(I) Concerning the melting point experiment:

The table below shows the melting points for two **unknown** compounds **A** and **B**, in addition to the measured melting points of mixtures of **A** and **B** with different substances.

Substance	Melting point °C
Unknown (A)	112-113
Cinnamic acid + **A**	95-111
Benzoin + **A**	85-100
Maleic acid + **A**	100-107
Urea + **A**	110-112

Substance	Melting point °C
Unknown (B)	130-132
Benzoin+ **B**	131-133
Maleic acid + **B**	118-127
Cinnamic acid+ **B**	120-126
Urea + **B**	117-125

1- According to the above results, unknown **A** is.....Urea.....and unknown **B** is.....Benzoin.....

2- If substance **A** is wet, the measured melting point will be ...higher than..(lower than, higher than, same as) 112-113 °C.

3- If some pieces of glass are present in substance **B**, the measured melting point will be ...same as.....(lower than, higher than, same as) 130-132 °C.

4- A mixture of **A** and **B** (50:50) will have a melting point (above 130 °C, lower than 112 °C, between 112-130 °C).

5- The range of melting point depends on:

(purity of organic solid only, rate of heating only, thickness of capillary tube only, all of them).

(II) Name the technique, the reagent or the tool that is used in the lab. to do the following:

a) Checking the purity of a solid substance

....extraction.....

b) Ensuring a completely sealed system during the distillation

.....grease.....

c) Avoiding fire when heating a flammable liquid.

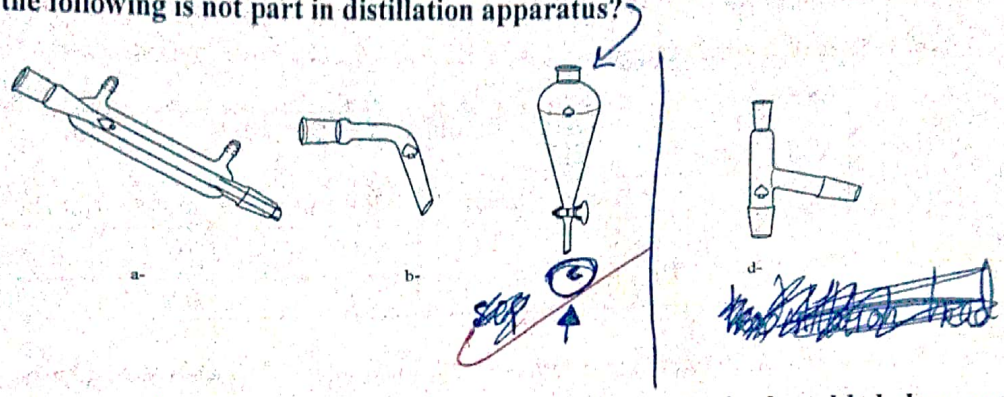
....mole.....stones.....

d) Removing traces of water in a solution of dichloromethane

.....drying....agent.....

6

(III)Which of the following is not part in distillation apparatus?



(IV) Concerning the boiling point experiment and using the information in the table below, answer the following:

Compound	Boiling point °C	Solubility in water
Ethanol (C_2H_5OH)	78	soluble
Water	100	
Decane ($C_{10}H_{22}$)	174	insoluble
Pentane (C_5H_{12})	38	insoluble

1- The boiling point of the mixture containing one mole **decane** and one mole **water** is

a) 174 °C b) between 100 °C and 174 °C c) 100 °C d) less than 100 °C

2- Which compound (from the above) can be separated from a mixture of nonvolatile material by steam distillation? .....Decane ($C_{10}H_{22}$).....

3- Which is the best distillation technique to separate a miscible mixture of **decane** and **pentane**?

.....evaporation.....(evaporation, simple distillation, steam distillation)

4- The boiling point of the mixture containing one mole **ethanol** and one mole **water** is

a) 78 °C b) between 78 °C and 100 °C c) 100 °C d) less than 78 °C

5- Which is the best distillation technique to separate a mixture of **ethanol** and **water**?

.....simple distillation.....

6- Which is the best ~~distillation~~ technique to separate a mixture containing **decane** and **water**?

.....steam.....distillation.....

