

NEET CHEMISTRY 2018-19 - Chennai

Periodic Test : 03

Test ID : 015

Number of questions: 150

Test date: 22.03.2019

Name: _____

Time: 3HRS

ID No: _____

Negative Marks : 4 marks for correct attempt & 1 mark deducted for every wrong attempt.

- Given that,

$$\text{C} + \text{O}_2 \longrightarrow \text{CO}_2, \Delta H^\circ = -x \text{ kJ}$$

$$2\text{CO} + \text{O}_2 \longrightarrow 2\text{CO}_2, \Delta H^\circ = -y \text{ kJ}$$
 The enthalpy of formation of carbon monoxide will be
 - $\frac{y-2x}{2}$
 - $2x-y$
 - $y-2x$
 - $\frac{2x-y}{2}$
- Which of the following is the correct equation?
 - $\Delta U = \Delta W + \Delta Q$
 - $\Delta U = \Delta Q - W$
 - $\Delta W = \Delta U + \Delta Q$
 - None of these
- If enthalpies of formation for $\text{C}_2\text{H}_4(\text{g})$, $\text{CO}_2(\text{g})$ and $\text{H}_2\text{O}(\text{l})$ at 25°C and 1 atm pressure are 52, -394 and -286 kJ/mol respectively, then enthalpy of combustion of $\text{C}_2\text{H}_4(\text{g})$ will be
 - +141.2 kJ/mol
 - +1412 kJ/mol
 - 141.2 kJ/mol
 - 1412 kJ/mol
- A chemical reaction is catalysed by a catalyst X. Hence X
 - reduces enthalpy of the reaction
 - does not affect equilibrium constant of reaction
 - decreases rate constant of the reaction
 - increases activation energy of the reaction.
- Standard state Gibb's free energy change for isomerization reaction cis-2-pentene \rightleftharpoons trans-2-pentene is -3.67 kJ/mol at 400 K. If more trans-2-pentene is added to the reaction vessel, then
 - equilibrium remains unaffected
 - equilibrium is shifted in the forward direction
 - more cis-2-pentene is formed
 - additional trans-2-pentene is formed
- For a reaction to occur spontaneously
 - ΔH must be negative
 - ΔS must be negative
 - $(\Delta H - T\Delta S)$ must be negative
 - $(\Delta H + T\Delta S)$ must be negative
- During isothermal expansion of an ideal gas, its
 - internal energy increases
 - enthalpy decreases
 - enthalpy remains unaffected
 - enthalpy reduces to zero
- Following reaction occurring in an automobile

$$2\text{C}_8\text{H}_{18}(\text{g}) + 25\text{O}_2(\text{g}) \longrightarrow 16\text{CO}_2(\text{g}) + 18\text{H}_2\text{O}(\text{g})$$
 The sign of ΔH , ΔS and ΔG would be
 - ,+,+
 - +,+,-
 - +,-,+
 - ,+,-
- For the reaction $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$, $\Delta H = ?$
 - $\Delta E + 2RT$
 - $\Delta E - 2RT$
 - $\Delta H = RT$
 - $\Delta E - RT$

10. If ΔH is the change in enthalpy and ΔE , the change in internal energy accompanying a gaseous reaction, then
- ΔH is always greater than ΔE
 - $\Delta H < \Delta E$ only if the number of moles of the products is greater than the number of moles of the reactants.
 - ΔH is always less than ΔE
 - $\Delta H < \Delta E$ only if the number of moles of the products is less than the number of moles of the reactants.
11. A sp^3 hybrid orbital contains
- 1/4 s-character
 - 1/2 s-character
 - 1/3 s-character
 - 2/3 s-character
12. A straight chain hydrocarbon has the molecular formula C_8H_{10} . The hybridization of the carbon atoms from one end of the chain to the other are respectively $sp^3, sp^2, sp^2, sp^3, sp^2, sp^2, sp$ and sp . The structural formula of the hydrocarbon would be
- $CH_3C \equiv CCH_2-CH=CHCH=CH_2$
 - $CH_3CH_2-CH=CHCH=CHC \equiv CH$
 - $CH_3CH=CHCH_2-C \equiv CCH=CH_2$
 - $CH_3CH=CHCH_2-CH=CHC \equiv CH$
13. Kjeldahl's method is used in the estimation of
- Nitrogen
 - Halogens
 - sulphur
 - oxygen
14. An organic compound X (molecular formula $C_6H_7O_2N$) has six carbon atoms in a ring system, two double bonds and a nitro group as substituent, X is
- homocyclic but not aromatic
 - aromatic but not homocyclic
 - homocyclic and aromatic
 - heterocyclic and aromatic
15. Which one of the following can exhibit cis-trans isomerism?
- $CH_3-CHCl-COOH$
 - $H-C \equiv C-Cl$
 - $ClCH=CHCl$
 - $ClCH_2-CH_2Cl$
16. Which of the following possesses a sp-carbon in its structure?
- $CH_2=CCl-CH=CH_2$
 - $CCl_2=CCl_2$
 - $CH_2=C=CH_2$
 - $CH_2=CH-CH=CH_2$
17. Cyclic hydrocarbon 'A' has all the carbon and hydrogen atoms in a single plane. All the carbon-carbon bonds have the same length, less than 1.54 Å, but more than 1.34 Å. The bond angle
- $109^\circ 28'$
 - 100°
 - 180°
 - 120°
18. Lassaigne's test is used in qualitative analysis to detect
- Nitrogen
 - Sulphur
 - Chlorine
 - All of these
19. How many chain isomers could be obtained from the alkane C_6H_{14} ?
- Four
 - Five
 - Six
 - Seven
20. The Cl-C-Cl angle in 1,1,2,2-tetrachloroethene and tetrachloromethane respectively will be about
- 120° and 109.5°
 - 90° and 109.5°
 - 109.5° and 90°
 - 109.5° and 120°
21. The specific conductance of a 0.1 N KCl solution at $23^\circ C$ is $0.012 \text{ ohm}^{-1} \text{ cm}^{-1}$. The

