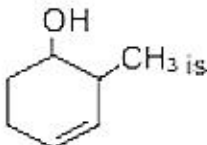# JIPMER-02-06-2019-Evening

Chemistry

1. If 50 ml of 0.1 M HBr is mixed with 50 ml 0.2 M NaOH fine pH of resulting mixture

   (1) 2.7

   (2) 12.7

   (3) 10.7

   (4) 1.3

2. IUPAC name of is

   (1) 4-Hydroxy-3-methyl cyclohexene

   (2) 2-Methyl cyclohex-3-en-1-ol

   (3) 3-Hydroxy-2-methyl cyclohexene

   (4) 1-Hydroxy-3-methyl cyclohexene

3. Bisphenol A is

   (1) Phenol+ethanol

   (2) Phenol+Aniline

   (3) Phenol+Acetone

(4) Phenol+Ethanal

4. If equilibrium constant is 2.6×10^8 then find the value of $\Delta G°$.

  (1) -43.36 kJ

  (2) -63.2 kJ

  (3) -23.3 kJ

  (4) $+40$ kJ

5. Which of the following is not correct

  (1) $PhCH_2Br > PhChBrCH_3 > PhCBr(CH_3)_2 (S_N1)$

  (2) $R\text{-}I > R\text{-}Br > R\text{-}Cl (S_N2)$

  (3) $CH_2 = CH\text{-}Cl < CH_2 = CH\text{-}CH_2 - Cl < PhCH_2 - Cl (S_N1)$

  (4) $R\text{-}Cl < R\text{-}Br < R\text{-}I (S_N1)$

6. $CH_3 - CH_2 - CH_2 - Br \xrightarrow{\text{Alc. KOH}}$ Final product is

  (1) Propane

  (2) propanol

  (3) cyclopropane

  (4) Propane-1, 2-diol

7. Calculate molarity of one liter solution of 22.2 gm $CaCl_2$.

    (1)   0.4 M

    (2)   0.2 M

    (3)   0.8 M

    (4)   0.6 M

8. Invert sugar is a mixture of

    (1)   D Glucose + D fructose

    (2)   L-Glucose + D Fructose

    (3)   L-Glucose + D Glucose

    (4)   L-Glucose + L-Glucose

9. Which of the following is not allotrope of carbon

    (1)   Diamond

    (2)   fullerene

    (3)   soot

    (4)   Graphite

10. Silicon carbide is example of

    (1)   Molecular solid

    (2)   Metallic solid

(3) Ionic crystal

(4) Covalent solid

11. Which type of defect present in NaCl.

   (1) Frankel defect

   (2) Schotkey defect

   (3) F-centre defect

   (4) None

12. Which mixture is immiscible

   (1) C_5H_{12} + alcohol

   (2) Alcohol + Amine

   (3) H_2O + Alcohol

   (4) Alkane + Alkane

13. If V=1 litre, 10 mole of H_2 and 10 mole of N_2 gas are mixed at temp = 26 °C then calculate the pressure of the gas:

