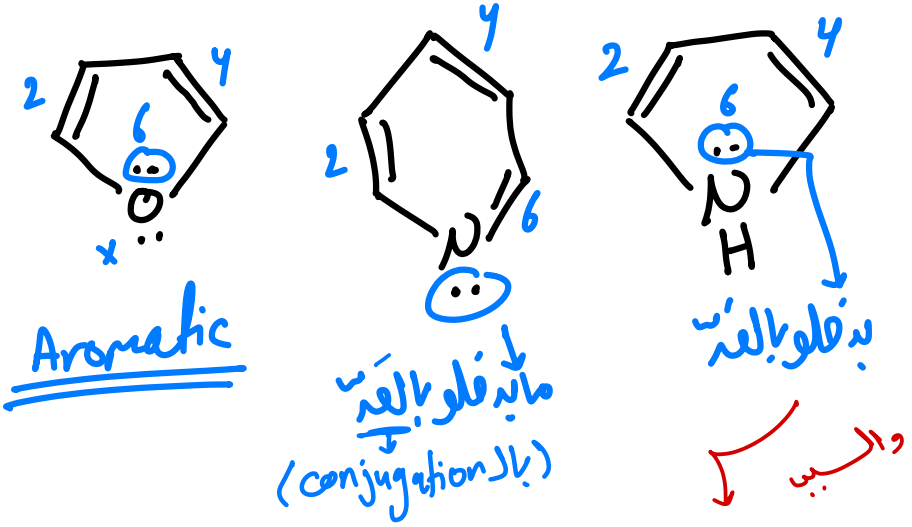
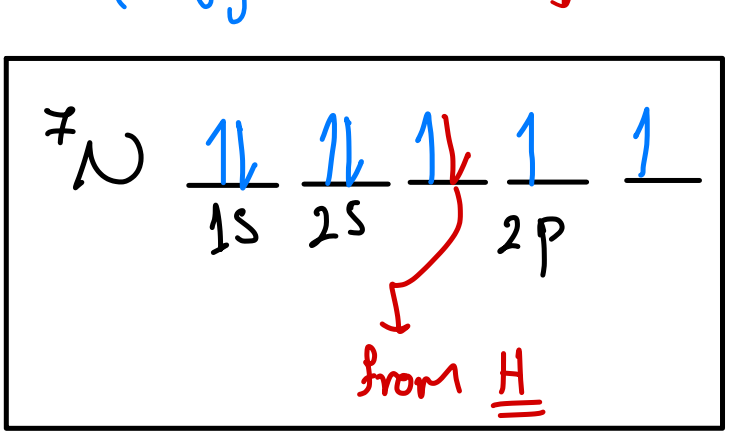




لانه الN بتعمل رابطة باي مع ال H

التفرعات الاخرى

الترتيب حسب الاولوية ⬅️ Highest polarity heteroatom > other heteroatom > hydrogenation > substitutions

طريقة كتابة الاسم عالاغلب تكتب بهذه الطريقه ⬅️

اول اشي بالتسمية بنكتب الsubsitution اذا كان موجود حسب الابجدية، بعدين part ال(H) hydrogenation, بعدين part الاسم لل heteroatom واذا كان اكتر من وحدة حسب الpolarity، واخر اشي بالاسم اذا كان في carboxylic او carbonyl ... وهكذا acid

---

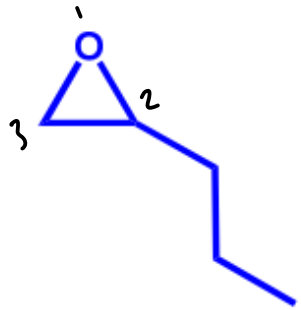
The compound with the maximum number of noncumulative double bonds is regarded as the parent compound of the monocyclic systems of a given ring size.

