

Mastering Organic: A Challenge

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Ar-CHO

Knoevenagel

Aldol

Beckmann

Betti

Biginelli

Claisen-Schmidt

Grignard

Benzoin

Mannich

Tischenko

Hemry

Wittig

Abramov

Cannizarro

Dakin

Ugi

Darzon

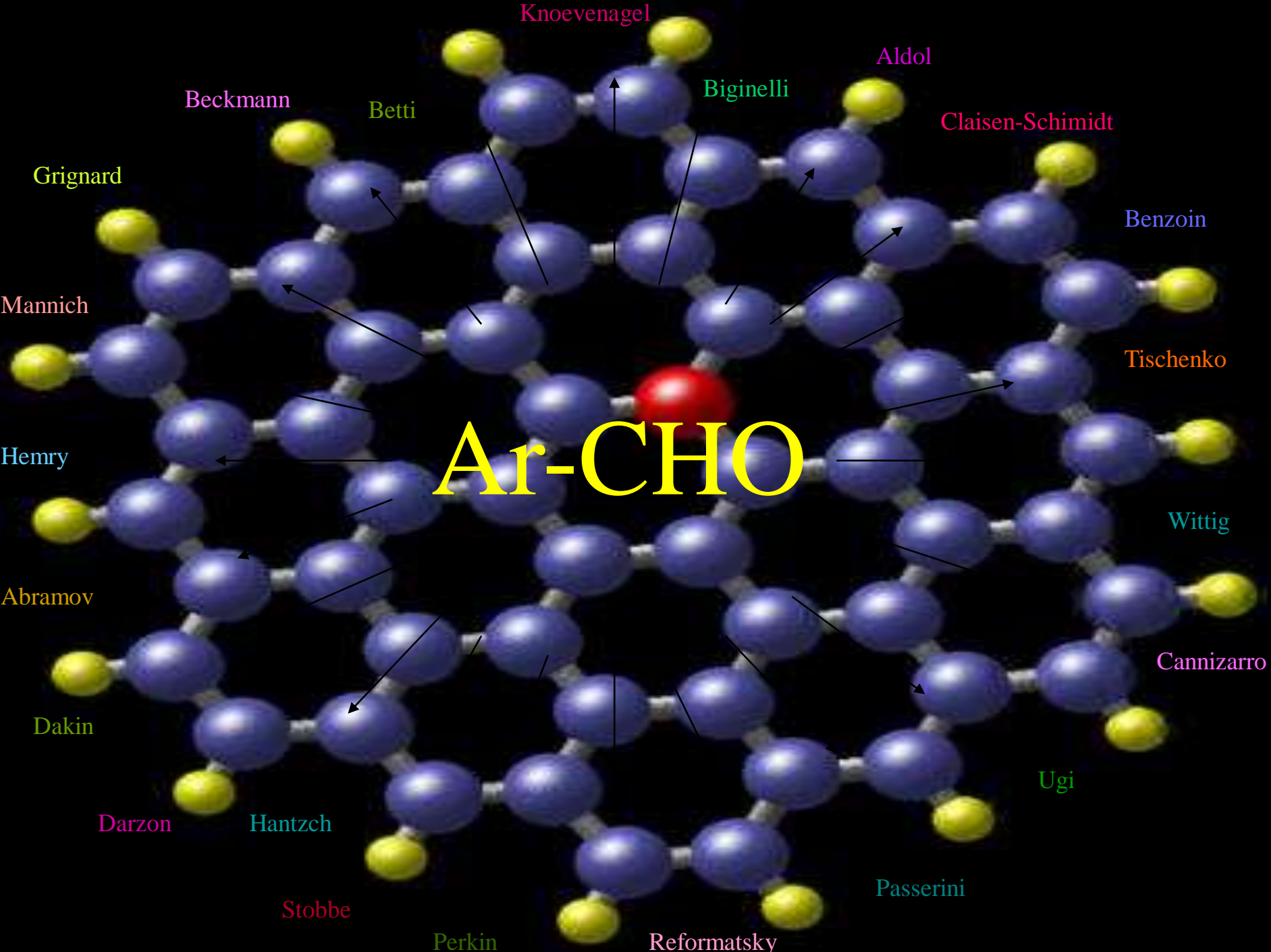
Hantzsch

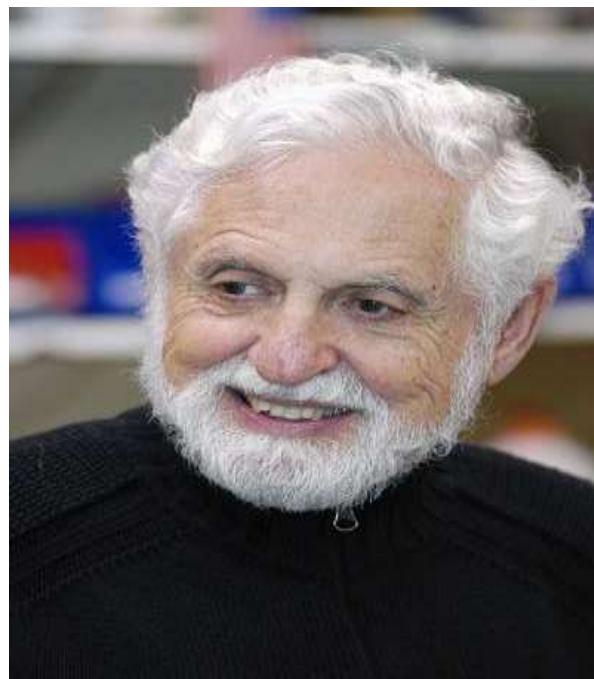
Passerini

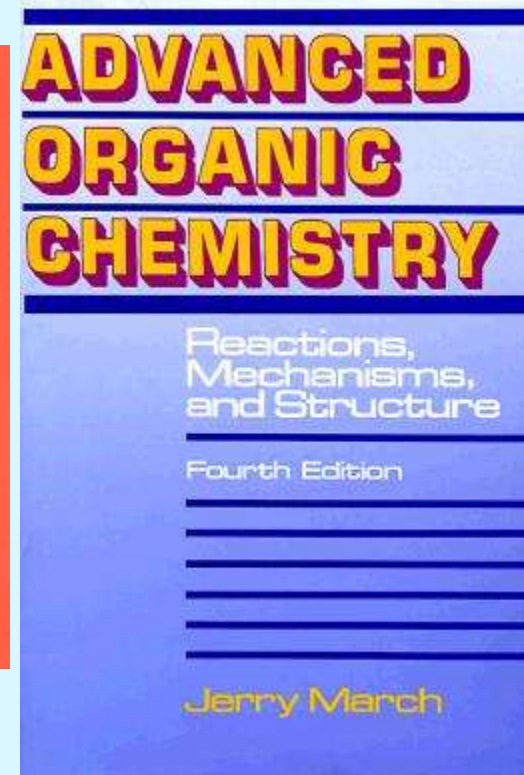
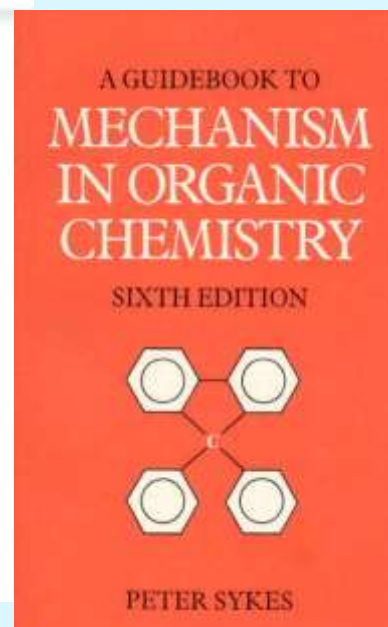
