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Previous Year Paper

Chemistry - 2016



Multiple Choice Questions

1. The number of lone pair(s) of electrons on the central atom is $[\text{BrF}_4]^-$, XeF_6 and $[\text{SbCl}_6]^{3-}$ are, respectively
- A. 2, 1 and 1
B. 2, 1 and 0
C. 2, 0 and 1
D. 1, 0 and 0

Answer

2. The lewis acidity of BF_3 is less than BCl_3 even though fluorine is more electronegative than chlorine. It is due to
- A. stronger $1p(\text{B})-3p(\text{Cl})$ σ - bonding
B. stronger $2p(\text{B}) - 3p(\text{Cl})$ π -bonding
C. stronger $2p(\text{B}) - 2p(\text{F})$ σ - bonding
D. stronger $2p(\text{B})- 2p(\text{F})$ π -bonding

Answer

3. If enthalpies of formation for $\text{C}_2\text{H}_2(\text{g})$, $\text{CO}_2(\text{g})$ and $\text{H}_2\text{O}(\text{l})$ at 25°C and 1atm pressure be 52, -394 and -286kJ mol^{-1} respectively, then the enthalpy of combustion of $\text{C}_2\text{H}_4(\text{g})$ will be
- A. $-141.2\text{ kJ mol}^{-1}$
B. -1412 kJ mol^{-1}
C. $+141.2\text{ kJ mol}^{-1}$
D. $+1412\text{ kJ mol}^{-1}$

Answer

4. 8.50g of NH_3 is present in 250ml volume. Its active mass is
- A. 1.5 ML^{-1}
B. 2.0 ML^{-1}
C. 1.0 ML^{-1}
D. 0.5 ML^{-1}

Answer

5. The equilibrium constants of the reactions

~~$\text{SO}_2(\text{g}) + 1/2\text{O}_2(\text{g}) \rightleftharpoons \text{SO}_3(\text{g})$ and $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$ are K_1 respectively. The relationship~~

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B. $K_2 = \sqrt{K_1}$

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C. $K_1 = K_2$

D. $K_{23} = K_1$

Answer

6. The geometry around the central atom in ClF_4^+ is

- A. octahedral
- B. trigonal bipyramidal
- C. square planar
- D. square pyramidal

Answer

7. Among the following, the equilibrium which is not affected by an increase in pressure is

- A. $\text{C(s)} + \text{H}_2\text{O (g)} \rightleftharpoons \text{CO(g)} + \text{H}_2\text{(g)}$
- B. $3\text{Fe(s)} + 4\text{H}_2\text{O (g)} \rightleftharpoons \text{Fe}_3\text{O}_4\text{ (s)} + 4\text{H}_2\text{(g)}$
- C. $2\text{SO}_3\text{(g)} \rightleftharpoons 2\text{SO}_2\text{(g)} + \text{O}_2\text{ (g)}$
- D. $\text{H}_2\text{ (g)} + \text{I}_2\text{(s)} \rightleftharpoons 2\text{HI(g)}$

Answer

8. Which one of the following is not a unit of energy?

- A. lit-atm
- B. $\text{Kg m}^2\text{s}^{-2}$
- C. Nm
- D. kg ms^{-2}

Answer

9. When a liquid that is immiscible with water was steam distilled at 95.2°C at a total pressure of 99.652 kPa. The distillate contained 1.27 g of the liquid per gram of water. What will be the molar mass of the liquid if the vapour pressure of water is 85.140 kPa at 95.2°C ?

- A. 99.65 g mol^{-1}
- B. 18 g mol^{-1}
- C. 134.1 g mol^{-1}
- D. 105.74 g mol^{-1}

Answer

10. What is pH of 2×10^{-8} molar HCl solution? Here, $\log 2 = 0.301$ and $\log 3 = 0.477$.

- A. 6.92
- B. 9.5
- C. 5.4
- D. 7.7

Answer

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A. He^+

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B. H

C. Be^{2+} D. Be^{3+}

Answer

12. Which of the following set of quantum numbers represents the highest energy of an atom?

A. $n=3, l=2, m=1, s=+1/2$ B. $n=4, l=0, m=0, s=-1/2$ C. $n=3, l=0, m=4, s=+1/2$ D. $n=3, l=1, m=1, s=+1/2$

Answer

13. In OF_2 , oxygen has hybridisation ofA. sp^3 B. sp^2

C. sp

D. None of these

Answer

14. Amongst NO_3^- , AsO_3^{3-} , CO_3^{2-} , ClO_3^- , SO_3^{2-} and BO_3^{3-} , the non-planar species areA. NO_3^- , CO_3^{2-} and BO_3^{3-} B. ClO_3^- , SO_3^{2-} and BO_3^{3-} C. CO_3^{2-} , SO_3^{2-} and BO_3^{3-} D. AsO_3^{3-} , CO_3^{2-} and SO_3^{2-}

