



مدونة المناهج السعودية

<https://eduschool40.blog>

الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

## Hydrocarbons

( compounds contain Carbon & Hydrogen only )

	Alkane		Alkene		Alkyne	
<b>General formula</b>	$C_nH_{2n+2}$		$C_nH_{2n}$		$C_nH_{2n-2}$	
	$CH_4$	Methane	----	-----	----	----
	$C_2H_6$	Ethane	$C_2H_4$	Ethene	$C_2H_2$	Ethyne
	$C_3H_8$	Propane	$C_3H_6$	Propene	$C_3H_4$	Propyne
	$C_4H_{10}$	Butane	$C_4H_8$	Butene	$C_4H_6$	Butyne
	$C_5H_{12}$	pentane	$C_5H_{10}$	pentene	$C_5H_8$	pentyne
	$C_6H_{14}$	hexane	$C_6H_{12}$	hexene	$C_6H_{10}$	hexyne
	.....ane		..... ene		.....yne	
<b>Bonds</b>	Single —		double =		Triple ≡	
<b>Kind of bond</b>	sigma		Sigma + pi		Sigma + 2 pi	
	saturated		unsaturated		unsaturated	
<b>Angle</b>	109.5		120		180	
<b>Shape</b>	tetrahedral		Triangle		linear	
<b>Hyperdization</b>	$Sp^3$		$Sp^2$		$Sp$	

compounds	General Formula
alkane	$C_nH_{2n+2}$
alkene	$C_nH_{2n}$
alkyne	$C_nH_{2n-2}$
alkyle	$C_nH_{2n+1}$
aromatic	$C_nH_{2n-6}$

Alkyl : alkane without one hydrogen atom

Alkyl ( R )	name	Halogen ( x )	
$CH_3$	Methyl	F	Floro
$C_2H_5$	Ethyl	Cl	Chloro
$C_3H_7$	propyl	Br	Promo
$C_4H_9$	butyl	I	Iodo

$NO_2$	Nitro
$NH_2$	amino

CH-7

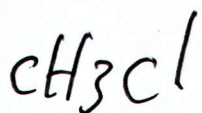
①

\* Functional group المجموعات الوظيفية

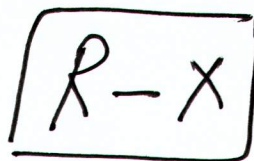
atom or group of atoms responsible for the properties of the compound.

ذرة أو مجموعة من الذرات مسؤولة عن خواص وخصائص المركب.

① Alkyl halides هاليدات الألكيل

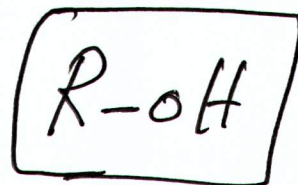


chloromethane

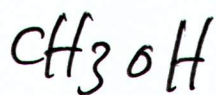


Bromoethane

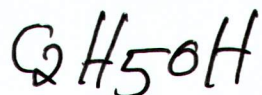
② Alcohols الكحولات



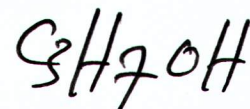
$-OH$  hydroxyl group.



