NAME: EKONG EDIDIONG UDEME

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: MEDICINE AND SURGERY

MATRIC NO.:19/MHS01/147

	CHEM 102 ASSIGNMENT
	Give the IUPAC names of the following compounds
-	HCOOH - Methanoic acid
-	
	HOOCCHZCHZCHZCOOH - Pentan-1,5 -divicacid
-	CH3CH2 CH2 COOH - Etho Butanoicacid
	HO2C-CO2H-Ethanedioic acid
	CH3CCH2)4COOH - Hereanoic acid
	CHz CH = CHCHz CHz COOH - Heze-4 - ene pic acid
_	Mellionis acid Chamacacach & Chamacach Con School M
2	Discuss briefly the physical properties of carboxylic acids
-	under the following headings
4	Physical appearance
,	All simple aliphatic carbonylic acids up to Co are liquide
	at room temperature. Most other carboxylic acids are solid
	at room temperature although anhydrous carbozcy lie acid
	Cacetic acid) also known as glacial ethanoicacid freezes
	to an ice-like solid below the room temperature
	of once cal any managine (i) exercise catallet -
ĩi	Boiling point supplies and the supplies from 1973
0	Bothing point increases with increasing relative molecular
	mass. Aromatic carboxylic acids are crystalline solids and
	have higher melting points than their aliphatic counterparts
	of comparable relative molecular mass.
	Abolica de la companie de la compani
111	Solubility Bassans to make 1919
1	Lower molecular mass corrboxylic acids with up to tour
1	carbon atoms in their molecules are soluble in water; this
	largely due to their ability to form hydrogen bunds with water molecules. The water solubility of the acids decreas
	water molecules. The water solubility of the acids decreas

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as the relative molecular mass increases because the
Structure becomes relatively more hydrocarbon in nature
and hence covalent. All carbonylic acids are soluble in
organic solvents.
Dan Sandard 12 1 00 - 1 01
3 Write two industrial preparations of carboxylic acids
1 From Carbon (11) Ozcide
Methanoic acid Cformic acid) is manufactured by adding
carbon (11) viide under pressure to hot aqueous solution
of sodium hydroxide. The free comboxylic acid is liberated
by careful reaction with tetraioxosulphate (vi) acid (H250a)
CO NOOH > HCOONG HESOY > HCOOH + NattSOY
ladae and elaisis silveranas varia recta esta encolor de las
2 From ethanol
Ethanoic acid is obtained commercially by the liquid
phase air-oxidation of 5% solution of ethanal to
ethanoic acid using managanite (ii) ethanoate catalist -
Ethanal Hoelf is obtained from ethylene HC = CH dil. HzSO4/HgSO4> CHzCHO Oz/CCHz COO)z Mn CHzCOOH
HC = CH dil. HzSO4/HgSO4> CH2CHO O2/CCH2COO)2/10 CH2COOH
boo epile substalia sia epila situa dia staggitti cerra
* With explanations and brief equations and brief equations
- September 19 - Sept
4 With equations and brief explanation discuss the synthetic
preparetion of carbonylic acid
Oxidation of primary alcohols and aldehydes can be
Oxidation of primary alcohols and aldehines can be
used to prepare carbonylic acids using the usual oxidizing
agents (i.e. KzCrzOz or KMnOy) in acidic solution
RCH2OH DIENCESS acid/KMMO4 RCHO [0] > RCOOH

Carbonation of Grignauch reogent
Aliphatic carbonylic acids are obtained by bubbling
carbon Civioxide into the Crignard reagent and then
Aliphatic carbonylic acids are obtained by bubbling carbon Civioside into the Conignoval reagent and then hydrolyzed with dilute acid.
RMyBr + CO2 CCHSD > RCOOMBBr HZO /dil.acicl > RCOOH + MgBrOH
R may be 10, 20, 30 aliphatric alkyl or anyl radical
In the preparation of benzoic acid, the reagent is added
In the preparation of benzoic acid, the reagent is added to solid carbon (IV) oxide (oly ice) which also serves as
coolant to the reaction mizeture
GHzMgBr + CD2 (C2H8)20 > C6Hs COOMgBr H20/HT C6H5 COOH
+ Mg BrOH
RCN + 2420 Ht & RCOOH + NIH
RCN + 2H2O HT S PCOOH + NHT
(R=alkyl or aryl radical) RCOOR! H20/H+ reflux RCOOH+R'OH
RCOOR' HED/HT rETION RCOOH + R'OH
CH3CH2COOCH3 H2D/H+retluz CH3CH2COOH+ CH3OH
CH3CH2COOCH3 #201H'YEARS CH3CH2COOH+ CH3OH
Mitte character also also also also also also also also
With chemical equation only, outline the recluction,
decarboxylation and esterification of carboxylic acid

i Ro	furtion to orimani alcohol	
41	COOH + 3 LIALHY (GHS) (RCH20)4ALLI+2LIALO2+4H2	
		7 (13)
The same of the sa	4 H2 O	
	4RCHZOH+ AI(OH)Z+LiOH	326
and the same of th		
CH	CH2CH2COOH LiAIH4 > CH2CH2CH2CH2CH2OH	ALL L
	Butanoir acid Butanol A	abla
		S. FUS
ii b	carboxylation	
# To	armal decarbonulation	
CH	3CHZCHZ COONIA + NIADH fuse > CHZCHZCHZ + NIAZ COZ) E
1 11	II a Macco	
2c	ty CHz COONG+2HzO eletrolysis lag. CH3OH > CH3CCHz)z CH3 + COze	(anode)
-		ATHE
21	laOH + Hzccafende)	
		11
In Es	erification	
CH	3CH2CH2COOH + CH3CH2CH2OH CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2C	CH3 +
	propylbutanoate	45
+	H ₂ O	
	·	