Oxirine Azirine Azepine Azocine

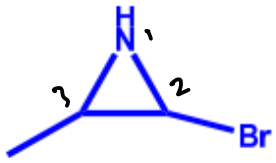
حسب الpolarity :
F > Cl > Br > I

الاولوية لل heteroatom ، والتفرعات التانيه الموجودة بالحلقة تاخذ اقل رقم، و نرقمهم حسب الاعلى polarity

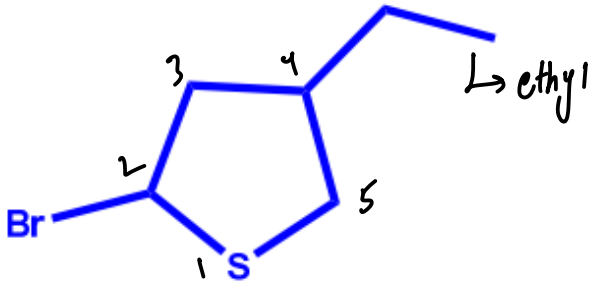
In case of substituents, the heteroatom is designated number 1, and the substituents around the chain are numbered so as to have the lowest number for the substituents.



2-Propyloxirane



2-Bromo-3-methylaziridine

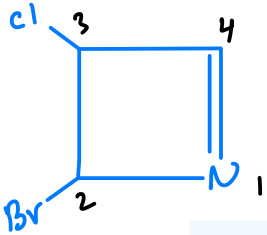


2-Bromo-4-ethylthiolane

S 5 Satu.

*example:-

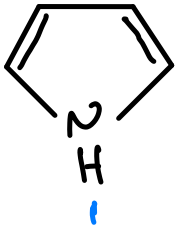
3-Bromo-2-chloroaziridine



2-Bromo-3-chloroazete

ال polarity للCl اعلى من الpolarity لل Br عشان هيك اخذت الرقم الاقل،
اما عند التسمية نبدأ حسب الحروف الابجدية

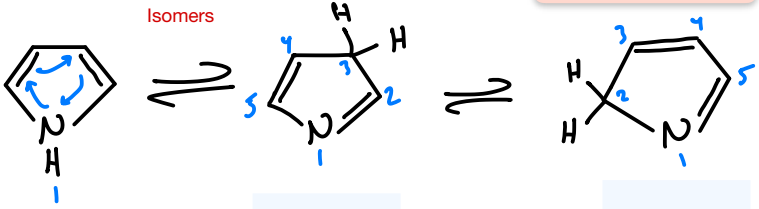
Position of H (hydrogenation) :



1H- pyrrole

isomerism
يعني ال double bond او
ال(pair of electron)
بتتحرك حتى تلاقي الstable
الي بتناسبها position

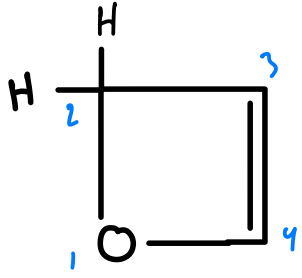
Isomers



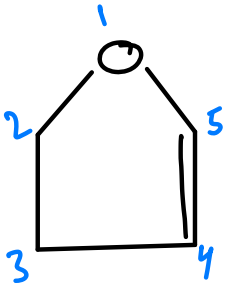
1H- pyrrole

3H- pyrrole

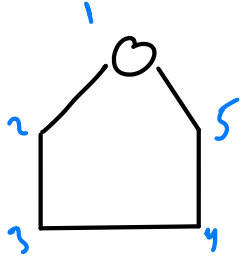
2H- pyrrole



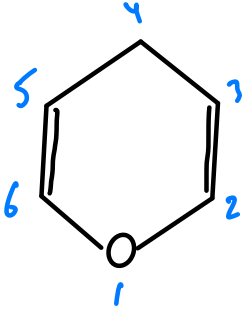
2H- Oxete



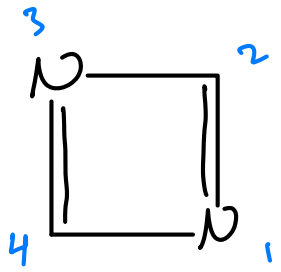
2,3-dihydrofuran
Or
Oxole



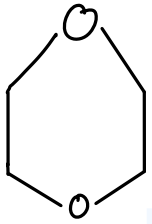
2,3,4,5-tetrahydrofuran
Or
Tetrahydrofuran
Or
Oxolane