   (1) 491 atm

   (2) 300 atm

   (3) 550atm

   (4) 600 atm

14. Which of the following is correct

    (1) $SO_3^{2-} \Rightarrow$ Tetrahedral

    (2) $NO_2^- \Rightarrow$ Trigonal planar

    (3) $ClO_4^- \Rightarrow$ Tetrahedral

    (4) $BrO_4^- \Rightarrow$ Tetrahedral

15. Which of the following has octet around central atom

    (1) PF_5

    (2) SF_6

    (3) CCl_4

    (4) BF_3

16. Which of the following can form H-bond?

    (1) NH_3

    (2) $R - CN$

    (3) $R - O - R$

    (4) $R - Br$

17. If molarity of Cu^{+2} ions is 3×10^{-4} express this in ppm

(1)   0.3

(2)   0.2

(3)   0.1

(4)   0.6

18.   Number of σ and π bonds in C_2H_2 is respectively

(1)   2, 3

(2)   3, 2

(3)   4, 2

(4)   2, 4

19.   Which of the following is not iso electronic with H_2S

(1) F_2 gas

(2)   Oxide ion

(3) Ca^{+2}

(4) Sc^{+3}

20.   Which method is used to find halogen in organic compound?

(1)   Duma's method

(2)   Leibig's method

(3)   Kjeldahl method

(4) Carious method

21. Which of the following amino acid is optically inactive?
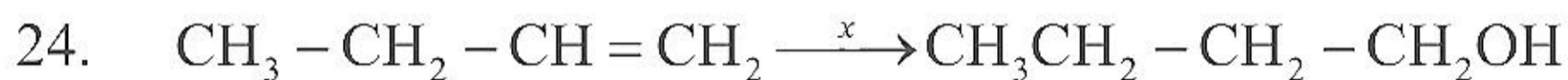
    (1) Glycine

    (2) Valine

    (3) Alanine

    (4) Histidine

22. In which of the following, oxidation state of phosphorous is +3?

    (1) Orthophosphoric acid

    (2) Pyrophosphoric acid

    (3) Orthophosphorous acid

    (4) Meta phosphoric acid

23. If [ ] react with Cl_2 in presence of light and then react with Na Metal in dry ether, final product is

    (1)

    (2)

(3)

(4)

24. $CH_3 - CH_2 - CH = CH_2 \xrightarrow{x} CH_3CH_2 - CH_2 - CH_2OH$

What is the suitable reagent x ?

(1) $H_2 | Pt$

(2) $B_2H_6 | THF, H_2O_2 | OH^-$

(3) $Br_2 | HCl$

(4) $HBr | H_2O_2$

25. What is the oxidation number of Cr in $Na_2Cr_2O_7$?

(1) 2

(2) 6

(3) 10

(4) 16

26. What is the value of γ for mono atomic gas (ideal gas)?

(1) $\dfrac{7}{5}$

(2) $\dfrac{4}{3}$

(3) $\dfrac{5}{2}$

(4)   None of these

27.   Formula for half-life of a zero order reaction is

(1) $\dfrac{C_0}{K}$

(2) $\dfrac{C_0}{2K}$

(3) $\dfrac{2C_0}{K}$

(4) $\dfrac{2C_0}{2K}$

28.   In an ideal gas equation which is constant?

(1)   Temperature

(2)   Pressure

(3)   Volume

(4)   Universal gas constant

29. If two atoms have equal number of electron, it is called

    (1)   Isoelectronic

    (2)   Isotone

    (3)   Isobar

    (4)   None of these

30. Hund's rule state that

    (1)   Number of two e^- can be in two separate orbitals

    (2)   Number of two e^- can be present with similar spin in a orbital

    (3)   No one e^- can exist in d orbital

    (4)   None of the aboves

31. $^{19}F^{-1}$, $^{16}O^{-2}$ ^{20}Ne choose the correct statement

    (1)   Both O^{-2} and F^- are isoelectronic

    (2)   All given have equal no of e^-

    (3) F^- and Ne have equal number of e^-

    (4)   All of the above

32. Which one follow 18 electron octet rule?

(1) $[Mn(CO)_5]$

(2) $[Cr(CO)_5]$

(3) $[Fe(CO)_5]$

(4)   None of these

33. $CH_2 = CH - CHO \xrightarrow{\;?\;} CH_2 = CH - CH_2 - OH$ Suitable

reagent for conversion of following reaction?

(1) $NaBH_4$

(2) Ni/H_2

(3) $Zn/Hg/HCl$

(4)   Red P + HI

34.   Bordeaux mixture consists of

(1) $CuSO_4 + Ca(OH)_2$

(2) $CuSO_4 + CaCl_2$

(3) $ZnSO_4 + Mg(OH)_2$

(4) $FeSO_4 + Ba(OH)_2$

35. BrO_3^- changes into Br_2 in an acidic medium of a unbalanced

equation. How many electron should be present on the

balanced equation?