3

(V) Concerning the recrystallization experiment and using the information in the table below, answer each of the following

Compound	Solubility in g, per 100 g of solvent				
	Water	Ether	Methanol	Acetone	Dichloromethane
W	1.8	12.1	9	16	15.2
R	6.0	15	7.0	6.5	10.4

1- The best solvent to extract substance W from water is.... Dichloromethan..

2- Calculate the Distribution coefficient (K_D) of R in ether/water... $K_D = \frac{S_o}{S_w} = \frac{S_{ether}}{S_{water}} = \frac{15}{3} = 5$

(VI) Concerning the steam distillation experiment, the following data refer to the vapor pressure of bromobenzene and water at different temperatures (external pressure = 760 mm Hg):

Temp. °C	70	75	80	90	100
P° water (mm Hg)	520	540	620	630	760
P° bromobenzene (mm Hg)	90	100	140	150	160

immisible

$P = P^\circ_w + P^\circ_{bromo} = P_{exter.} \Rightarrow$ @ 80°C

- At which temperature would the steam distillation occur (take place)?... 80°C
- Calculate the molar ratio of water/bromobenzene in the distillate?... $\frac{n_{water}}{n_{bromo}} = \frac{P^\circ_{water}}{P^\circ_{bromo}} = \frac{620}{140} = 4.4$
- Which one has a lower boiling point, (bromobenzene or water)?... water

(VII) How would each of the following mistakes affect the results of the indicated experiment?

a) Applying large spots on TLC plates

.... the.... compounds.... will.... mix.... and the reading.... won't.... be.... accurate

b) Strong shaking of dichloromethane and tea in the extraction of caffeine

..... emulsion..... will..... accures..., the.... reading.... will be less than the theory when separate.

c) Fast cooling of the hot filtrate in recrystallization.

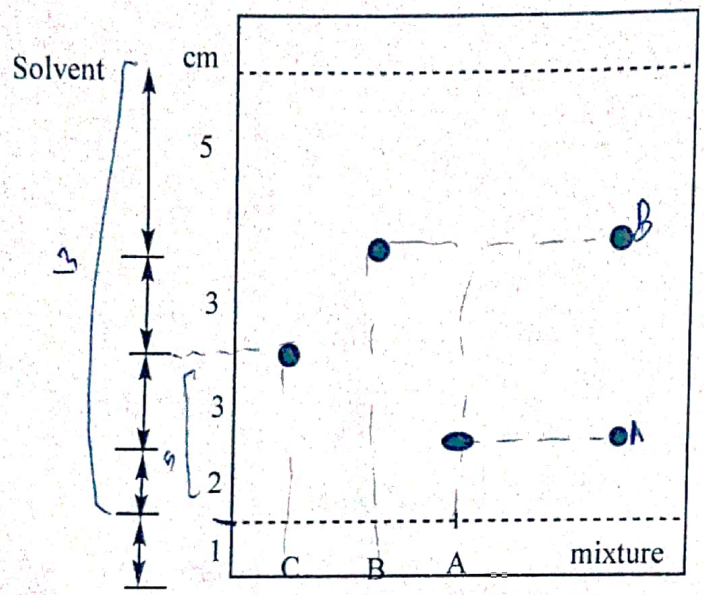
..... crystals.... will.... not.... formed.... it..... form slowly.... casting

d) Using a large amount of sample in melting point determination.

..... the.... melting point.... reading.... will.... be..... higher.... than the normal.

7

(VIII) Consider the following schematic diagram of TLC chromatograms of compounds A, B, C and an unknown mixture, then answer the below questions



a) The most polar compound among A, B and C is.....B.....

b) The R_f value of C is.....$= \frac{5}{13}$.....$= 0.385$

c) Which compounds are present in the above mixture?.....A.....and.....B.....

d) Which method should be used to visualize colorless spots?..using charcoal.....