Answer

15. The molecule C_3O_2 linear structure. This compound hasA. 2σ and 3π bondsB. 3σ and 4π bondsC. 4σ and 4π bondsD. 3σ and 2π bonds

Answer

16. The structure of XeF_2 and NH_3 respectively are

A. linear, see-saw

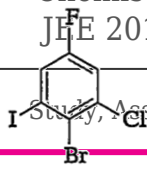
B. bent, see-saw

C. bent, tetrahedral

D. linear, pyramidal

Answer

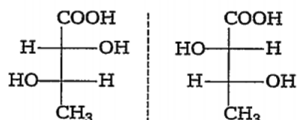
17. The IUPAC name of



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- A. 4-bromo-2-chloro-5-iodo-1-fluorobenzene
B. 2-carbamoylhex-3-enal
C. 1-bromo-2-chloro-3-fluoro-6-iodobenzene
D. 2-bromo-1-chloro-5-fluoro-3-iodobenzene

Answer



18.

The above pair is known as

- A. structural isomers
B. geometrical isomers
C. *erythro* stereoisomers
D. *threo* stereoisomers

Answer

19. Formula of bleaching powder is

- A. $\text{Ca}(\text{OH})_2$
B. CHCl_3
C. CCl_3CHO
D. CaOCl_2

Answer

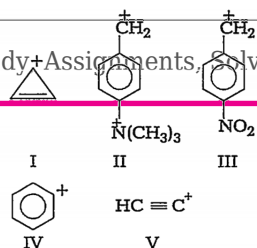
20. Which of the following compounds can exhibit both geometrical isomerism and enantiomerism?

- A. $\text{CH}_3\text{CH}_2\text{CCH}_3=\text{CH}-\text{COOH}$
B. $\text{CH}_3-\text{CHOH}-\text{COOH}$
C. $\text{CH}_3-\text{CH}=\text{CH}-\text{CH}_3$
D. $\text{CH}_3\text{CH}_2-\text{CHCH}_3-\text{HC}=\text{CH}-\text{CH}_3$

Answer

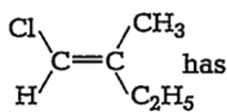
21. Which pair does not represent the cyclic compound of the molecular formula C_4H_6 ?Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

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- A. $V > IV > III > II > I$
 B. $I > II > III > IV > V$
 C. $II > V > IV > I > III$
 D. $I > II > III > V > IV$

Answer



23. Compound has which of the following prefix?

- A. *trans*
 B. *Anti*
 C. *E*
 D. *Z*

Answer

24. Friedel-Crafts reaction is not related with

- A. acylation
 B. reduction
 C. sulphonation
 D. nitration

Answer

25. Milk is an emulsion in which

- A. a gas is dispersed in water
 B. lactose is dispersed in water
 C. milk fat is dispersed in water
 D. a solid is dispersed in water

Answer

26. Micelles are

- A. adsorbed catalyst
 B. ideal solution
 C. gel
 D. associated colloids

Answer

27. For a non-volatile solute.

A. vapour pressure of solution is more than vapour pressure of solvent.
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C. Vapour pressure of solvent is zero

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D. All of the above

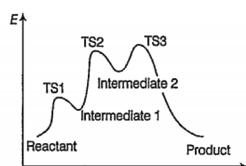
Answer

28. Which one is not the property of crystalline solid?

- A. A definite and regular geometry
- B. High intermolecular forces
- C. Isotropic
- D. Sharp melting point

Answer

29. Transition state 2 (TS2) is structurally most likely as a/an



- A. intermediate 2
- B. product
- C. intermediate 1
- D. transition state 3(TS3)

Answer

30. The decreasing order of electron affinity is

- A. $I > Br > Cl > F$
- B. $Br > Cl > F > I$
- C. $F > Cl > Br > I$
- D. $Cl > F > Br > I$

Answer

31. The isomersim exhibited by following compounds $[Co(NH_3)_6][Cr(CN)_6]$ and $[Cr(NH_3)_6(CN)_6]$ is

- A. ionisation isomerism
- B. polymerisation isomersion
- C. Linkage isomersim
- D. Coordination isomerism