methanol



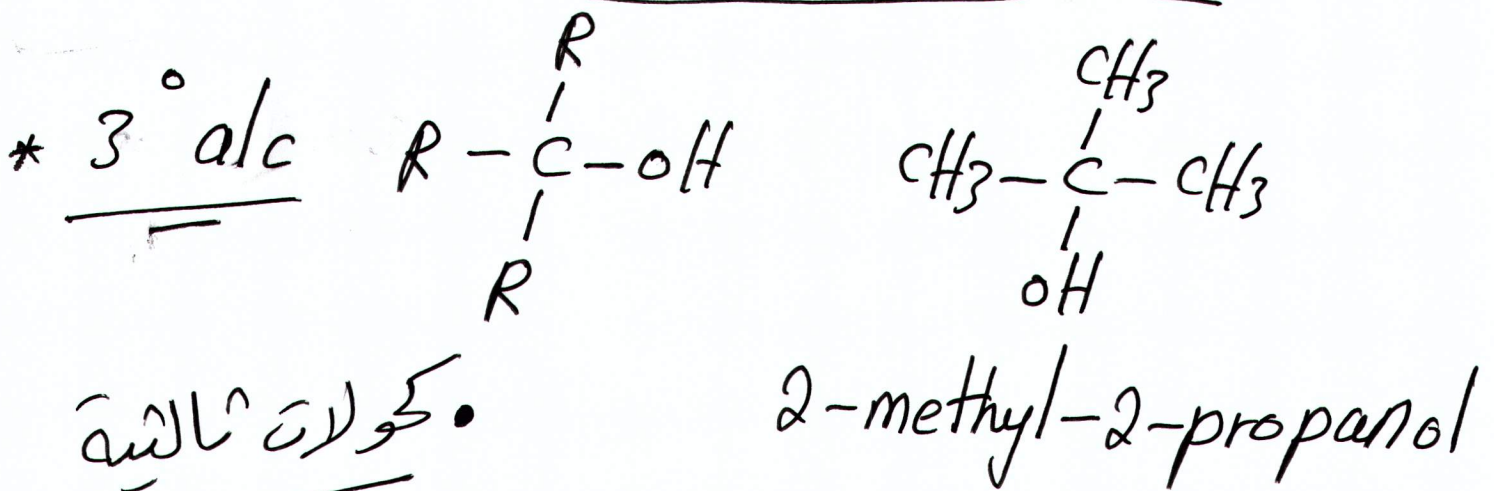
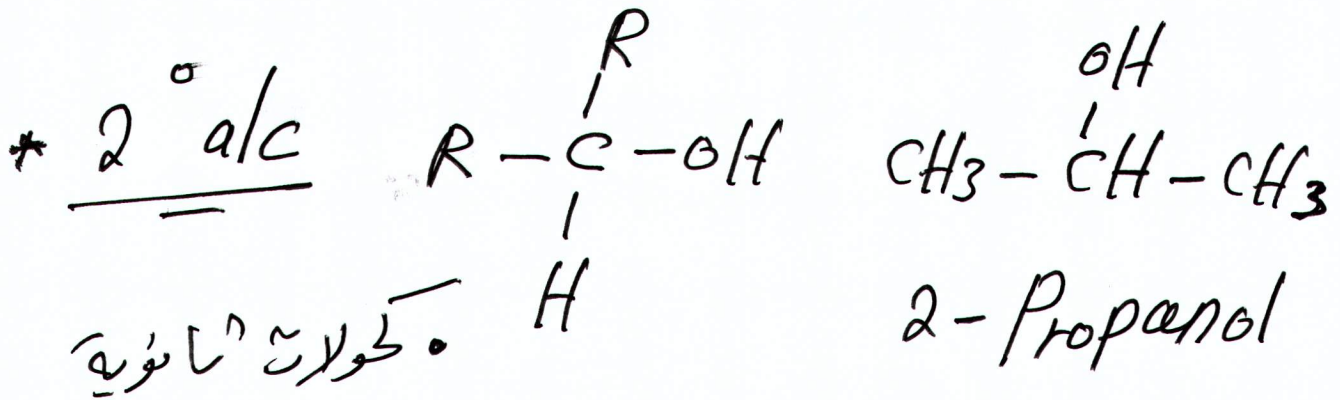
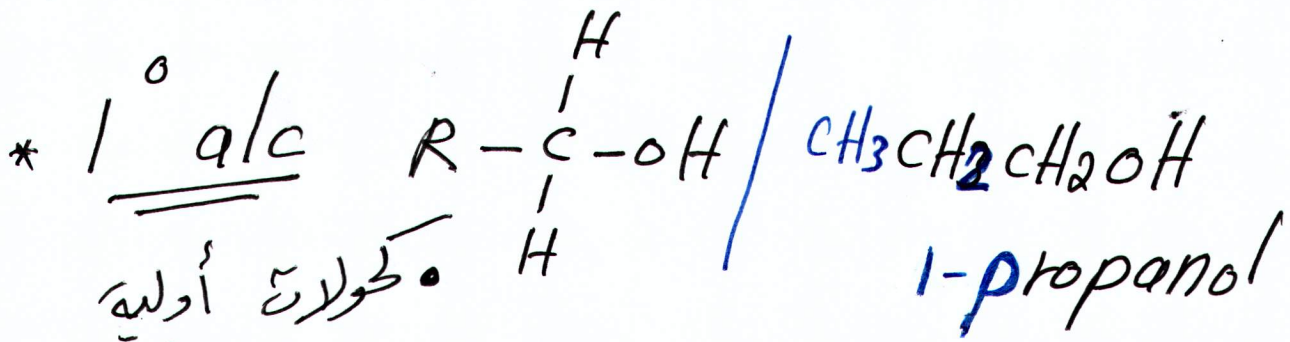
Ethanol