2

6.5

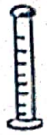
Chemistry Department
Date:08/10/2019

QUIZ (1)

Organic chemistry lab: 0333239

NAME-- Rana Taki Darwesh ---------- Student ID---- 2164707 ------

Q1: Write down the correct names for the following laboratory apparatus:



L ..... L ..... cylindrical ..... tube

Q2: Write true (**T**) or false (**F**) in front of each of the following:

1- The melting point for a compound is defined as the temperature at which the solid and liquid phases are in equilibrium. (T)

2- Insoluble impurities decrease and broaden the range of melting point (F)

3- If a mixture of compounds A and B melts sharply with only minor deviation from the true melting point, A and B are non identical (F)

4- Strength of intermolecular forces of the substance is directly proportional to the melting point (T)

5-Paraffin oil can be used as heating medium to measure the melting point (T)

6- Overheating decrease the melting point of the sample (F)

Q3: give two applications for using melting point technique

1- Defining the unknown compound. L

2-

Chemistry Department
Date:15/10/2019

QUIZ (2)

1 excellent

Organic chemistry lab: 0333239

NAME---Rana Zaki Darwesh--- Student ID---0164701---

Q1: At 25C^0 the vapor pressure of benzene is 95 mmHg and that of toluene is 30 mmHg, Calculate the total pressure of a solution containing 2 moles of benzene and 1 mole of toluene?

$P_T = X_B P_B^* + X_T P_T^*$

$= \frac{2}{3} \times 95 + \frac{1}{3} \times 30$

$= 31.6 + 10 = 41.6$ mmHg

$X_B = \frac{2}{3}$

$X_T = \frac{1}{3}$

Q2: During re-crystallization experiment:

1) Insoluble impurities are removed by ----hot filtration

2) Soluble impurities are removed by ----cold filtration

1) Colored impurities are removed by ----active subs. → charcoal !

Chemistry Department
Date:22/10/2019

QUIZ (3)

5

Organic chemistry lab: 0333239

NAME---Rama Zaki Darwish---------- Student ID---0164707---------

Q1: A substance (X) has solubility 0.5 g / 100 ml in hot water and 0.10 g / 100 ml in cold water. A student performed an experiment to recrystallize (X) using H_2O, the mass of mixture is 1.00 g and he obtained 0.20g. Calculate the following:

A) The volume of H_2O used to dissolve the sample

100 ml H2O and X

$S_x = \frac{0.5\ g}{100\ ml}$ → hot

$S_x = \frac{0.1\ g}{100\ ml}$ → cold

B) The maximum amount of X recovered from recrystallization

mass = 1 g

mass obtained = 0.2 g

Q2: Choose the best word in the box to complete each sentence:

Drying agent	Salting out	Emulsion	K_D	Solid-liquid extraction

1- The distribution coefficient is ...K_D.....

2- Isolation of caffeine from tea leaves by hot water is called .....solid-liquid extraction

3- Anhydrous $CaCl_2$ and $MgSO_4$ are examples of ...Drying.....agent

4- .....salting out..... decrease the solubility of organic compunds in the saturated aqueous layer.

5- The immiscible phases are not seperated clearly into two distinct layers . Emulsion

Chemistry Department **QUIZ (4)** 1.5
Date:29/10/2019

Organic chemistry lab: 0333239

NAME---Rama Taki Darwesh---------- Student ID---0164767---------

Q1: For what purpose the following was used in the lab last week?

1- $MgSO_4$ ..... ✓

2- NaCl ..... ✓

3- CH_2Cl_2 ....salting..... ✓

4- Na_2CO_3 .....drying.....agent ✓

5- Separatory funnel .....separate....the two layers .. <distillation>

Q2 (a): Define the distribution coefficient (K_D)

K_D = Solubility of ✓ / solubility

(b): What does it mean if K_D is high?

✓

Q3: (a) steam distillation is defined .....✓.....

.....

(b) mention two disadvantages for steam distillation

(1) .....✓.....

(2) .....

