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Previous Year Paper

Chemistry - 2011



Multiple Choice Questions

1. An aqueous solution of urea containing 18g urea in 1500 cm³ of the solution has a density equal to 1.052. If the molecular weight of urea is 60, the molality of the solution is
- A. 0.200
 - B. 0.192
 - C. 0.100
 - D. 1.200

Answer

2. What volume of 2M H₂SO₄ is required to form 0.2 N of 100 mL of solution?
- A. 5 mL
 - B. 20 mL
 - C. 10 mL
 - D. 50 mL

Answer

3. Which of the following salts will not undergo hydrolysis?
- A. NH₄Cl
 - B. KCN
 - C. KNO₃
 - D. Na₂CO₃

Answer

4. The heat of neutralisation of a strong acid and a strong alkali is 57.0 kJ mol⁻¹. The heat released when 0.5 mole of HNO₃ solution is mixed with 0.2 mole of KOH is
- A. 57.0 kJ
 - B. 11.4 kJ
 - C. 28.5 kJ
 - D. 34.9 kJ

Answer

5. The solubility product of Ag₂CrO₄ is 32×10^{-12} . What is the concentration of CrO₄²⁻ ions in that solution?
- A. 2×10^{-4}
 - B. 16×10^{-4}
 - C. 8×10^{-4}
 - D. 12×10^{-4}

6. ${}_{90}\text{Th}^{228}$ emits four alpha and one beta particles. Number of neutrons in daughter element is
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- A. 129

B. 190

C. 232

D. 138

Answer

7. One atomic mass is equal to

A. 1.66×10^{-27} g

B. 1.66×10^{-24} g

C. 1.66×10^{-23} g

D. 1.66×10^{25} g

Answer

8. The heat of combustion of carbon is - 393.5 kJ/mol. The heat released upon the formation of 35.2 g of CO_2 from carbon and oxygen gas is

A. + 315 kJ

B. - 31.5 kJ

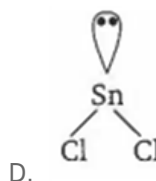
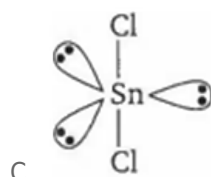
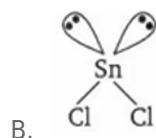
C. - 315 kJ

D. + 31.5 kJ

Answer

9. The atomic number of Sn is 50. The shape of gaseous SnCl_2 molecule is

A. Cl-Sn-Cl



Answer

10. The central carbon atom of a free radical contains

A. 6 electrons

B. 7 electrons

C. 8 electrons

D. 10 electrons

11. Uncertainty in the position of an electron (mass = 9.1×10^{-31} kg) moving with a velocity 300 ms^{-1} accurate upon 0.001 % will be ($h = 6.63 \times 10^{-34} \text{ J s}$)

- A. $19.2 \times 10^{-2} \text{ m}$
B. $5.76 \times 10^{-2} \text{ m}$
C. $1.92 \times 10^{-2} \text{ m}$
D. $3.84 \times 10^{-2} \text{ m}$

Answer

12. An acid solution of $\text{pH} = 6$ is diluted 1000 times, the pH of the final solution becomes
- A. 6.01
B. 9
C. 3.5
D. 6.99

Answer

13. When Zn is treated with excess of NaOH, the product obtained is
- A. Zn(OH)_2
B. ZnOH
C. Na_2ZnO_2
D. None of the above

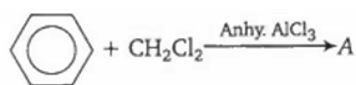
Answer

14. The common basic structural unit in silicates and silica is
- A. SiO_6^{4-}
B. SiO_3^{2-}
C. SiO_4^{4-}
D. $\text{Si}_2\text{O}_7^{6-}$

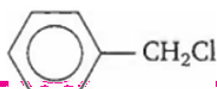
Answer

15. Which of the following species is an electrophile?
- A. H_2O
B. NH_3
C. $\text{C}_2\text{H}_5\text{OH}$
D. SO_3

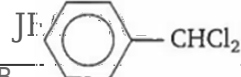
Answer



16. excess



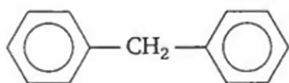
A.



