

NEET CHEMISTRY 2018-19 - Chennai

Periodic Test : 07

Test ID : 019

Number of questions: 150

Test date: 26.03.2019

Name: _____

Time: 3HRS

ID No: _____

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

- Which of the following statements is wrong for gases?
 - Confined gas exerts uniform pressure on the walls of its container in all directions.
 - Volume of the gas is equal to volume of container confining the gas.
 - Gases do not have a definite shape and volume
 - Mass of a gas cannot be determined by weighing a container in which it is enclosed.
- The average kinetic energy of an ideal gas, per molecule in S.I units, at 25°C will be
 - 6.17×10^{-20} J
 - 7.16×10^{-20} J
 - 61.7×10^{-21} J
 - 6.17×10^{-21} J
- At what temperature, the rate of effusion of N₂ would be 1.625 times than the rate of SO₂ at 500° C?
 - 373°C
 - 620°C
 - 110°C
 - 173°C
- Which of the following mixture of gases does not obey Dalton's Law of partial pressure?
 - Cl₂ and SO₂
 - CO₂ and He
 - O₂ and CO₂
 - N₂ and O₂
- An ideal gas, obeying kinetic theory of gases cannot be liquefied because
 - It solidifies before becoming a liquid.
 - Forces acting between its molecules are negligible
 - Its critical temperature is above 0°C
 - Its molecules are relatively small in size.
- Standard entropies of X₂, Y₂ and XY₃ are 60, 40 and 50 JK⁻¹ mol⁻¹ respectively. For the reaction $\frac{1}{2}X_2 + \frac{3}{2}Y_2 \rightleftharpoons XY_3$, $\Delta H = -30$ kJ, to be at equilibrium, the temperature should be
 - 750 K
 - 1000 K
 - 1250 K
 - 500 K
- Match List I (Equations) with List II (Type of processes) and select the correct option.

List I Equations	List II Type of processes
A. $K_p > Q$	(i) Non-spontaneous
B. $\Delta G^\circ < RT \ln Q$	(ii) Equilibrium
C. $K_p = Q$	(iii) Spontaneous and endothermic
D. $T > \frac{\Delta H}{\Delta S}$	(iv) Spontaneous

 - A - (i), B - (ii), C - (iii), D - (iv)
 - A - (iii), B - (iv), C - (ii), D - (i)
 - A - (iv), B - (i), C - (ii), D - (iii)
 - A - (ii), B - (i), C - (iv), D - (iii)
- Three moles of an ideal gas expanded spontaneously into vacuum. The work done will be

- Three moles of an ideal gas expanded spontaneously into vacuum. The work done will be

- a) infinite
b) 3 Joules
c) 9 Joules
d) Zero
9. For vaporization of water at 1 atmospheric pressure, the values of ΔH and ΔS are $40.63 \text{ kJ mol}^{-1}$ and $108.8 \text{ JK}^{-1} \text{ mol}^{-1}$, respectively. The temperature when Gibb's energy change (ΔG) for this transformation will be zero, is
a) 273.4 K
b) 393.4 K
c) 373.4 K
d) 293.4 K
10. The following two reactions are known

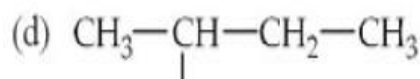
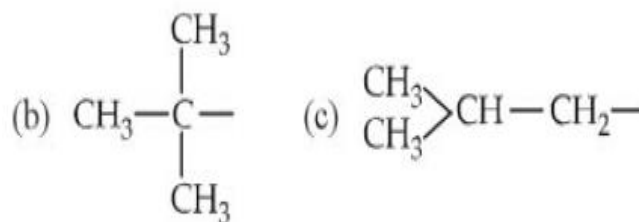
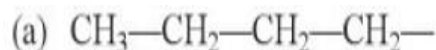
$$\text{Fe}_2\text{O}_3(\text{s}) + 3\text{CO}(\text{g}) \longrightarrow 2\text{Fe}(\text{s}) + 3\text{CO}_2(\text{g}); \Delta H = -26.8 \text{ kJ}$$