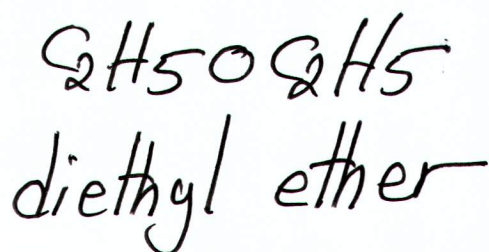
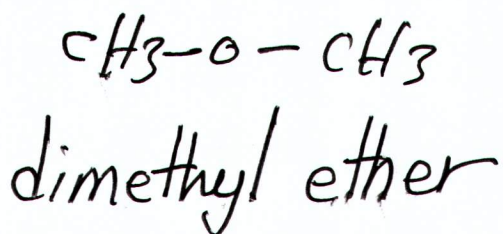
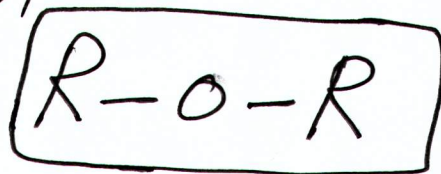
propanol

CH-7

②



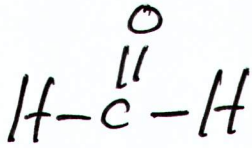
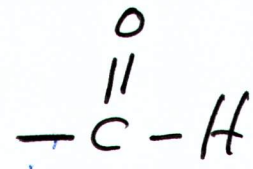
③ Ether الاثيرات



ch-7

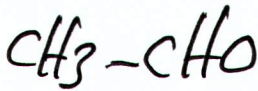
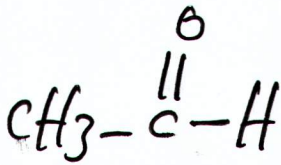
3

4 Aldehyde الألدِهيدَات



methanal

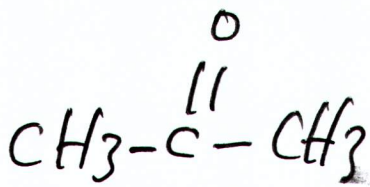
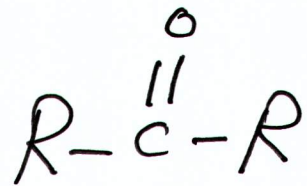
الفورمالدهيد (Formaldehyde)



ethanal

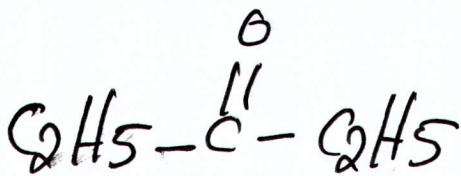
الاسيتالدهيد (acetaldehyde)

5 Ketones الكيتونات



2-propanone

عزيرك ثلاث الأنتان (acetone)

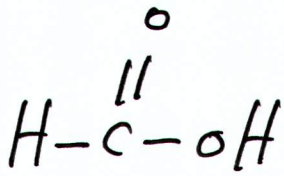


3-pentanone

CH-7

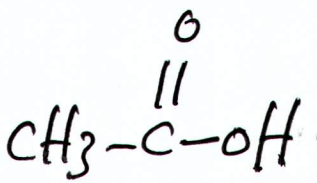
4

⑥ Carboxylic acids الحامض الكربوكسيلية



HCOOH methanoic

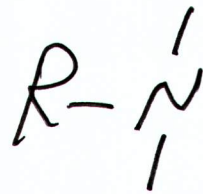
حمض الفورميك (Formic acid)