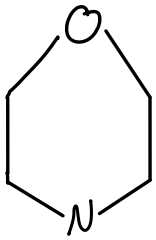
4H-Oxine
Or
Pyran



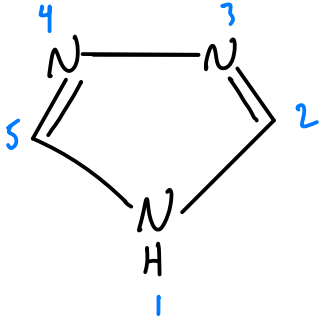
1,3-diazete



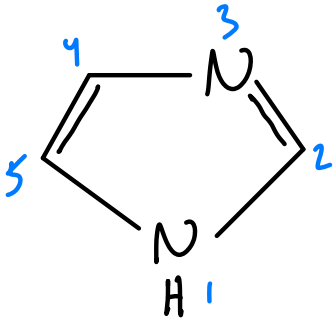
1,4-dioxane



1,4-oxazinane
(Morphiline)



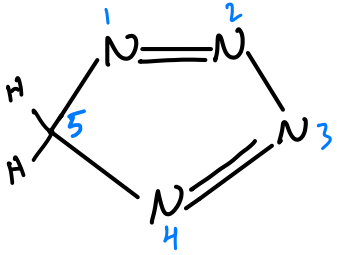
1,3,4-1H-triazole



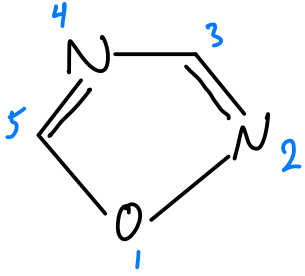
الاولوية للN المرتبطة بذرة الH

1,3-1H-diazole
(imidazole)

موجود بأدوية الanti-fungal



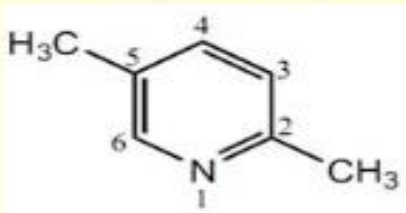
1,2,3,4-5H-tetrazole
Or
Tetrazole



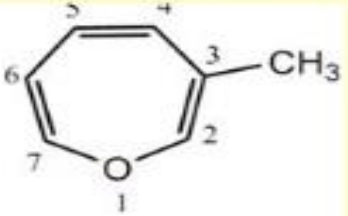
1,2,4-oxadiazole

Numbering

With one heteroatom: The numbering starts from the heteroatom giving the position-1 and proceeds in such a way as to give the lowest possible locant to the substituent if present.

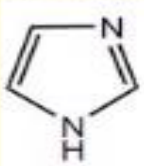


2,5-Dimethylpyridine

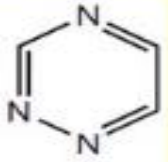


3-Methyloxepine

With two or more identical heteroatoms: The ring is numbered in such a way that the heteroatoms are assigned the lowest possible set of number of locants.

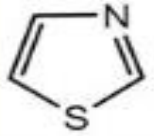


1,3

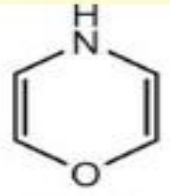


1,2,4

With two or more different heteroatoms: The numbering starts from the heteroatom with the highest preference as in the table (O>S>N…). The remaining heteroatoms are given lowest number locants.



