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Previous Year Paper

Chemistry - 2008

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Multiple Choice Questions

1. Microcosmic salt is

- A. $\text{Na}_4\text{P}_2\text{O}_7$
- B. $\text{Na}(\text{NH}_4)\text{HPO}_4$
- C. $\text{Na}(\text{NH}_3)\text{HPO}_4 \cdot 4\text{H}_2\text{O}$
- D. MgNH_4PO_4

Answer

2. The C-O-H bond angle in ethanol is nearly

- A. 90°
- B. 104°
- C. 120°
- D. 180°

Answer

3. A buffer solution is prepared by mixing 0.1 M ammonia and 1.0 M ammonium chloride. At 298 K, the pK_b of NH_4OH is 5.0. The pH of the buffer is

- A. 10.0
- B. 9.0
- C. 6.0
- D. 8.0

Answer

4. Among NH_3 , HNO_3 , NaN_3 and Mg_3N_2 the number of molecules having nitrogen in negative oxidation state is

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

Answer

5. Born-Haber cycle may be used to calculate

- A. electronegativity
- B. mass number
- C. oxidation number
- D. electron affinity

Answer

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6. The heat of formation for CO_2 (g), H_2O (l) and CH_4 (g) are -400 kJ mol^{-1} , -280 kJ mol^{-1} and -70 kJ mol^{-1} respectively. The heat of combustion of CH_4 in l mol^{-1} is

- A. 890
- B. -160
- C. -890
- D. -90

Answer

7. The molecule having zero dipole moment is

- A. CH_2Cl_2
- B. BF_3
- C. NF_3
- D. ClF_3

Answer

8. The bond angle is smallest in

- A. H_2O
- B. H_2S
- C. BeCl_2
- D. N_2O

Answer

9. Oxygen and sulphur both are the member of same group in periodic table but H_2O is liquid while H_2S is gas because

- A. molecular weight of water is more
- B. electronegativity of sulphur is more
- C. H_2S is weak acid
- D. water molecules are having weak hydrogen bonds between them

Answer

10. Diffusion of helium gas is four times faster than

- A. CO_2
- B. SO_2
- C. NO_2
- D. O_2

Answer

11. Which of the following shell, form an outer octahedral complex?

- A. d^4
- B. d^8
- C. d^0

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Answer

12. $C(s) + O_2(g) \rightarrow CO_2(g); \Delta H = -94 \text{ kcal}$



The heat of formation of $CO(g)$ is

- A. -26.4 kcal
- B. 41.2 kcal
- C. 26.4 kcal
- D. 229.2 kcal

Answer

13. Conjugate acid of HF_2^- is

- A. H^+
- B. HF
- C. F_2^-
- D. H_2F_2

Answer

14. An electron from one Bohr stationary orbit can go to next higher orbit

- A. by emission of electromagnetic radiation
- B. by absorption of any electromagnetic radiation
- C. by absorption of electromagnetic radiation of particular frequency
- D. without emission or absorption of electromagnetic radiation

Answer

15. Valence bond theory of metallic bond was given by

- A. Dalton
- B. Drudel
- C. Fajan
- D. Pauling

Answer

16. Splitting of spectrum lines in magnetic field is

- A. Stark effect
- B. Raman effect
- C. Zeeman effect
- D. Rutherford effect

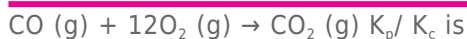
Answer

17. Isoelectronic pair among the following is

- A. Ca and K
- B. Ar and Ca^{2+}

Answer

18. For the following reaction in gaseous phase



- A. $(RT)^{1/2}$
- B. $(RT)^{-1/2}$
- C. (RT)
- D. $(RT)^{-1}$

Answer

19. On adding 1 g arsenic to 80 g benzene, the freezing point of benzene is lowered by 0.19°C . The formula of arsenic is

- A. As
- B. As_2
- C. As_3
- D. As_4

Answer

20. The standard emf of a cell, involving one electron change is found to be 0.591 V at 25°C . The equilibrium constant of the reaction is ($F = 96500 \text{ C mol}^{-1}$)

- A. 1.0×10^1
- B. 1.0×10^5
- C. 1.0×10^{10}
- D. 1.0×10^{30}

Answer

21. One mole of magnesium nitride on the reaction with an excess of water gives

- A. one mole of NH_3
- B. two moles of NH_3
- C. one mole of HNO_3
- D. two moles of HNO_3