$$\text{FeO}(\text{s}) + \text{CO}(\text{g}) \longrightarrow \text{Fe}(\text{s}) + \text{CO}_2(\text{g}); \Delta H = -16.5 \text{ kJ}$$
 The value of ΔH for the following reaction

$$\text{Fe}_2\text{O}_3(\text{s}) + \text{CO}(\text{g}) \longrightarrow 2\text{FeO}(\text{s}) + \text{CO}_2(\text{g})$$
 is
a) + 10.3 kJ
b) -43.3 kJ
c) - 10.3 kJ
d) + 6.2 kJ
11. Which of these is least likely to act as a Lewis base?
a) BF_3
b) PF_3
c) CO
d) F^-
12. Accumulation of lactic acid ($\text{HC}_3\text{H}_5\text{O}_3$), a monobasic acid in tissues leads to pain and a feeling of fatigue. In a 0.10 M aqueous solution, lactic acid is 3.7 % dissociates. The value of dissociation constant K_a , for this acid will be
a) 1.4×10^{-5}
b) 1.4×10^{-4}
c) 3.7×10^{-4}
d) 2.8×10^{-4}
13. At 100°C the K_w of water is 55 times its value at 25°C . What will be the pH of neutral solution? ($\log 55 = 1.74$)
a) 7.00
b) 7.87
c) 5.13
d) 6.13
14. The values of K_{sp} of CaCO_3 and CaC_2O_4 are 4.7×10^{-9} and 1.3×10^{-9} respectively at 25°C . If the mixture of these two is washed with water, what is the concentration of Ca^{2+} ions in water?
a) $5.831 \times 10^{-5} \text{ M}$
b) $6.856 \times 10^{-5} \text{ M}$
c) $3.606 \times 10^{-5} \text{ M}$
d) $7.746 \times 10^{-5} \text{ M}$
15. The dissociation constant of a weak acid is 1×10^{-4} . In order to prepare a buffer solution with a $\text{pH} = 5$, the $[\text{Salt}]/[\text{Acid}]$ ratio should be
a) 4:5
b) 10:1
c) 5:4
d) 1:10
16. The pair of compounds that can exist together is
a) $\text{FeCl}_3, \text{SnCl}_2$
b) $\text{HgCl}_2, \text{SnCl}_2$
c) $\text{FeCl}_2, \text{SnCl}_2$
d) FeCl_3, KI
17. (I) $\text{H}_2\text{O}_2 + \text{O}_3 \longrightarrow \text{H}_2\text{O} + 2\text{O}_2$
 (II) $\text{H}_2\text{O}_2 + \text{Ag}_2\text{O} \longrightarrow 2\text{Ag} + \text{H}_2\text{O} + \text{O}_2$
 Role of hydrogen peroxide in the above reactions is respectively
a) Oxidizing in (I) and reducing in (II)
b) Reducing in (I) and oxidizing in (II)
c) Reducing in (I) and (II)
d) Oxidizing in (I) and (II)
18. In acidic medium, H_2O_2 changes $\text{Cr}_2\text{O}_7^{2-}$ to CrO_5 which has two (-O-O-O) bonds. Oxidation state of Cr in CrO_5 is
a) +5
b) +3
c) +6
d) -10