(1)   10 electron in left

(2)   6 electron in left

(3)   3 electron in left

(4)   3 electron in left

36.   Frenkel defect is present in which of the following?

(1)   NaOH

(2)   NaI

(3)   AgBr

(4)   None of these

37.   Butter is a colloidal solution of

(1)   Solid-solid

(2)   Liquid-solid

(3)   Solid-liquid

(4)   Gas-solid

38.   Azimuthal quantum number (l) defined

(1)   Shape of orbitals

(2)   Orientation of orbitals
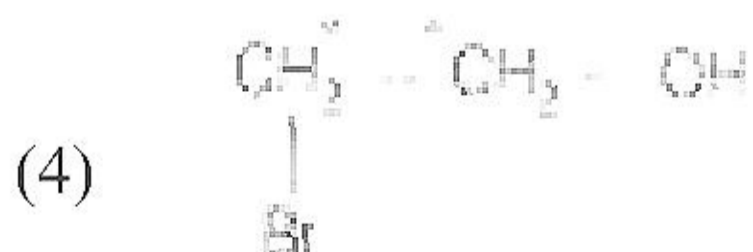
(3)   Energy of orbitals

(4)   Size of orbitals

39. $2KHCO_3 \rightarrow .... + CO_2 + H_2O$ find amount of gases formed (in lit.). When amount of $KHCO_3$ is 33 gm.

(1)   5.6

(2)   11.2

(3)   7.46

(4)   22.4

40. $CH \equiv CH \xrightarrow[\text{H}_2\text{O}]{\text{Hg}^{2+}/\text{H}^+} A \xrightarrow{\text{LiAlH}_4} B \xrightarrow{\text{P/Br}_2} C$. Final product C is

(1) CH_3CH_2OH

(2) CH_3CH_2-Br

(3) $CH_3 - CH_2 - I$

(4) $CH_3 - CH_2 - OH$
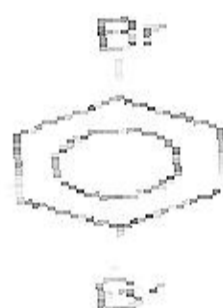 $\quad\quad\quad\quad |$
        $\quad\quad\quad\quad Br$

41.   Glucose $\xrightarrow{\text{HCN}} X \xrightarrow{\text{Hydrolysis}} Y \xrightarrow{\text{Red P+HI}} Z$ IUPAC name of Y and Z.

(1)   Hexa hydroxyl heptanoic acid, heptanes

(2)   Hepta hydroxyl hexanoic acid, hexane

(3)   Penta hydroxyl hexanoic acid, hexane

(4)   Hepta hydroxyl hexanoic acid, heptanes

42.   Write the IUPAC name of given structure

(1)   Para bromo benzene

(2)   1,4-di bromo benzene

(3)   Both (a) and (b)

