ST. LAWRENCE HIGH SCHOOL

27, BALLYGUNGE CIRCULAR ROAD

Class : 12 **Subject : CHEMISTRY** **Term : FIRST TERM** **Max Marks : 60**

Q 1 : Which of the following does not changes with the change in temperature? i. Mole fraction. ii. Molality. **Marks :** 1

1 . None of the above

2 . Both i & ii ☑ (This Answer is Correct)

3 . i

4 . only ii

Q 2 : When 100 g of sucrose (Molar mass = 342) is added to 100 g of water, the vapour pressure is lowered to 0.125 mm Hg at 25°C. What is the vapour pressure of pure water at 25°C **Marks :** 1

1 . 2.38 mm Hg

2 . 1.15 mm Hg

3 . 0.11 mm Hg

4 . 23.8 mm Hg ☑ (This Answer is Correct)

Q 3 : Considering the formation, breaking and strength of hydrogen bond, predict which of the following mixtures will show a positive deviation from Raoult's law? **Marks :** 1

1 . Methanol and acetone ☑ (This Answer is Correct)

2 . Chloroform and acetone

3 . Nitric acid and water

4 . Phenol and aniline

Q 4 : Which of the following are best to explain the action of negative catalyst in a chemical reaction? **Marks :** 1

1 . ☑ (This Answer is Correct)

It decreases the rate of the reaction because smaller fraction of the total molecules will react due to increase of energy activation

2 . It decreases the rate constant because the adding catalyst recovered unchanged at the end of the reaction

3 . It decreases the rate of reaction because rate constant for the reaction increases

4 . None of These

Q 5 : For a reaction taking place in three steps, The overall rate constant, K=K1.K2/K3, If Ea1, Ea2 and Ea3 are 40, 50 and 60 KJmol-1. Then the overall rate Ea becomes **Marks :** 1

(This Answer is Correct)

1 . 30

2 . 40

3 . 60

4 . 50

Q 6 : . In a zero-order reaction for every 10° rise of temperature, the rate is doubled. If the temperature is increased from 10°C to 100°C, the rate of the reaction will become **Marks :** 1

1 . 256 times

2 . 512 times (This Answer is Correct)

3 . 64 times

4 . 128 times

Q 7 : For a certain reaction, it is found that the equation relating the specific rate constant, k (M/s), and absolute temperature, T, is: lnk = (-)4420/T + 12.20. What is the value of the specific rate constant, k (M/s) at 500 K? **Marks :** 1

1 . 3.36

2 . 28.8 (This Answer is Correct)

3 . 21.04

4 . 10.4

Q 8 : A certain amount of current liberates 0.504g of Hydrogen in 2 hours. How many gram of copper can be liberated by the same time in a copper sulphate solution? **Marks :** 1

1 . 12.7g

2 . 15.9g (This Answer is Correct)

3 . 31.8g

4 . 63.5g

Q 9 : The ionic conductance of Ba2+ and Cl– are respectively 127 and 76 ohm-1 at infinite dilution. The equivalent conductance of BaCl2 at infinite dilution will be **Marks :** 1

1 . 139

2 . 203

3 . 279 (This Answer is Correct)

4 . None of these

Q 10 : The conductivity of electrolytic (ionic) solutions depends on **Marks :** 1

1 . the nature of the electrolyte added

2 . temperature

3 . size of the ions produced and their solvation

4 . all of these (This Answer is Correct)

Q 11 : The Lowest electrical conductivity of the following aqueous solutions is of **Marks :** 1

1 . 0.1 M acetic acid (This Answer is Correct)

2 . 0.1 M chloroacetic acid

3 . 0.1 M fluoroacetic acid

4 . 0.1 M difluoroacetic acid

Q 12 : The standard e.m.f. of galvanic cell involving 3 moles of electrons in its redox reaction is 0.59 V. The equilibrium constant for the reaction of the cell is **Marks :** 1

1 . 10

2 . 25

3 . 10

4 . 20

Q 13 : When phenol is heated with concentrated nitric acid the product is **Marks :** 1