19. When Cl_2 gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from
- zero to +1 and zero to -5
 - zero to -1 and zero to +5
 - zero to -1 and zero to +3
 - zero to +1 and zero to -3
20. A mixture of potassium chlorate, oxalic acid and sulphuric acid is heated. During the reaction which element undergoes maximum change in the oxidation number?
- S
 - H
 - Cl
 - C
21. Some statements about heavy water are given below:
- Heavy water is used as a moderator in nuclear reactors.
 - Heavy water is more associated than ordinary water.
 - Heavy water is more efficient solvent than ordinary water.
- Which of the above statements are correct?
- (i) and (ii)
 - (i),(ii) and (iii)
 - (ii) and (iii)
 - (i) and (iii)
22. The structure of H_2O_2 is
- Spherical
 - Non-planar
 - Planar
 - Linear
23. Which one of the following pairs of substances on reaction will not evolve H_2 gas?
- Copper and HCl (aqueous)
 - Iron and steam
 - Iron and H_2SO_4 (aqueous)
 - Sodium and ethyl alcohol
24. The volume strength of 1.5 N H_2O_2 solution is
- 8.8
 - 8.4
 - 4.8
 - 5.2
25. The O-O-H bond angle in H_2O_2 is
- 106°
 - $109^\circ 28'$
 - 120°
 - 97°
26. In the case of alkali metals, the covalent character decreases in the order
- $\text{MF} > \text{MCl} > \text{MBr} > \text{MI}$
 - $\text{MF} > \text{MCl} > \text{MI} > \text{MBr}$
 - $\text{MI} > \text{MBr} > \text{MCl} > \text{MF}$
 - $\text{MCl} > \text{MI} > \text{MBr} > \text{MF}$
27. Which of the following oxides is not expected to react with sodium hydroxide?
- CaO
 - SiO_2
 - BeO
 - B_2O_3
28. Equimolar solutions of the following were prepared in water separately. Which one of the solutions will record the highest pH?
- MgCl_2
 - CaCl_2
 - SrCl_2
 - BaCl_2
29. The sequence of ionic mobility in aqueous solution is
- $\text{Rb}^+ > \text{K}^+ > \text{Cs}^+ > \text{Na}^+$
 - $\text{Na}^+ > \text{K}^+ > \text{Rb}^+ > \text{Cs}^+$
 - $\text{K}^+ > \text{Na}^+ > \text{Rb}^+ > \text{Cs}^+$
 - $\text{Cs}^+ > \text{Rb}^+ > \text{K}^+ > \text{Na}^+$
30. The alkali metals form salt like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hybrids decreases in which of the following orders?

- (a) $\text{NaH} > \text{LiH} > \text{KH} > \text{RbH} > \text{CsH}$
- (b) $\text{LiH} > \text{NaH} > \text{KH} > \text{RbH} > \text{CsH}$
- (c) $\text{CsH} > \text{RbH} > \text{KH} > \text{NaH} > \text{LiH}$
- (d) $\text{KH} > \text{NaH} > \text{LiH} > \text{CsH} > \text{RbH}$



31. Which one of the following compounds is not a protonic acid?

- a) B(OH)_3
- b) PO(OH)_3
- c) SO(OH)_2
- d) $\text{SO}_2(\text{OH})_2$

32. Which compound is electron deficient?

- a) BeCl_2
- b) BCl_3
- c) CCl_4
- d) PCl_5

33. Which of the following does not show electrical conduction?

- a) Diamond
- b) Graphite
- c) Potassium
- d) Sodium

34. The type of hybridisation of boron in diborane is

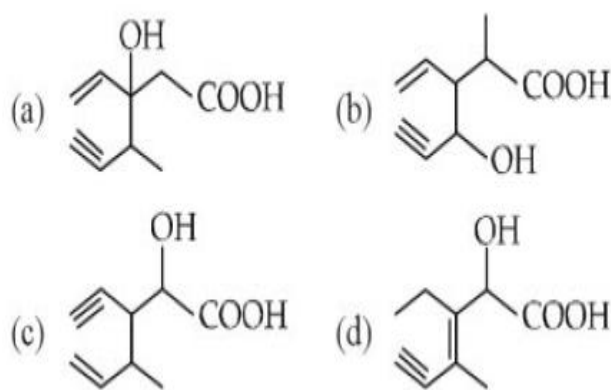
- a) sp^3 - hybridisation
- b) sp^2 - hybridisation
- c) sp - hybridisation
- d) sp^3d^2 - hybridisation

35. Percentage of lead in lead pencil is

- a) 80
- b) 20
- c) Zero
- d) 70

36. The structure of isobutyl group in an organic compound is

37. Structure of the compound whose IUPAC name is 3-Ethyl-2-hydroxy-4-methylhex-3-en-5-ynoic acid is



38. Some meta-directing substituents in aromatic substitution are given. Which one is most deactivating?

- a) $-\text{COOH}$
- b) $-\text{NO}_2$
- c) $-\text{C} \equiv \text{N}$
- d) $-\text{SO}_3\text{H}$