Answer

22. Which of the following oxides is amphoteric in character?

- A. SnO_2
- B. SiO_2
- C. CO_2
- D. CaO

Answer

23. Which of the following does not react with sodium metal?

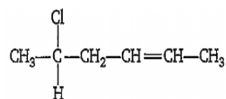
B. $\text{CH}_3\text{CH}_2\text{OH}$

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C. CH_3COOH D. $\text{C}_6\text{H}_5\text{OH}$

Answer

24. The IUPAC name for



A. 5-chloro-hex-2-ene

B. 2-chloro-hex-5-ene

C. 1-chloro-1-methyl-pent-3-ene

D. 5-chloro-5-methyl-pent-2-ene

Answer

25. The element which on burning in air gives peroxide is

A. lithium

B. sodium

C. rubidium

D. caesium

Answer

26. In cyclopropane, cyclobutane and cyclohexane, the common group is

C. $-\text{CH}_3$ 

Answer

27. $\text{CH}_3\text{CH}_2\text{OH}$ and CH_3OCH_3 are the examples of

A. chain isomerism

B. functional isomerism

C. position isomerism

D. metamerism

Answer

28. In the following reaction



The major amounts of X and Y are

A. RCHBrCONH_2 ; $\text{RCH}(\text{NH}_2)\text{COOH}$ Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

C. RCH_2COBr ; $\text{RCH}_2\text{COONH}_4$

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D. RCHBrCOOH ; $\text{RCH}_2\text{CONH}_2$

Answer

29. KMnO_4 (acidic/alkaline) is not decolourised by

- A. Mohr salt
- B. Oxalic acid
- C. Benzene
- D. Propene

Answer

30. White lead is

- A. PbCO_3PbO
- B. PbCO_3
- C. $\text{Pb}(\text{OH})_2 \cdot 2\text{PbCO}_3$
- D. $\text{PbSO}_4 \cdot \text{PbO}$

Answer

31. Which one of the following will dissolve in water most readily?

- A. I_2
- B. BaCO_3
- C. KF
- D. PbI_2

Answer

32. In silica (SiO_2), each silicon atom is bonded to

- A. two oxygen atoms
- B. four oxygen atoms
- C. one silicon and two oxygen atoms
- D. one silicon and four oxygen atoms

Answer

33. Heavy water is represented as

- A. H_2^{18}O
- B. D_2O
- C. D_2^{18}O
- D. H_2O at 4°C

Answer

34. Which compound is used in photography?

- A. Na_2SO_5

B. $\text{Na}_2\text{S}_2\text{O}_8$ Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

D. $\text{Na}_2\text{S}_2\text{O}_3$

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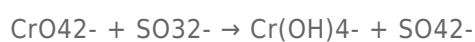
[Answer](#)35. $\text{CH}_3\text{CH}_2\text{CH}_3 \xrightarrow{400-600^\circ\text{C}} \text{X} + \text{Y}$

X and Y are

- A. hydrogen
- B. methane
- C. hydrogen
- D. ethylene

[Answer](#)

36. In the equation



the oxidation number of Cr changes from

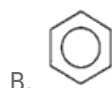
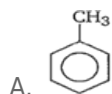
- A. +6 to +4
- B. +6 to +3
- C. +8 to +4
- D. +4 to +3

[Answer](#)37. How many π bonds are present in naphthalene?

- A. 4
- B. 5
- C. 6
- D. 7

[Answer](#)

38. Which of the following will be easily nitrated?



- C. CH_3NO_2
- D. $\text{C}_6\text{H}_5\text{NO}_2$

[Answer](#)39. In Kjeldahl's method of estimation of nitrogen, CuSO_4 acts as

- A. oxidising agent
- B. reducing agent
- C. catalytic agent
- D. hydrolysis agent

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A. reducing agent

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B. oxidising agent

C. complexing agent

D. bleaching agent

Answer

41. The number of possible alkynes with molecular formula C_5H_8 is

A. 3

B. 4

C. 5

D. 6

Answer

42. A metal 'M' reacts with N_2 to give a compound 'A' (M_3N). 'A' on heating at high temperature gives back 'M' and 'A' on reacting with H_2O give a gas B. 'B' turns $CuSO_4$ solution blue on passing through it. M and B can be