1,3-Thiazole

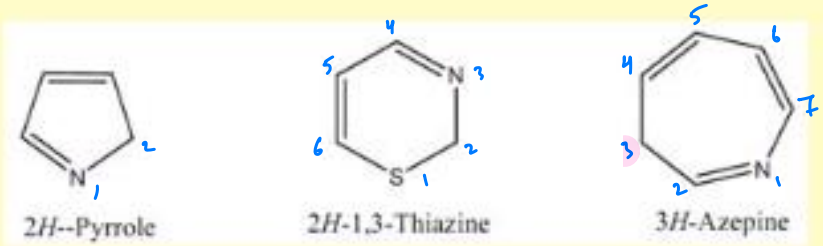


1,4-Oxazine

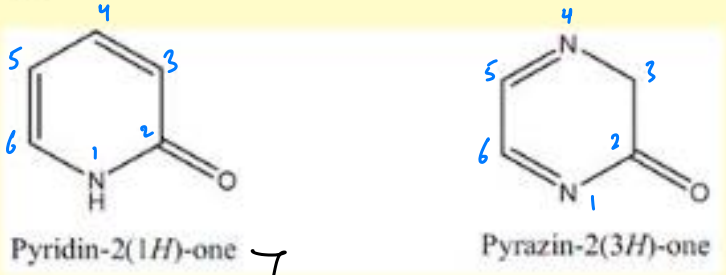
1,4-1H-Oxazine

Presence of saturated atom (indicated hydrogen)

- When heterocyclic ring with maximum number of noncumulative double bonds contains a saturated atom, its position is given the lowest possible locant and is numerically indicated by an italic capital *H* before the name of heterocyclic ring system.

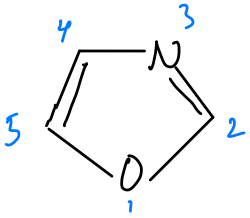


•However, the heterocyclic system in which a carbon atom of the ring is involved in the carbonyl group, the indicated hydrogen is normally cited as an italic capital *H* in parenthesis after the locant of the additional structural features.

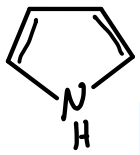


يُفضل كتابة الH اول بالتسمية ← 1H-azine-2-one

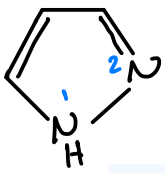
1,4-diazin-2-one



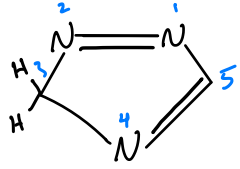
1,3-oxazole



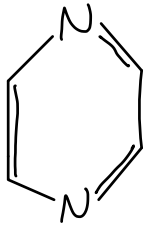
1H-pyrrole



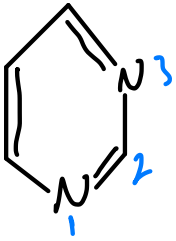
1,2-1H-diazole



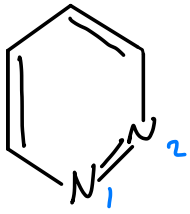
1,2,4-3H-triazole



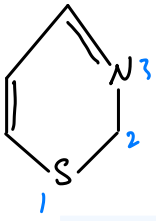
1,4-diazine
(Pyrazine)



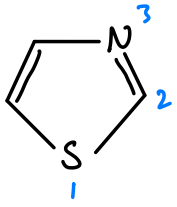
1,3-diazine
(Pyrimidine)



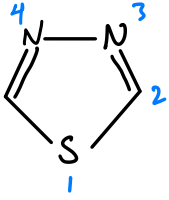
1,2-diazine
(Pyridazine)



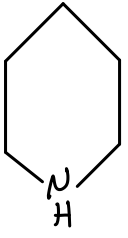
1,3-2H-thiazine



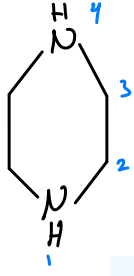
1,3-thiazole



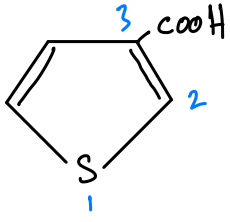
1,3,4-thiazole



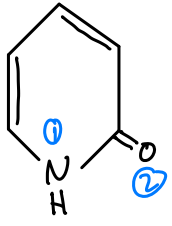
Azinane
(Piperidine)



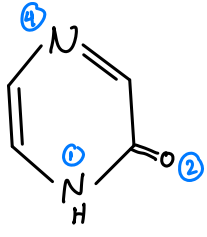
1,4-diazinane
(Piperazine)