39. Arrange the following in increasing order of stability

1. $(\text{CH}_3)_2\text{---}\overset{+}{\text{C}}\text{---CH}_2\text{---CH}_3$
2. $(\text{CH}_3)_3\text{---}\overset{+}{\text{C}}$
3. $(\text{CH}_3)_2\text{---}\overset{+}{\text{C}}\text{---H}$
4. $\text{CH}_3\text{---}\overset{+}{\text{C}}\text{---H}_2$
5. $\overset{+}{\text{C}}\text{---H}_3$

- a) $5 < 4 < 3 < 1 < 2$
- b) $4 < 5 < 3 < 1 < 2$
- c) $1 < 5 < 4 < 3 < 2$

d) $5 < 4 < 3 < 2 < 1$

40. What is the hybridisation state of benzyl



- a) sp^2
- b) sp^d
- c) sp^2d
- d) sp^3

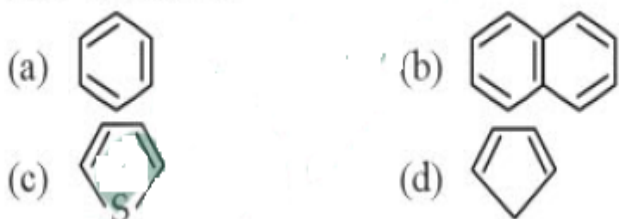
41. Which of the following organic compounds has same hybridization as its combustion product (CO_2)

- a) Ethane
- b) Ethyne
- c) Ethene
- d) Ethanol

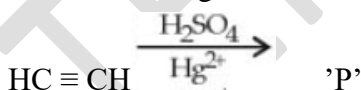
42. Which of the following compounds will not undergo Friedel-Craft's reaction easily?

- a) Nitrobenzene
- b) Toluene
- c) Cumene
- d) Xylene

43. Which of the following chemical system is non aromatic?



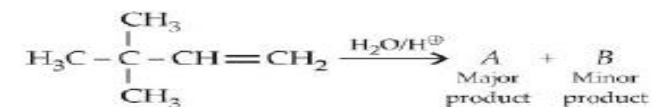
44. In the following reaction:



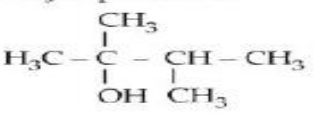
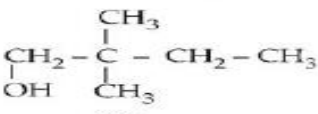
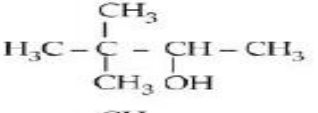
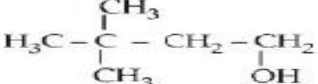
Product 'P' will not give

- a) Tollen's reagent test
- b) Brady's reagent test
- c) Victor Meyer test
- d) Iodoform test

45. In the following reaction



The major product is

- (a) 
- (b) 
- (c) 
- (d) 

46. Which one of the following is not a common component of Photochemical smog?

- a) Ozone
- b) Acrolein
- c) Peroxyacetyl nitrate
- d) Chlorofluorocarbons

47. Which one of the following statements is not true?

- a) Clean water would have a BOD value of 5 ppm
- b) Fluoride deficiency in drinking water is harmful. Soluble fluoride is often used to bring its concentration upto 1 ppm
- c) When the pH of rain water is higher than 6.5 it is called rain water
- d) Dissolved Oxygen (DO) in cold water can reach a concentration upto 10 ppm

48. Which one of the following statements regarding photochemical smog is not correct?

- a) Carbon monoxide does not play any role in photochemical smog formation
- b) Photochemical smog is an oxidising agent in character
- c) Photochemical smog is formed through photochemical reaction involving solar energy
- d) Photochemical smog does not cause irritation in eyes and throat.

49. Which one of the following statement is not true?

- a) pH of drinking water should be between 5.5 – 9.5
- b) Concentration of DO below 6 ppm is good for the growth of fish
- c) Clean water would have a BOD value of less than 5 ppm
- d) Oxides of sulphur, nitrogen and carbon, are the most widespread air pollutant.

50. Green chemistry means such reactions which

- a) are related to the depletion of ozone layer
- b) study the reactions in plants
- c) produce colour during reactions
- d) reduce the use and production of hazardous chemical

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