1 . Picric acid (This Answer is Correct)

2 . o-nitrophenol

3 . 1, 3, 5 -trinitro benzene

4 . p-nitrophenol

Q 14 : Which of the following reagents can be used to oxidise primary alcohols to aldehydes? **Marks :** 1

1 . CrO3 in anhydrous medium

2 . KMnO4 in acidic medium

3 . Pyridinium chlorochromate (This Answer is Correct)

4 . Heat in the presence of Cu at 573K

Q 15 : XCH2OCH3 on treatment with CH3MgBr (in Dry ether) followed by hydrolysis forms **Marks :** 1

1 . CH3OCH3

2 . PhOPh

3 . PhOCH3

4 . CH3CH2OCH3 (This Answer is Correct)

Q 16 : Ethers are less soluble in water than alcohol, because **Marks :** 1

1 . Hydrogen bond formation (This Answer is Correct)

2 . Dipolar interaction

3 . Resonance

4 . Hyperconjugation

Q 17 : Wolff Kishner reduction of a ketone is carried out in the presence of which of the following? **Marks :** 1

1 . H2 and Pt as catalyst

2 . Glycol with KOH (This Answer is Correct)

3 . Zn-Hg with HCl

4 . LiAlH4

Q 18 : An organic compound X is oxidized by using acidified K2Cr2O7. The product obtained reacts with phenyl hydrazine but does not answer silver mirror test. The possible structure of X is **Marks :** 1

1 . (CH3)2CHOH (This Answer is Correct)

2 . CH3CHO

3 . CH3CH2OH

4 . Acetone

Q 19 : Aldehyde and ketone can be distinguished by- **Marks :** 1

1 . Tollens reagent (This Answer is Correct)

2 . Sodium bisulphite addition

3 . Brady's reagent

4 . All of these

Q 20 : Cyclopropanone forms stable geminal-di-ol, due to **Marks :** 1

1 . Inter molecular H-bond formation

2 . Due to release in angle strain (This Answer is Correct)

3 . Inductive effect

4 . Hyperconjugation

Q 21 : The strongest acid among the following is **Marks :** 1

1 . Dichloroacetic acid

2 . Dimethyl acetic acid

3 . Trifluoro acetic acid (This Answer is Correct)

4 . Triiodo acetic acid

Q 22 : When acetic acid is treated with P2O5, the product is **Marks :** 1

1 . Ester

2 . Ether

3 . Alcohol

4 . Acid anhydride (This Answer is Correct)

Q 23 : The irritation caused by red ants bite is due to **Marks :** 1

1 . Lactic acid

2 . Formic acid (This Answer is Correct)

3 . Uric acid

4 . Acetic acid

Q 24 : In the formation of Zwitterions proton goes from **Marks :** 1

1 . Carboxyl to an amino group (This Answer is Correct)

2 . Amino to a carboxyl group

3 . Amino group only

4 . Carboxyl group only

Q 25 : The term internal salt refers to **Marks :** 1

1 . Acidic character of amino acids

2 . The basic character of amino acids

3 . The dipolar character of amino acids (This Answer is Correct)

4 . Non polar structure of amino acids

Q 26 : In the presence of KF, AlF3 is soluble in HF. Find the complex formed **Marks :** 1

1 . K3[AlF6] (This Answer is Correct)

2 . AlH3

3 . K[AlF3H]

4 . K3[AlF3H3]

Q 27 : Which one of the following will exhibit highest osmotic pressure at 25°C? **Marks :** 1

1 . KCl

2 . Glucose

3 . Urea

4 . Calcium chloride (This Answer is Correct)

Q 28 : The wrong relation between osmotic pressure (P), volume (V) and temperature (T) is **Marks :** 1

1 . P α n if T and V are constant

2 . PV is constant if T is constant (This Answer is Correct)

3 . P α V if T is constant

4 . P α T if V is constant

Q 29 : Positive deviation from Raoult's law is observed when **Marks :** 1

1 . Inter molecular forces of attraction between the two liquids is greater than that between individual liquids

2 . Inter molecular forces of attraction between the two liquids is smaller than that between individual liquids