(4)   Meta bromo benzene

43.   Which of the following statement is correct fro isotope of carbon?

(1)   Graphite is conductor of electricity

(2)   Diamond have all sp^3 carbon

(3)   Graphite is more stable thermodynamically than diamond

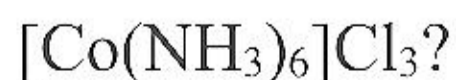(4)   All are correct

44. Write the IUPAC name of the following
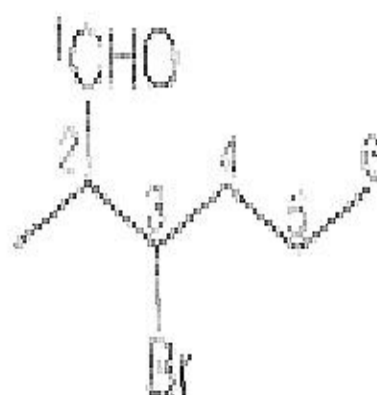
    (1)   2-bromo, 2-ethyl hexanal

    (2)   3-bromo-2-methyl hexanal

    (3)   2-methyl-3-bromo hexanal

    (4)   3-bromo-2-formyl hexane

45. Most common isotopes of hydrogen (non-radioactive) is

    (1)   Protium

    (2)   Deuterium

    (3)   Titrium

    (4)   All of these

46. How many ions obtain after dissociation of this complex $[Co(NH_3)_6]Cl_3$?

    (1)   3

    (2)   2

(3)   5

(4)   4

47.   Given $E^o_{Cr^{3+}/Cr} = -0.72$ V, $E^o_{Fe^{2+}/Fe} = -0.42$ The potential for the

cell $Cr|Cr^{3+}(0.1 \text{ M})\|Fe^{2+}(0.01 \text{ M})Fe$ is

(1)   -0.339 V

(2)   -0.26 V

(3)   0.26 V

(4)   0.3 V

48.   The magnetic moment of Ni^{2+} ion (atomic number of Ni=28)
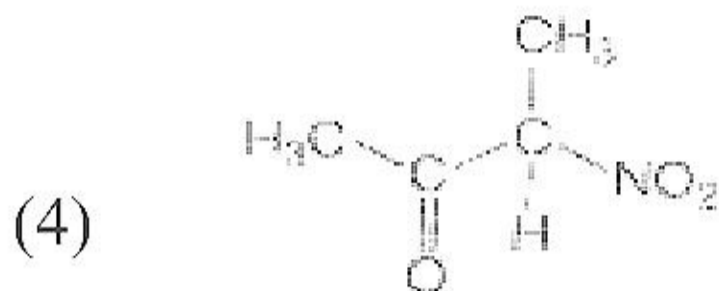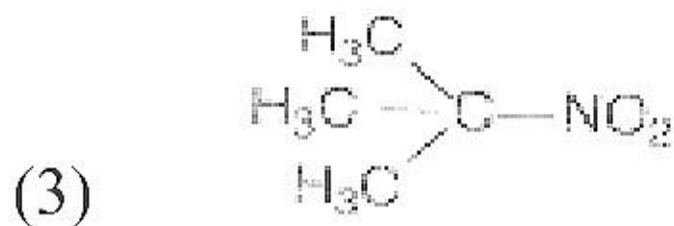
in BM unit is

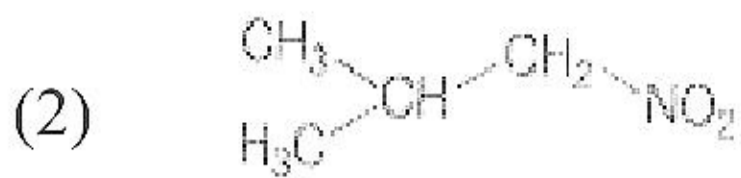(1)   1.73

(2)   4.81

(3)   5.96

(4)   2.84

49.   Which one of the following nitro compound does not react

with nitrous acid?

(1) $H_3C-CH_2-CH_2-NO_2$

(2)

(3)

(4)

50. The main product obtained from phenol with PCl_5 is

    (1)   BHC

    (2)   Hexachlorobenzene

    (3)   Cholorobenzene

    (4)   Triphenyl phosphate

51. An element with mass number 81 contains 31.7% more neutrons as compared to

    (1) $_{40}X^{81}$

    (2) $_{35}X^{81}$

    (3) $_{81}X^{31.7}$

(4) $_{40}X^{81}$

52. Which of the following will not be formed when calcium formate?

    (1)   Acetone

    (2)   Propanal

    (3)   Ethanal

    (4)   Methanal

53. If half-life of a substance is 36 minutes. Find amount left after 2 hrs. Initial amount 10 gm?

    (1)   1 g

    (2)   2 g

    (3)   3 g

    (4)   4 g

54. Mole of N_2=0.4 and moles of O_2=0.1. Find P_{N_2} (Partial pressure) N_2 =? At atmospheric pressure

    (1)   0.2 atm

    (2)   0.8 atm

    (3)   0.6 atm

(4)   0.4 atm

55. What is hybridization of O in H_2O?

    (1) sp

    (2) sp^3

    (3) sp^2

    (4)   No hybridization

56. Which of the following act as epimeric pair?

    (1)   Glucose and fructose

    (2)   Fructose and mannose

    (3)   Glucose and mannose

    (4)   Glucose and sucrose

57. Which cannot behave as a nucleophile for S_N2 reaction?

    (1) H_2O

    (2) CN^-

    (3) NH_2^-

    (4) I^-

58. Which of the following rare gas is the abundant in air?

(1) He

(2) Ne

(3) Ar

(4) Kr

59. Saccharin an artificial sweetener is manufactured from

    (1) Toluene

    (2) Cyclohexane

    (3) Starch

    (4) Cellulose

60. During nitration of benzene, the attacking electrophile is

    (1) NO_3^-

    (2) NO_2^-

    (3) NO_2^+

    (4) HNO_3