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C.



D.

Answer

17. Which of the following compounds do not give different isomers on monochlorination?

- A. Neo-pentane
- B. n-butane
- C. *Iso*-butane
- D. *Iso*-pentane

Answer

18. 34.2 g of cane sugar is dissolved in 180 g of water. The relative lowering of vapour pressure will be

- A. 0.0099
- B. 1.1597
- C. 0.840
- D. 0.9901

Answer

19. In a multistep reaction, the overall rate of reaction is equal to the

- A. rate of slowest step
- B. rate of fastest step
- C. average rate of various step
- D. the rate of last step

Answer

20. According to Hess's law, the heat of reaction depends upon

- A. initial condition of reactants
- B. initial and final conditions of reactants
- C. intermediate path of the reaction
- D. end conditions of reactants

Answer

21. Which of the following property does not correspond to the order $HI < HBr < HCl < HF$?

- A. Thermal stability
- B. Reducing power
- C. Ionic character
- D. Dipole moment

Answer

22. According to Faraday's first law. Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

B. $w = l \times t \times E$

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D. $E = l \times wt \times 96500$

Answer

23. Unit of decay constant of radioactive disintegration is

- A. time
- B. min^{-2}
- C. time^{-1}
- D. time mol^{-1}

Answer

24. A first order reaction is given as $A \rightarrow \text{products}$. Its integrated equation is

- A. $k = 2.303t \log a-x$
- B. $k = 1t \log aa-x$
- C. $k = 2.303t \log aa-x$
- D. $-k = 1t \log a -x$

Answer

25. Which of the following does not contain any coordinate bond?

- A. H_3O^+
- B. BF_4^-
- C. HF_2^-
- D. NH_4^+

Answer

26. The standard reduction potential for Fe^{2+}/Fe and Sn^{2+}/Sn electrodes are - 0.44 and- 0.14 V respectively. For the cell reaction, $\text{Fe} + \text{Sn}^{2+} \rightarrow \text{Fe}^{2+} + \text{Sn}$ the standard emf is

- A. + 0.30 V
- B. - 0.58 V
- C. + 0.58 V
- D. - 0.30 V

Answer

27. Most common oxidation states shown by cerium are

- A. +2, +4
- B. +3, +4
- C. +3, +5
- D. +2, +3

Answer

28. TiI_4 on heating gives

- A. $\text{TiI}_2 + \text{I}_2$

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C. $\text{TiI}_3 + 1/2 \text{I}_2$

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D. None of these

Answer

29. Which of the following phosphorus oxyacids can act as a reducing agent?

A. H_3PO_3 B. H_3PO_4 C. $\text{H}_2\text{P}_2\text{O}_6$ D. $\text{H}_4\text{P}_2\text{O}_7$

Answer

30. Which of the following transitions involves maximum amount of energy?

A. $\text{M}-(\text{g}) \rightarrow \text{M}(\text{g})$ B. $\text{M}(\text{g}) \rightarrow \text{M}(\text{g})^+$ C. $\text{M}(\text{g})^+ \rightarrow \text{M}(\text{g})^{2+}$ D. $\text{M}(\text{g})^{2+} \rightarrow \text{M}(\text{g})^{3+}$

Answer

31. Bactericidal antibiotic is

A. ofloxacin

B. chloramphenicol

C. erythromycin

D. tetracycline

Answer

32. Which of the following can absorb over 90% of its own mass of water and also does not stick to wounds?

A. Saran

B. Thiokol

C. Rayon

D. Gun cotton

Answer

33. Phenol gives characteristic colouration with

A. iodine solution

B. bromine water

C. aqueous FeCl_3 solution

D. ammonium hydroxide

Answer

34. The prosthetic group of haemoglobin is

A. porphyrin

B. globulin

C. haem

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Answer

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35. Ziegler-Natta catalyst catalyses preparation of which of the following compounds?