3 . Force of attraction between two liquids is greater than that between individual liquids

4 . Force of attraction between two liquids is smaller than that between individual liquid (This Answer is Correct)

Q 30 : If ethylene glycol is added to water in radiator cars during winter then it would lead to **Marks :** 1

1 . Reducing specific heat

2 . reducing viscosity

3 . lowering in freezing point (This Answer is Correct)

4 . Lowering in boiling point

Q 31 : Rate law for the reaction A + 2B → C is found to beRate = k [A] [B]. Concentration of reactant 'B' is doubled, keeping the concentration of 'A' constant, the value of rate constant will be **Marks :** 1

1 . The same

2 . Doubled (This Answer is Correct)

3 . Quadrupled

4 . HALVED

Q 32 : Rate law can be determined from balanced chemical equation if **Marks :** 1

1 . Reverse reaction is involved.

2 . It is an elementary reaction (This Answer is Correct)

3 . It is a sequence of elementary reactions

4 . Any of the reactants is in excess

Q 33 : Radioactivity of a sample (z = 22) decreases 90% after 10 years. What will be the half-life of the sample? **Marks :** 1

1 . 3 years (This Answer is Correct)

2 . 10 years

3 . 2 years

4 . 5 years

Q 34 : Molecularity of a chemical reaction may be **Marks :** 1

1 . Zero

2 . Fraction

3 . Integer (This Answer is Correct)

4 . all of these

Q 35 : In order to measure current in a resistance present in a circuit the ammeter is connected **Marks :** 1

1 . In series (This Answer is Correct)

2 . in parallel

3 . in series or parallel

4 . nothing can be decided

Q 36 : The feasibility of a cell reaction depends on **Marks :** 1

1 . E cell = 0

2 . E cell > 0 (This Answer is Correct)

3 . E cell < 0

4 . Can’t be predicted

Q 37 : Electrode potential of a cell is **Marks :** 1

1 . An intensive property (This Answer is Correct)

2 . An Extensive property

3 . Both a and b

4 . can’t be predicted

Q 38 : For the reduction of silver ions with copper metal the standard cell potential was found to be +0.46V at 25°C. The value of standard Gibbs energy, ΔG° will be (F = 96500 C mol-1) **Marks :** 1

1 . –44.5 kJ

2 . –98.0 kJ

3 . –89.0 kJ (This Answer is Correct)

4 . –87.0 kJ

Q 39 : The unit of conductance cannot be expressed in **Marks :** 1

1 . mho

2 . (ohm)-1

3 . Siemens

(This Answer is Correct)

4 . ohm/m

Q 40 : Which of the following statement is incorrect about Hunsdiecker's reaction? **Marks :** 1

1 . Only Cl2 can give alkyl halide (This Answer is Correct)

2 . I2 will give ester when treated with RCOOAg

3 . The reaction proceeds through free radical

4 . F2 cannot give alkyl halide

Q 41 : The reactivity order of different halides follows the following trend on reaction with anhydrous ZnCl2 and conc. HCl **Marks :** 1

1 . 3o>2o>1o (This Answer is Correct)

2 . 1o>3o>2o

3 . 1o>2o>3o

4 . 3o>1o>2o

Q 42 : Which of the following is called Westron? **Marks :** 1

1 . CH3Cl

2 . CHCl3

3 . CHCl2CHCl2

4 . CCl2=CHCl (This Answer is Correct)

Q 43 : "X" on treatment with sodium hydroxide followed by the addition of silver nitrate gives white precipitate at room temperature which is soluble in NH4OH. X can be **Marks :** 1

1 . Chlorobenzene

2 . Ethyl bromide

3 . Benzyl chloride

4 . Vinyl Chloride (This Answer is Correct)

Q 44 : C6H6Cl6 can also be recognized as **Marks :** 1

1 . 666 (This Answer is Correct)

2 . 6666

3 . 3636

4 . 66

Q 45 : Reimer-Tiemann reaction results in the formation of **Marks :** 1

1 . HCHO

2 . Benzoic acid

3 . Salicylic acid

4 . Salicyldehyde (This Answer is Correct)