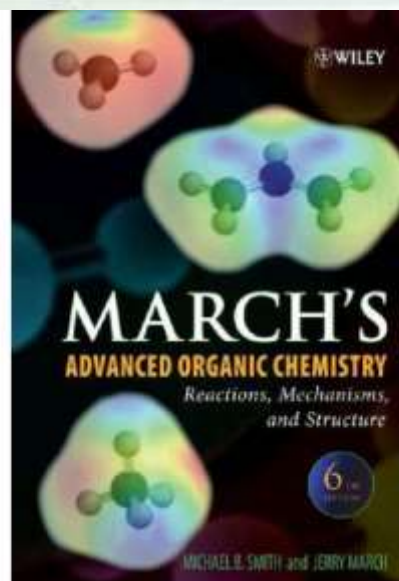
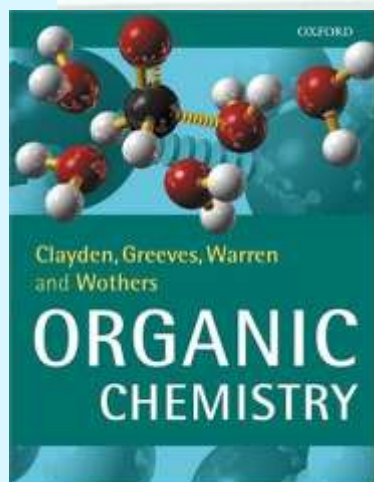
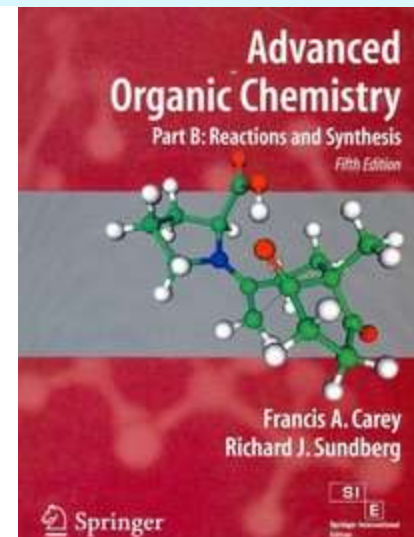
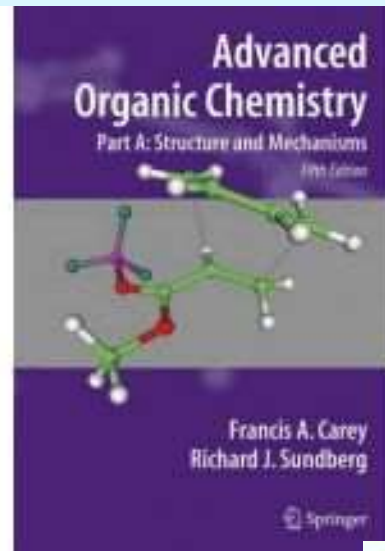
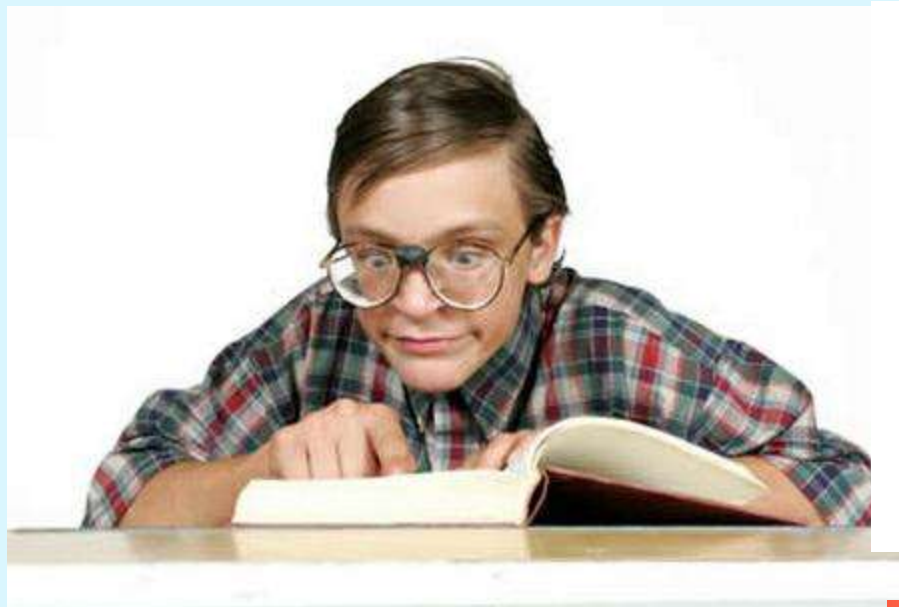
Stobbe