Answer

32. For the reaction, $2SO_2 + O_2(\text{excess}) \rightarrow 2SO_3$ the order of reaction with respect to O_2 is

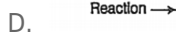
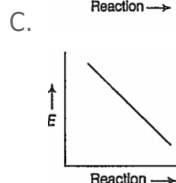
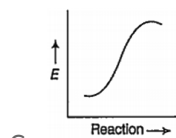
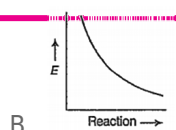
- A. two
- B. three
- C. zero
- D. one

Answer

33. Which graph shows zero activation energy for reaction?

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Answer

34. Which of the following is correct for a first order reaction?

- A. $t_{1/2} \propto a^0$
- B. $t_{1/2} \propto a^2$
- C. $t_{1/2} \propto a$
- D. $t_{1/2} \propto 1/a$

Answer

35. Which defect in any crystal lowers its density?

- A. Schottky
- B. Interstitial
- C. F- centre
- D. Frenkel

Answer

36. The half-life period of a radioactive element is 30 days. After 90 days, which of the following quantity will be left?

- A. 1/2
- B. 1/6
- C. 1/8
- D. 1/4

Answer

37. What is the number of atoms in the unit cell of body centred cubic crystal?

- A. 1
- B. 3
- C. 4
- D. 2

Answer

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38. In the preparation of ammonia by Haber's process, $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + 92.4 \text{ kJ}$. which of

the following conditions is unfavourable?

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A. reducing the temperature

B. Removing ammonia as it is formed

C. Increasing the temperature

D. Increasing the pressure

Answer

39. What will happen if a cell is placed into 0.4% (mass/volume) NaCl solution?

A. There will be no change in cell volume

B. Cell will dissolve

C. cell will swell

D. cell will shrink

Answer

40. If a compound is formed by X, Y and Z atoms and Z is present on the corners, Y is present 12 tetrahedral voids and X atom in 12 octahedral voids, which of the following will be the molecular formula of the compound?

A. $\text{X}_2\text{Y}_4\text{Z}$

B. XYZ_4

C. XYZ

D. X_2ZY

Answer

41. If in a cubic cell, atoms A present at all corners and atoms B at the centre of each face. What will be the molecular formula of the compound, if all the atoms present on one body diagonal are replaced by atom C?

A. $\text{A}_3\text{B}_{12}\text{C}$

B. AB_{12}C_3

C. ABC_3

D. $\text{A}_3\text{B}_{12}\text{C}_4$

Answer

42. If an element A is placed in an electrochemical series above element B but below element C, then the order of oxidation power of elements is

A. $\text{C} > \text{A} > \text{B}$

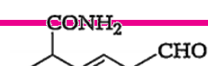
B. $\text{B} > \text{A} > \text{C}$

C. $\text{A} > \text{B} > \text{C}$

D. $\text{C} > \text{B} > \text{A}$

Answer

43. The IUPAC name of the following compound is



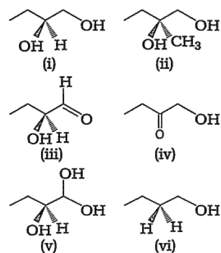
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A. 2-carbamoylhexanal
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~~B. 2-carbamoylhex-3-enal~~

- C. 2-methyl-6-oxohex-3-enamide
D. 6-keto-2-methyl hexamide

Answer

44. Which of the following compounds contain atleast one secondary alcohol?



- A. (i), (ii), (iii), (v)
B. (i), (iii), (v)
C. (i), (ii), (iv), (vi)
D. (i), (ii), (iii)

Answer

45. When Grignard reagent reacts with ketone, it yields

- A. 3° alcohol
B. ethanol
C. 1° alcohol
D. 2° alcohol

Answer

46. Which of the following reacts fastest with conc.HCl ?

- A. $(\text{CH}_3)_3\text{COH}$
B. $\text{CH}_2=\text{CH}-\text{CH}_2\text{OH}$
C.
D.

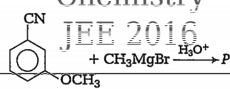
Answer

47. A polymer commonly used as a packaging material is

- A. PVC
B. bakelite
C. polythene
D. polypropylene

Answer

48.



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Product P in the above reaction is

- A.
- B.
- C.
- D.

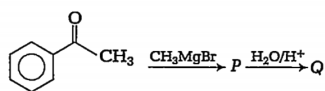
Answer

49. The structure of carboxylate ion is best represented as

- A.
- B.
- C.
- D.

Answer

50.



. In the above reaction, P and Q respectively are

- A.

B.

C.

D.

Answer