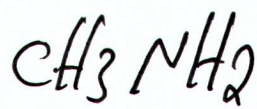
CH<sub>3</sub>COOH Ethanoic

حمض الخليق (acetic acid)

⑦ Amines الأمينات

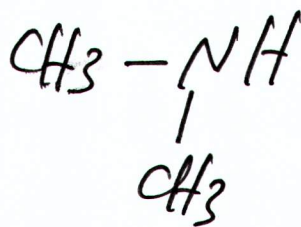


1<sup>o</sup> amine



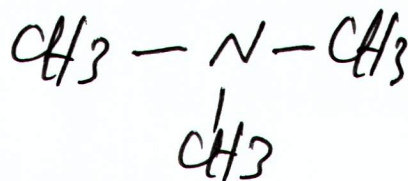
methyl amine

2<sup>o</sup> amine



dimethyl amine

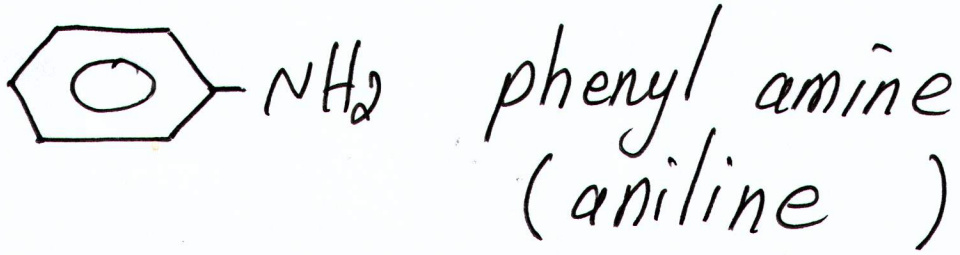
3<sup>o</sup> amine



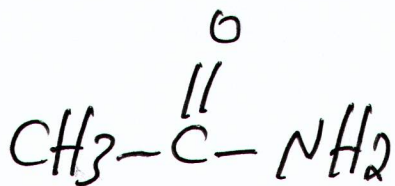
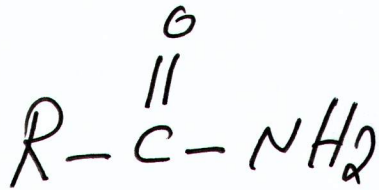
trimethyl amine

CH-7

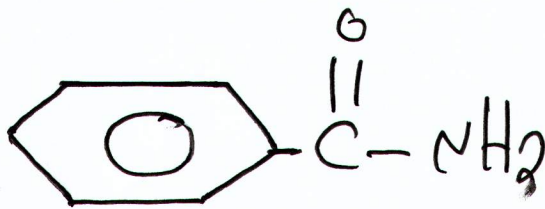
5



⑧ Amides الأَمِيَدَات



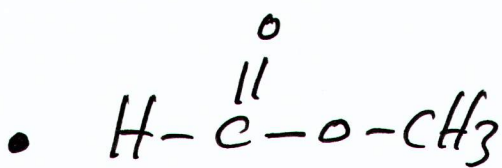
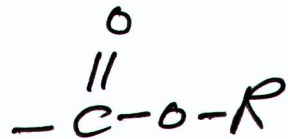
Ethanamide.



phenylmethanamide.

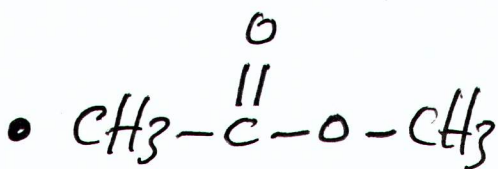
(benzamide.)