8

Chemistry Department **QUIZ (5)**
Date:05/11/2019

Organic chemistry lab: 0333239

NAME--Rama Taki Darwesh---------- Student ID---2164767--------

Q1: Write true (**T**) or false (**F**) in front of each of the following:

1- Thin layer chromatography is based on adsorption principle (T)

2- Silica and Alumina are examples of mobile phases (F) F

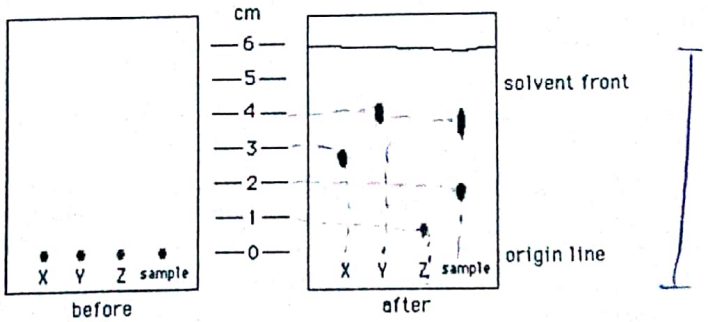
3- In your experiment, the greater the polarity of the eluent is the higher the R_f value (T)

4- The chemical nature of the components don't affect on the separation (F)

5- Filter paper soaks in the solvent chamber to saturate the atmosphere with solvent vapor (T)

6- For colorless spots may use iodine to give brown spots ( ) T

Q2: A mixture of X, Y and Z was analyzed by thin layer chromatography. In this experiment a **non-polar solvent** was used with a **polar stationary phase**. The following results were obtained:



1- Which suspected components (X, Y or Z) are present in the sample? y

2- What is the R_f value of the X component? $= \frac{3}{6} = 0.5$

3- Which of the suspected components is the most polar? the least polar?

y x z

$R_{f_Z} = \frac{1}{6}$

$R_{f_Y} = \frac{4}{6}$

$R_{f_X} = \frac{3}{6}$

$R_{f_{sample}} = \frac{2}{6} = \frac{4}{6}$

Chemistry Department
Date:11/11/2019

QUIZ (6)

Organic chemistry lab: 0333239

NAME--Rama Zaki Darwesh---------- Student ID----0164707----------

Q1: Fill the blank with the correct explanation:

1- Common acid that used for dehydration of alcohols is H^+, H_3PO_4.....

2- The correct order of reactivity for dehydrated alcohols is ...3°>2°>1°.....

3- The dehydration of primary (ROH) alcohols usually takes place by ..E_2. mechanism

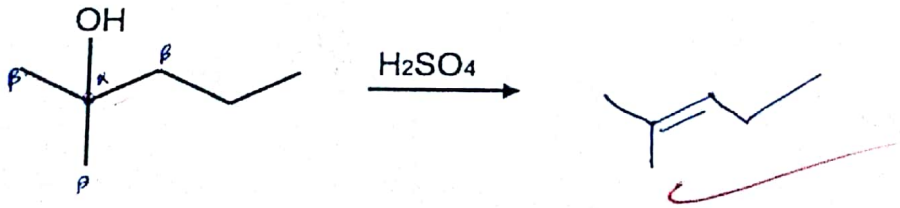
4- HCl and HBr are not suitable for dehydration because ..Cl^-, Br^-... react with Cl (→ alkelation take place)

5- According to (**Zaytzeff rule**), the major product of alkene is..more...substitutional (أكثر تفرع)

6- Test that used for detection of unsaturated bond in alkene is .....X.....

Q2: write the major (أكثر تفرع) product for the following equations:

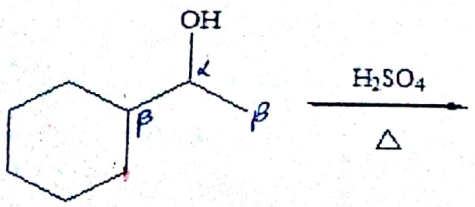
1-



2- $CH_3CH_2CH_2OH \xrightarrow[\text{room t°}]{H_2SO_4} CH_3CH=CH$

$C-\overset{\beta}{C}-\overset{\alpha}{C}-OH$

3-



Chemistry Department
Date:19/11/2019

QUIZ (7)

Organic chemistry lab: 0333239

NAME---Rama Zaki Darweesh---------- Student ID----1647067-----

NOTE: one bonus mark will be given to every student ☺ ☺ ☺

Q1: Fill the blank with the correct explanation:

1- The type of reaction for the preparation of alkyl halide from alcohol is ?