A. Al and NH_3 B. Li and NH_3 C. Na and NH_3 D. Mg and NH_3

Answer

43. Plaster of Paris on making paste with little water sets to hard mass due to formation of

A. $CaSO_4$ B. $CaSO_4 \cdot 1/2 H_2O$ C. $CaSO_4 H_2O$ D. $CaSO_4 \cdot 2H_2O$

Answer

44. C-C bond length is maximum in

A. diamond

B. graphite

C. naphthalene

D. fullerene

Answer

45. Ammoniacal silver nitrate form a white precipitate easily with

A. $CH_3C \equiv CH$ B. $CH_3C \equiv C-CH_3$ C. $CH_3CH=CH_2$ D. $CH_2=CH_2$

Answer

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46. A solution of sodium thiosulphate on addition of few drops of ferric chloride gives violet colour due to the formation of

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- A. $\text{Na}_2\text{S}_4\text{O}_6$
B. $\text{Fe}_2(\text{SO}_4)_3$
C. $\text{Fe}_2(\text{S}_2\text{O}_3)_3$
D. $\text{Fe}_2(\text{S}_2\text{O}_3)_2$

Answer

47. pH of a 0.0001M HCl solution is

- A. 4.0
B. 2.0
C. 6.0
D. 7.0

Answer

48. A reaction proceeds by first order, 75% of this reaction was completed in 32 min. The time required for 50% completion is

- A. 8 min
B. 16 min
C. 20 min
D. 24 min

Answer

49. Aqueous solution of ferric chloride is acidic due to

- A. ionization
B. polarization
C. dissociation
D. hydrolysis

Answer

50. The correct order of heat of formation of halogen acids is

- A. $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$
B. $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$
C. $\text{HCl} > \text{HF} > \text{HBr} > \text{HI}$
D. $\text{HCl} > \text{HBr} > \text{HF} > \text{HI}$

Answer

51. Hydrolysis of urea is an example of

- A. homogenous catalysis
B. heterogenous catalysis
C. biochemical catalysis
D. zeolite catalysis

Answer

52. The radius ratio in CsCl is 0.93. The expected lattice structure is
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B. square planar

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C. octahedral

D. body-centred cubic

Answer

53. The vapour pressure of pure liquid A is 0.80 atm. When a non volatile B is added to A its vapour pressure drops to 0.60 atm. The mole fraction of B in the solution is

A. 0.125

B. 0.25

C. 0.5

D. 0.75

Answer

54. The velocity of oxidation of oxalic acid by acidified KMnO_4 increases as the reaction progress. It is an example of

A. promoters

B. catalytic poisons

C. autocatalysis

D. inhibitors

Answer

55. What flows in the internal circuit of a galvanic cell?

A. ions

B. electrons

C. electricity

D. atoms

Answer

56. Osmotic pressure of a solution at a given temperature

A. increases with concentration

B. decreases with concentration

C. remains same

D. initially increases and then decreases

Answer

57. Which of the following is not a property of colloidal solution?

A. Heterogeneity

B. Particle size $> 100 \text{ nm}$

C. Tyndall effect

D. Brownian movement

Answer

58. The hydroxide insoluble in $\text{NH}_4\text{OH} + \text{NH}_4\text{Cl}$ is

A. $\text{Al}(\text{OH})_3$ Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

C. $\text{Zn}(\text{OH})_2$

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D. $\text{Mg}(\text{OH})_2$

Answer

59. Time period of a wave is $5 \times 10^{-3} \text{ s}$, what is the frequency?A. $5 \times 10^{-3} \text{ s}^{-1}$ B. $2 \times 10^2 \text{ s}^{-1}$ C. $2.3 \times 10^3 \text{ s}^{-1}$ D. $5 \times 10^2 \text{ s}^{-1}$

Answer

60. The osmotic pressure (At 27° C) of an aqueous solution (200 mL) containing 6 g of a protein is $2 \times 10^{-3} \text{ atm}$. If $R = 0.080 \text{ L atm mol}^{-1} \text{ K}^{-1}$, the molecular weight of protein isA. 7.2×10^5 B. 3.6×10^5 C. 1.8×10^5 D. 1.0×10^5