Thiol-3-carboxylic acid

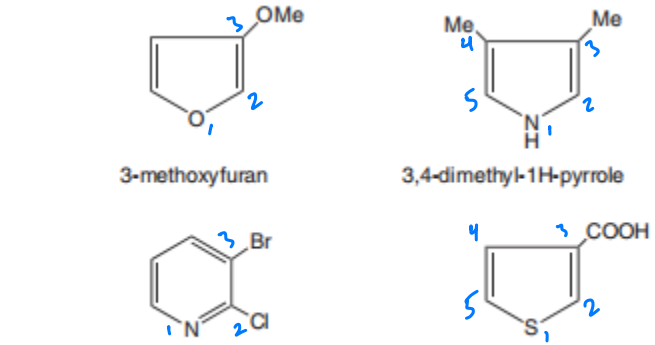


1H-pyrdin-2-one



1H-pyrazine-2-one
Or
1,4-1H-diazine-2-one

- 2.4. SUBSTITUTED MONOCYCLIC COMPOUNDS
- With the rules discussed previously, we can name any parent mono cyclic heterocycle with a single heteroatom, in any state of unsaturation.
- Compounds in which ring hydrogen is replaced by one or more of thecommon functional groups of organic chemistry also are readily named,by assigning numbers to the ring atom(s) bearing the substituents,
- RINGS WITH MORE THAN ONE HETEROATOM starting with the heteroatom as number 1. The functional groups areplaced alphabetically in the name. Some examples are as follows:



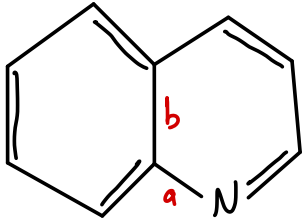
- Each heteroatom is then given a number as found in the ring, with that of highest priority given position 1
- A saturated heteroatom with an extra-hydrogen attached is given priority over an unsaturated form of the same atom, as in 1H-1,3-diazole (see the following discussion).
- The numbers are grouped together in front of the heteroatom listings (thus, 1,3-oxazole, not 1-oxa-3-azole).
- The heteroatom prefixes follow the numbers in the priorities given previously
- Punctuation is important; in the examples to follow, a comma separates the numbers and a dash separates the numbers from the heteroatom prefixes.

2 rings ← # BICYCLIC COMPOUNDS

- We next consider systems where two rings share a common
- single or double bond, which are said to be fused rings. A common
- case is where a benzene ring is fused to a heterocyclic ring. The namebegins with the prefix “benzo.”
- The point of attachment is indicated by a letter that defines the “face” of the heterocycle involved. Thus, the 1,2- position on the heterocyclic ring is always the “a-face,” 2,3- is the“b-face,” 3,4- is the “c-face,” and so on. After the name is established,the ring atoms are given new numbers for the entire bicycle.

(benzo) Prefix - [the attachment bond between two rings]- heterocyclic ring

التسمية لما يكون عنا benzene ring
⬅️ fused with heterocyclic ring

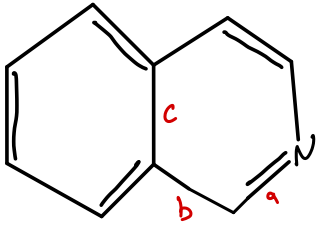


Benzo-[b]-pyridine
(Quinoline)

موجود في دواء Quinine الي هو anti-malarial agent

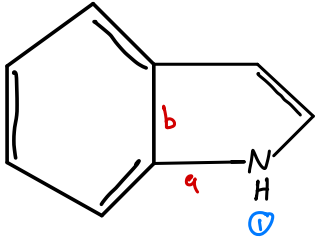
a➡️ مباشرة heteroatom الي بعد ال bond ال

b➡️ attachment bond between two rings

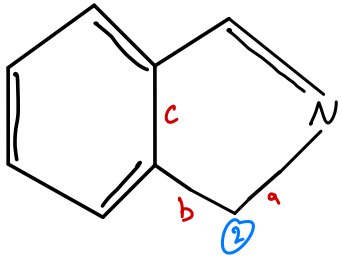


Benzo-[c]-pyridine
(isoquinoline)