2- Preparation of alkyl halide from alcohol can undergo by addition of ...HX....

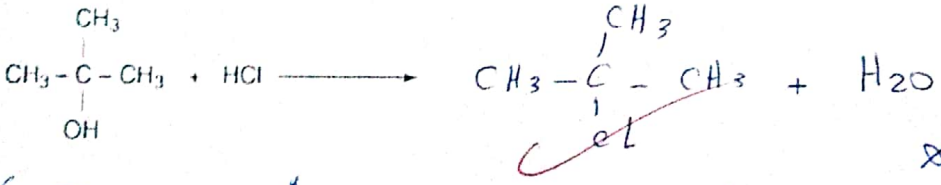
3- The substitution of primary alcohols usually takes place by .SN2 mechanism

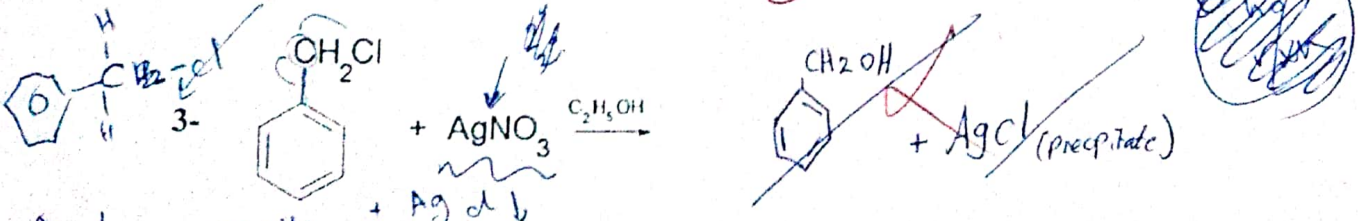
4- The stability of benzyl and allyl carbocations comes from ....resonance.....

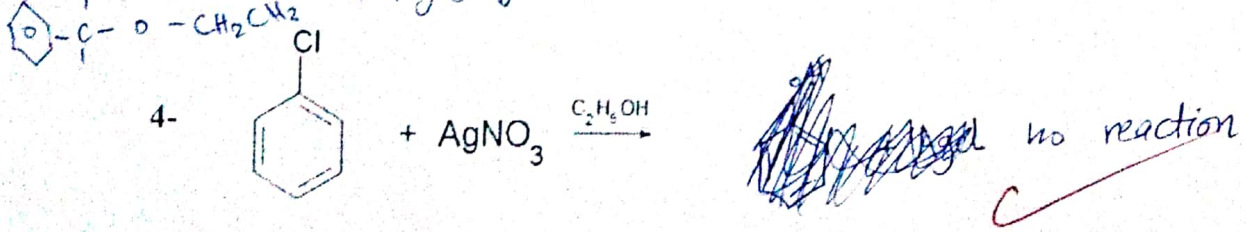
5- The order of reactivity for alcohols towards ethanolic silver nitrate is ...3°>2°>1°

Q2: write the major product for the following equations:

1- 

2- 

3- 

4- 

Chemistry Department
Date:03/12/2019

QUIZ (8)

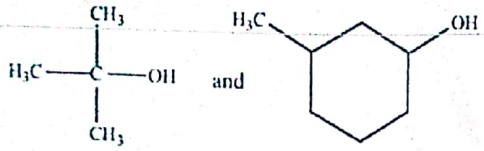
Organic chemistry lab: 0333239

NAME----Rana Zaki Darwesh---------- Student ID--0164707----------

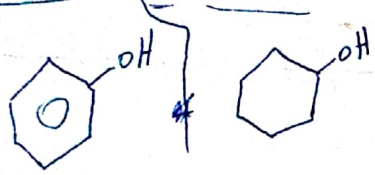
Q1: give a chemical test to distinguish between the following pairs :

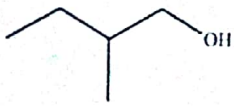
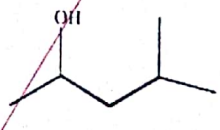
NOTE: Show the equations and observations for each

Zero

1-  and

2- Phenol and cyclohexanol



3-  and 

4- $CH_3CH_2CH_2OH$ and