resistance of cell containing the solution at the same temperature was found to be 55 ohm.

The cell constant will be

- a) 0.918 cm^{-1}
- b) 0.66 cm^{-1}
- c) 1.142 cm^{-1}
- d) 1.12 cm^{-1}

22. For the cell reaction, $\text{Cu}^{2+} (\text{C}_1.\text{aq}) + \text{Zn}_{(\text{s})} = \text{Zn}^{2+} (\text{C}_2.\text{aq}) + \text{Cu}_{(\text{s})}$ of an electrochemical cell, the change in free energy ΔG at a given temperature is a function of

- a) $\ln (\text{C}_2)$
- b) $\ln (\text{C}_2/\text{C}_1)$
- c) $\ln (\text{C}_1)$
- d) $\ln (\text{C}_1+\text{C}_2)$

23. E° for the cell, $\text{Zn} | \text{Zn}^{2+}_{(\text{aq})} || \text{Cu}^{2+} | \text{Cu}$ is 1.10 V at 25°C , the equilibrium constant for the reaction $\text{Zn} + \text{Cu}^{2+}_{(\text{aq})} \rightleftharpoons \text{Cu} + \text{Zn}^{2+}_{(\text{aq})}$ is the order of

- a) 10^{+18}
- b) 10^{+17}
- c) 10^{-28}
- d) 10^{-37}

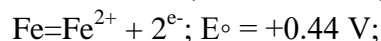
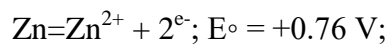
24. The molar conductances of NaCl, HCl and CH_3COONa at infinite dilution are 126.45, 426.16 and 91 $\text{ohm}^{-1} \text{cm}^2 \text{mol}^{-1}$ respectively. The molar conductance of CH_3COOH at infinite dilution (Λ_m^∞) is

- a) $698.28 \text{ ohm}^{-1} \text{cm}^2 \text{mol}^{-1}$
- b) $540.48 \text{ ohm}^{-1} \text{cm}^2 \text{mol}^{-1}$
- c) $201.28 \text{ ohm}^{-1} \text{cm}^2 \text{mol}^{-1}$
- d) $390.71 \text{ ohm}^{-1} \text{cm}^2 \text{mol}^{-1}$

25. A 5 ampere current is passed through a solution of zinc sulphate for 40 minutes. The amount of zinc deposited at the cathode is

- a) 0.4065 g
- b) 65.04 g
- c) 40.65 g
- d) 4.065 g

26. Reduction potential for the following half-cell reactions are



The EMF for the cell reaction



- a) -0.32 V
- b) +1.20 V
- c) -1.20 V
- d) +0.32 V

27. An electrochemical cell is set up as : $\text{Pt}; \text{H}_2 (\text{I atm}) | \text{HCl} (0.1 \text{ M}) || \text{CH}_3\text{COOH} (0.1 \text{ M}) | \text{H}_2 (\text{I atm}); \text{Pt}$. The e.m.f of this cell will not be zero, because

- a) Acids used in two compartments are different
- b) e.m.f depends on molarities of acids used
- c) the temperature is constant
- d) pH of 0.1 M HCl and 0.1 M CH_3COOH is not same

28. On heating one end of a piece of a metal, the other end becomes hot because of

- a) Energised electrons moving to the other end
- b) Minor perturbation in the energy of atoms
- c) Resistance of the metal
- d) Mobility of atoms in the metal

29. Standard reduction potentials at 25°C of $\text{Li}^+ | \text{Li}$, $\text{Ba}^{2+} | \text{Ba}$, Na and $\text{Mg}^{2+} | \text{Mg}$ are -3.05, -2.90, -2.71 and -2.37 volt respectively. Which one of the following is the strongest oxidising agent?