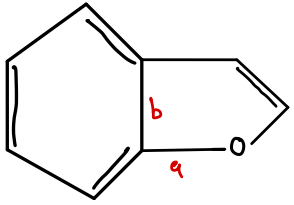
لا تكون الattachment bond هي C بكون اسمه iso-



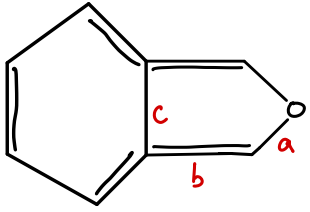
Benzo-[b]-1H-pyrrole
(indole)



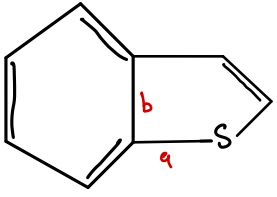
Benzo-[c]-2H-pyrrole
(isoindole)



Benzo-[b]-furan
Or
Benzofuran



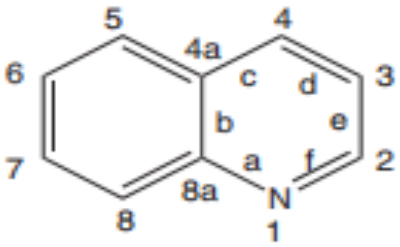
Benzo-[c]-furan
(isibenzofuran)



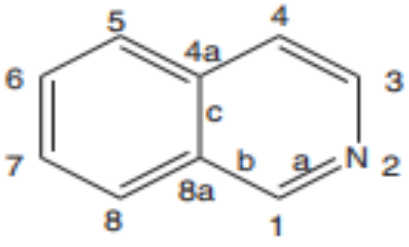
Benzo-[b]-thiophene

In Table 2.4 and in subsequent examples, the letters for the faces of the monocycleare placed inside the ring, and the numbers for ring positions of the bicycle taken as a whole are shown on the outside.
Note that the final numbering always begins **at a position next to the benzo group and that the heteroatoms are given the lowest numbers possible, observingthe O > S > N > P rule.**
The positions of ring fusion bear the number of the preceding ring atom with the letter “a” attached.
Brackets are used around the face letter, and the name is put together without spaces, except that a dash separates the bracket from ring numbers if present, asin benzo[d]-1,3-thiazole.

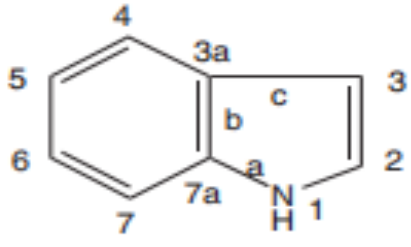
Table 2.4. Benzo-Fused Systems



benzo[b]pyridine
(quinoline)

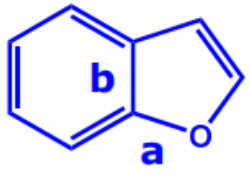


benzo[c]pyridine
(isoquinoline)

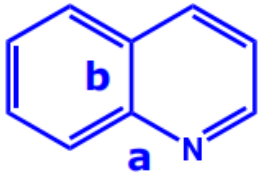


1H-benzo[b]pyrrole
(indole)

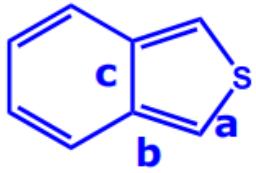
The name of the heterocyclic ring is chosen as the parent compound and the name of the fused ring is attached as a prefix. The prefix in such names has the ending *'o', i.e., benzo, naphtho and so on.*



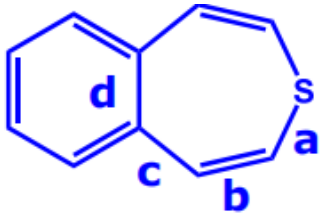
Benzo [b] furan



Benzo [b] pyridine



Benzo [c] thiophene



Benzo [d] thiepine