Mw is the weight average molecular weight and Mn is the number average molecular weight of a polymer, the poly disparity index (PDI) of the polymer is given by
 - A. MnMw
 - B. MwMn
 - C. $Mw \times Mn$
 - D. $1 Mw \times Mn$

Answer

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B. 1 : 2 D-(+)-glucose; D-(-)-fructose

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D. 1 : 2 D-(-)-glucose; D-(+)-fructose

Answer