- a) Ba^{2+}
- b) Mg^{2+}
- c) Na^+
- d) Li^+

30. On electrolysis of dilute sulphuric acid using platinum electrodes, the product obtained at the anode will be

- a) Hydrogen
- b) Oxygen
- c) Hydrogen sulphide
- d) Sulphur dioxide

31. Reaction of t-butyl bromide with sodium methoxide produces

- a) Sodium t-butoxide
- b) t-butyl methyl ether
- c) isobutene
- d) isobutylene

32. Grignard reagent is prepared by the reaction between

- a) magnesium and alkane
- b) magnesium and aromatic hydrocarbon
- c) zinc and alkyl halide
- d) magnesium and alkyl halide

33. Benzene reacts with n-propyl chloride in the presence of anhydrous AlCl_3 to give

- a) 3-propyl-1-chlorobenzene
- b) n-propylbenzene
- c) no reaction
- d) isopropylbenzene

34. Industrial preparation of chloroform employs acetone and

- a) phosgene
- b) calcium hypochlorite
- c) chlorine gas
- d) sodium chloride

35. Chlorobenzene reacts with Mg in dry ether to give a compound(A) which further reacts with ethanol to yield

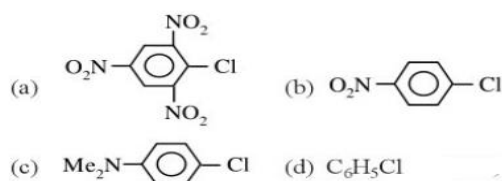
- a) phenol
- b) benzene
- c) ethyl benzene
- d) phenyl ether

36. When chlorine is passed through propene at 400°C which of the following is formed?

- a) PVC
- b) Allyl chloride
- c) Propyl chloride
- d) 1,2-Dichloroethane

37. Which chloro derivative of benzene among the following would undergo hydrolysis most

readily with aqueous sodium hydroxide to furnish the corresponding hydroxyl derivative?



38. Which of the following is an optically active compound?

- a) 1-Butanol
- b) 1-Propanol
- c) 2-Chlorobutane
- d) 4-Hydroxyheptane

39. Phosgene is a common name for

- a) phosphoryl chloride
- b) thionyl chloride
- c) carbon dioxide and phosphine
- d) carbonyl chloride

40. Which one is formed when sodium phenoxide is heated with ethyl iodide?

- a) Phenetole
- b) Ethyl phenyl alcohol
- c) Phenol
- d) None of these

41. When hydrochloric acid gas is treated with propene in presence of benzoyl peroxide, it gives

- a) 2-chloropropane
- b) allyl chloride
- c) no reaction
- d) n-propyl chloride

42. How many isomers of $\text{C}_5\text{H}_{11}\text{OH}$ will be primary alcohols?

- a) 5
- b) 4
- c) 2
- d) 3

43. Methanol is industrially prepared by

- a) Oxidation of CH_4 by steam at 900°C
- b) reduction of HCHO using LiAlH_4
- c) reaction HCHO with a solution of NaOH

- d) reduction of CO using H_2 and $ZnO-Cr_2O_3$
44. HBr reacts fastest with
- 2-Methylpropan-1-ol
 - Methylpropan-2-ol
 - propan-2-ol
 - propan-1-ol
45. When phenol is treated with excess bromine water. It gives
- m-bromophenol
 - o-and p-bromophenols
 - 2,4-dibromophenol
 - 2,4,6-tribromophenol
46. The compound which reacts fastest with Lucas reagent at room temperature is
- butan-1-ol
 - butan-2-ol
 - 2-methylpropan-1-ol
 - 2-methylpropan-2-ol
47. Which one of the following compounds will be most readily attacked by an electrophile?
- Chlorobenzene
 - Benzene
 - Phenol
 - Toluene
48. Propene, $CH_3CH=CH_2$ can be converted into 1-propanol by oxidation. Indicate which set of reagents amongst the following is ideal for the above conversion?
- $KMnO_4$ (alkaline)
 - Osmium tetroxide (OsO_4/CH_2Cl_2)
 - B_2H_6 and alk. H_2O_2
 - O_3/Zn
49. Phenol is heated with $CHCl_3$ and aqueous KOH when salicylaldehyde is produced. This reaction is known as
- Rosenmund's reaction
 - Reimer-Tiemann reaction
 - Friedel-Crafts reaction
 - Sommelet reaction
50. Lucas reagent is
- Conc.HCl and anhydrous $ZnCl_2$
 - Conc. HNO_3 and hydrous $ZnCl_2$
 - Conc.HCl and hydrous $ZnCl_2$
 - Conc. HNO_3 and anhydrous $ZnCl_2$