\* Esters الأَسْتَرَات



-COOR

methyl acetate



Ethyl acetate



CH-7

6

\* Biochemistry الكيمياء الحيوية

جزئيات الحياة

\* Biopolymers: macromolecules found in all living cells

\* Proteins البروتينات

\* Lipids الدهون

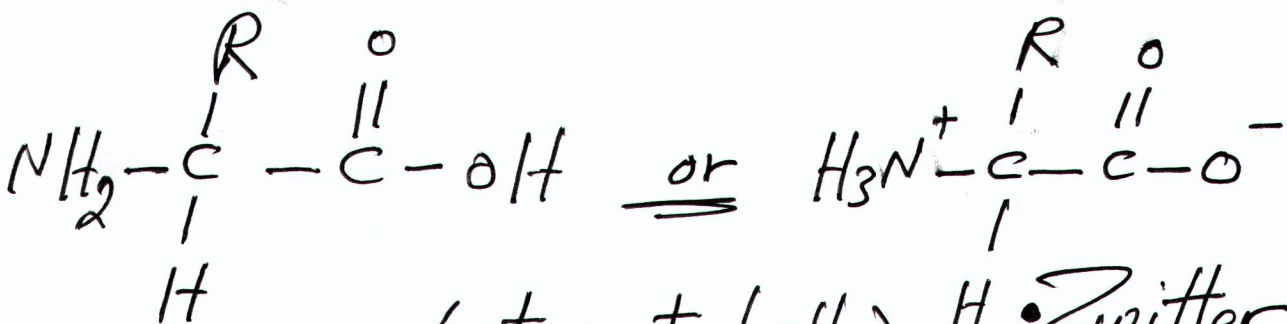
\* Carbohydrates الكربوهيدرات

\* Nucleic acids الأحماض النووية

\* Amino acids الأحماض الأمينية

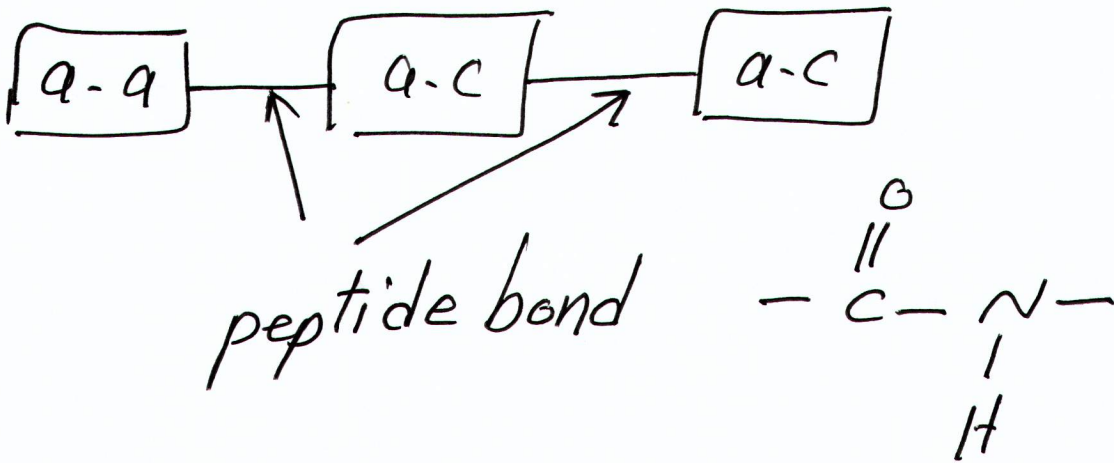
\* are the building unit of proteins

\* total number of a-a are (20).



(at neutral pH) H<sup>+</sup> • Zwitter ion

\* Polypeptides: large no. of amino acids linked together by peptide bond  
الربطة الببتيدية



\* Carbohydrates الكربوهيدرات  
(sugars - polysaccharids)

• monosacharides آحادية السكر  
Ex: glycose, Fructose

• Polysacharides عديدة السكر  
Ex: starch النشا  
cellulose السيليلوز

ثنائية السكر

• Disaccharides | sucrose, Ribose, Galactose

chl-7

8

\* lipids (oils + Fats).

are biopolymers for energy storage.

\* Fats → lipids derived from  
(glycerol + Fatty acid).

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\* Nucleic acids المحموض النووية

• are chemical carriers of genetic informations  
حوامل للمعلومات الجينية

Nucleic acids

DNA

RNA

\* inside the nucleus

\*  $(16-20) \times 10^6$  amu

\* outside the nucleus  
(cytoplasm)

\*  $(20-40) \times 10^3$  amu

CH-7

9

\* Nucleotides:

\* are the building blocks of nucleic acids

\* each nucleotide consists of

- sugar
  - nitrogen bases
  - phosphate group
-