Answer

61. Alloy is an example of

A. gel

B. solidified emulsion

C. solid solution

D. sol

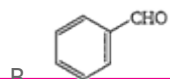
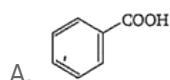
Answer

62. In Lucas test an alcohol reacts immediately and gives insoluble chloride. The alcohol is

A. CH_3OH B. $\text{CH}_3\text{CH}_2\text{OH}$ C. $(\text{CH}_3)_2\text{CHOH}$ D. $(\text{CH}_3)_3\text{COH}$

Answer

63. The reactant (X) in the following reaction is-

 $(\text{X}) \rightarrow (\text{CH}_3\text{CO})_2\text{OCH}_3\text{COONa}$ Cinnamic acid

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D.

Answer

64. A compound (X) on ozonolysis followed by reduction gives an aldehyde C_2H_4O and 2-butanone, compound (X) is

- A. 3-methyl pentene-2
- B. 3-methyl pentene-3
- C. 3-methyl hexene-3
- D. 3-ethyl pentene-3

Answer

65. Protic solvent is

- A. diethyl ether
- B. *n*-hexane
- C. acetone
- D. ethanol

Answer

66. Glycerol is more viscous than ethanol due to

- A. high molecular weight
- B. high boiling point
- C. many hydrogen bonds per molecule
- D. Fajan's rule

Answer

67. A Zwitter ion is

- A. a negatively charged ion without metal atom
- B. a heavy ion with a small charge on it
- C. an ion with positive and negative charge at different points on it
- D. a positively charged ion without a metal atom

Answer

68. Toluene on treatment with CrO_3 and $(CH_3CO)_2O$ followed by hydrolysis with dil HCl gives

- A. benzaldehyde
- B. benzoic acid
- C. phenol
- D. phenylacetaldehyde

Answer

69. $F_2C = CF_2$ is a monomer of

- A. teflon
- B. nylon

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D. buta-5

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Answer

70. Which of the following, is an example of aldol condensation?

- A. $2\text{CH}_3\text{COCH}_3 \xrightarrow{\text{dil. NaOH}} \text{CH}_3\text{COHCH}_3\text{CH}_2\text{COCH}_3$
- B. $2\text{HCHO} \xrightarrow{\text{dil. NaOH}} \text{CH}_3\text{OH}$
- C. $\text{C}_6\text{H}_5\text{CHO} + \text{HCHO} \xrightarrow{\text{dil. NaOH}} \text{C}_6\text{H}_5\text{CH}_2\text{OH}$
- D. None of the above

Answer

71. An organic amino compound reacts with aqueous nitrous acid at low temperature to produce an oily nitroso amine. The compound is

- A. CH_3NH_2
- B. $\text{CH}_3\text{CH}_2\text{NH}_2$
- C. $\text{CH}_3\text{CH}_2\text{NHCH}_2\text{CH}_3$
- D. $(\text{CH}_3\text{CH}_2)_3\text{N}$

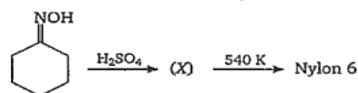
Answer

72. The drug used to bring down fever are known as

- A. analgesic
- B. antibiotic
- C. antipyretic
- D. sulpha drugs

Answer

73. In the reaction sequence



X is

- A. cyclohexanone
- B. caprolactum
- C. $\text{HO}(\text{CH}_2)_6\text{NH}_2$
- D. hexamethylene diisocyanate

Answer

74. The property which distinguishes formic acid from acetic acid is

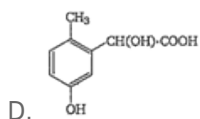
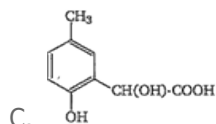
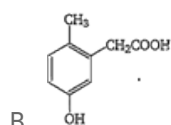
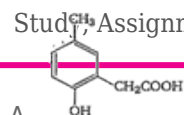
- A. only ammonium salt of formic acid on heating gives amide
- B. when heated with alcohol/ H_2SO_4 only acetic acid forms ester
- C. only acetic acid forms salts with alkali
- D. only formic acid reduces Fehling's solution

Answer

75. p-cresol reacts with chloroform in alkaline medium to give the compound A which adds hydrogen like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

cyanide to form the compound B. The latter on acidic hydrolysis gives chiral carboxylic acid. The structure of the carboxylic acid is

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Answer