- A. Preparation of Ti-metal
- B. Preparation of low density plastic
- C. Preparation of high resistance plastic
- D. Preparation of high density plastic

Answer

36. 2, 2-dichloropropane $\rightarrow$ Aq. KOH A $\rightarrow$ Clemmensen reduction B, B is

- A. propanol
- B. propene
- C. propane
- D. ethane

Answer

37. $\text{CH}\equiv\text{CH} \rightarrow \text{HCl excess A} \rightarrow \Delta \text{Hydrolysis B} \rightarrow \text{Na-Hg/ H}_2\text{O}$ Reduction C compound C is

- A. ethanal
- B. propenal
- C. ethanol
- D. 2-methyl butan-1-ol

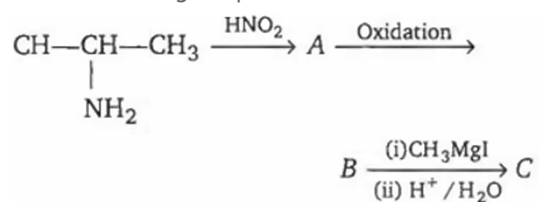
Answer

38. The rate of $\text{S}_{\text{N}}2$ reaction is maximum when the solvent is

- A. CH_3OH
- B. H_2O
- C. DMSO
- D. Benzene

Answer

39. In the following sequence of reactions



The compound C formed will be

- A. butanol-1
- B. butanol-2
- C. 2-methyl propanol-1
- D. 1, 1-dimethylethanol

Answer

40. Which alcohol will give immediate turbidity on shaking with HCl at room temperature?

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B. 2-methyl butan-1-ol

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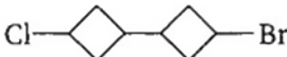
D. 2-methylpropan-2-ol

Answer

41. Which of the following ether is formed from alcohol and diazomethane?

- A. 1-ethoxypropane
- B. ethoxyethane
- C. 1-methoxypropane
- D. 2-ethoxypropane

Answer

42. The IUPAC name of the compound  is

- A. 1-bromo-1-chloro-4, 4'-bicyclobutane
- B. 4-(4'-chlorocyclobutyl)-1-bromocyclobutane
- C. 3-bromo-3'-chloro-1, 1-bicyclobutane
- D. 4-(4'-bromocyclobutyl)-1-chlorocyclo butane

Answer

43. How many metamers are possible for molecular formula $C_4H_{11}N$?

- A. 2
- B. 3
- C. 4
- D. 5

Answer

44. Glucose on reaction with Br_2 water gives

- A. glucaric acid
- B. gluconic acid
- C. saccharic acid
- D. citric acid

Answer

45. 3-methylpentan-3-ol will be prepared from

- A. ethyl formate and methyl magnesium bromide
- B. ethyl ethanoate and ethyl magnesium bromide
- C. ethyl propanoate and methyl magnesium bromide
- D. ethyl formate and ethyl magnesium bromide

Answer

46. Benzaldehyde reacts with ammonia to form

- A. benzaldehyde ammonia
- B. urotropine

Answer

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47. Aldol condensation product of acetone on dehydration gives

- A. but-2-enal
- B. 2-methylpent-3-en-4-one
- C. 4-hydroxy-4-methylpentan-2-one
- D. 4-methylpent-3-en-2-one

Answer

48. Which of the following gives condensation with hydroxyl amine but does not undergo self condensation?

- A. Methanal
- B. Propanal
- C. Acetone
- D. Ethanal

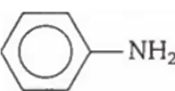
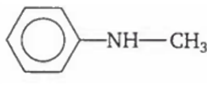
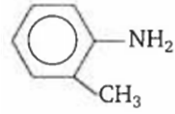
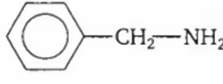
Answer

49. Decarboxylation of malonic acid gives

- A. CH_4
- B. CH_3COOH
- C. Both (a) and (b)
- D. None of the above

Answer

50. Which of the following is the strongest base?

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

Answer