Q 46 : Ethyl iodide on treatment with metallic sodium in presence of dry ether forms **Marks :** 1

1 . Butane (This Answer is Correct)

2 . Ethane

3 . Hexane

4 . Propane

Q 47 : How many alcohols with molecular formula C4H10O are chiral in nature? **Marks :** 1

1 . 1 (This Answer is Correct)

2 . 2

3 . 3

4 . 4

Q 48 : Which of the following cannot be used to convert RCOOR into RCH2OH? **Marks :** 1

1 . H2/Pd

2 . LiAlH4 (This Answer is Correct)

3 . NaBH4

4 . Reaction with RMgX followed by hydrolysis

Q 49 : Which of the following can work as a dehydrating agent for alcohol? **Marks :** 1

1 . H2SO4

2 . Anhydrous Al2O3

3 . P2O5

4 . All of these (This Answer is Correct)

Q 50 : The formation of cyanohydrin from a ketone is an example of **Marks :** 1

1 . Electrophilic addition

2 . Nucleophilic addition (This Answer is Correct)

3 . Nucleophilic substitution

4 . Electrophilic

Q 51 : Compound 'A' undergoes formation of cyanohydrins which on hydrolysis gives lactic acid (CH3CHOHCOOH). Therefore, compound 'A' is **Marks :** 1

1 . Formaldehyde

2 . Acetaldehyde (This Answer is Correct)

3 . Acetone

4 . Benzaldehyde

Q 52 : A C5H12O compound is optically active, and is oxidized by PCC in CH2Cl2 to an optically active C5H10O product, which is racemised in acid or base. Which of the following best fits these facts- **Marks :** 1

1 . 2-pentanol

2 . 2-methoxy butane

3 . 2-methyl-1-butanol (This Answer is Correct)

4 . 3-methyl-1-butanol

Q 53 : Ethanal is prepared industrially by air oxidation of ethylene using palladium chloride as a catalyst and _____ as a promoter **Marks :** 1

1 . PdCl2

2 . Cu2Cl2

3 . CuCl2 (This Answer is Correct)

4 . PbCl2

Q 54 : Which of the following reagents cannot be used to test carboxylic group? **Marks :** 1

1 . NaHCO3

2 . FeCl3

3 . Alcohol in presence of concentrated H2SO4

4 . Ceric ammonium nitrate (This Answer is Correct)

Q 55 : Rochelle's salt is **Marks :** 1

1 . Sodium potassium tartrate (This Answer is Correct)

2 . Sodium tartrate

3 . Potassium tartrate

4 . Calcium tartrate

Q 56 : Which is the correct order of decreasing acidity of lewis acids? **Marks :** 1

1 . BBr3 > BCl3 > BF3 (This Answer is Correct)

2 . BF3 > BCl3 > BBr3

3 . BCl3 > BF3 > BBr3

4 . BBr3 > BF3 > BCl3

Q 57 : What is the vapour pressure of pure liquid A at 27°C if it forms an ideal solution with another liquid B, the vapour pressure and mole fraction of pure liquid B at 27°C is 140 torr and 0.2 respectively? The total vapour pressure of the solution is 84 torr at 27°C. **Marks :** 1

1 . 56 torr

2 . 40 torr

3 . 70 torr ☑ (This Answer is Correct)

4 . 17 torr

Q 58 : 14CH3MgBr on treatment with 14CO2 generates **Marks :** 1

1 . CH3COOH

2 . CH314COOH

3 . 14CH314COOH ☑ (This Answer is Correct)

4 . 14CH3COOH

Q 59 : Which of the following will not give HVZ reaction? **Marks :** 1

1 . 2,2-dimethyl propanoic acid ☑ (This Answer is Correct)

2 . Propanoic acid

3 . Acetic acid

4 . 2-methyl propanoic acid

Q 60 : Which of the species has a permanent dipole moment? **Marks :** 1

1 . SF4 ☑ (This Answer is Correct)

2 . SiF4

3 . BF3

4 . XeF4