Perkin

Reformatsky







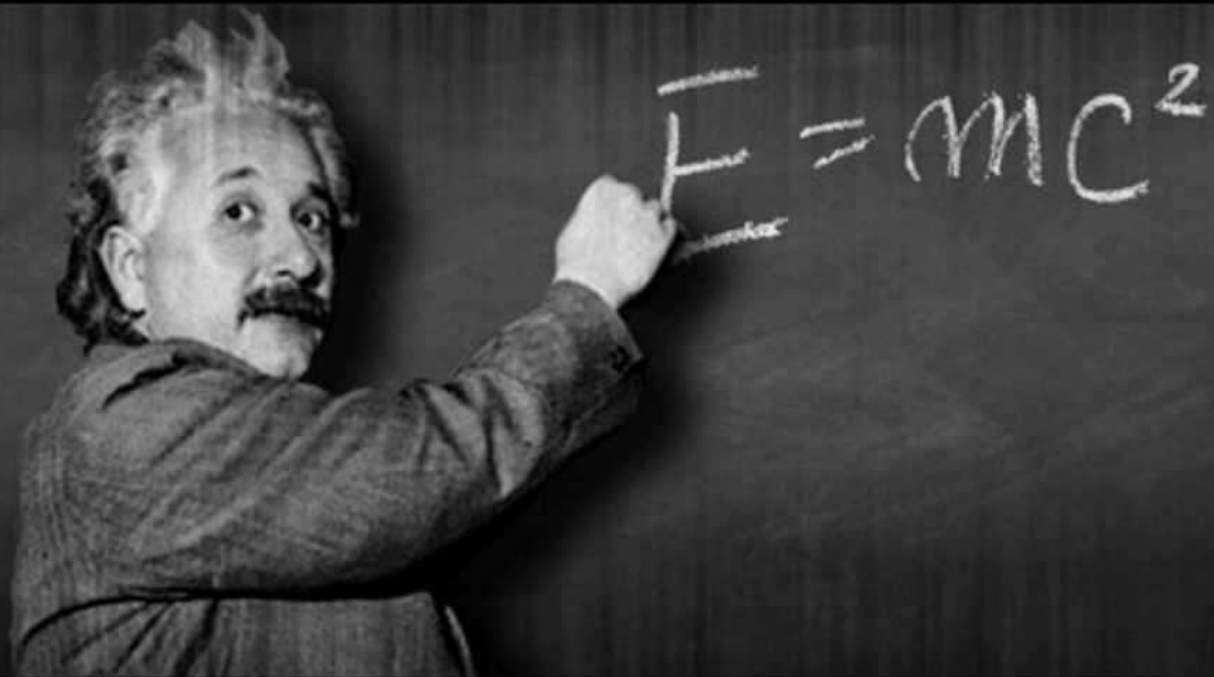


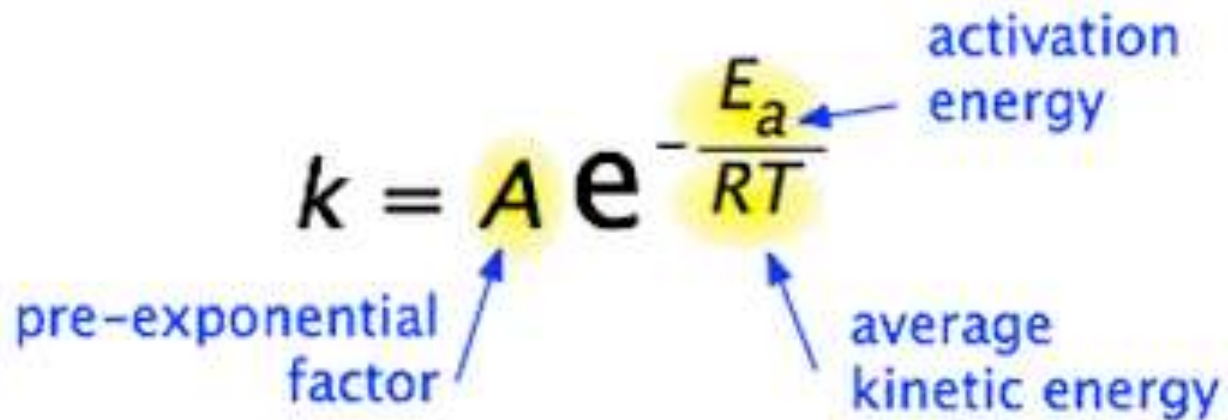




Grindstones sharpen knives;

problem-solving sharpens minds





Planck relation:

$$E = h\nu = \frac{hc}{\lambda}$$

where:

E = energy

h = Planck constant

ν = frequency

c = speed of light

λ = wavelength



E = F



$R^3 = OS$

- ❑ **Named Reactions**
 - ❑ **Named Rearrangements**
 - ❑ **Reagents in Organic Synthesis**
 - ❑ **Substitution, Addition, Elimination**
 - ❑ **Stereochemistry, Asymmetric Synthesis**
 - ❑ **Protective Groups**
 - ❑ **Functional Group Transformations**
-
- ❑ **Oxidation**
 - ❑ **Reduction**

When phenol is treated with CHCl_3 and NaOH , the product formed is:

(A) Salicylic acid

(B) Salicylaldehyde

(C) Benzaldehyde

(D) Benzoic acid

When Phenyl Magnesium Bromide reacts with tert. butanol, which of the following is formed?

(A) Tert. butyl methyl ether

(B) Benzene

(C) Tert. butyl benzene

(D) Phenol

Which of the following is Lucas reagent?:

(A) $\text{ZnCl}_2/\text{Conc HCl}$

(B) Br_2/CCl_4

(C) Ammoniacal silver nitrate

(D) Cold Alkaline KMnO_4

Which of the following will not be soluble in sodium hydrogen carbonate?

(A) 2,4,6-trinitrophenol

(B) Benzoic acid

(C) o-Nitrophenol

(D) Benzenesulphonic acid

The reaction which involves dichlorocarbene as an electrophile is:

- (A) Reimer - Tiemann reaction (B) Kolbe's reaction
(C) Friedel - Craft's acylation (D) Fittig's reaction

The most suitable reagent for the conversion of $R - CH_2 - OH \rightarrow R - CHO$ is:

- (A) $K_2Cr_2O_7$ (B) CrO_3
(C) PCC (D) $KMnO_4$

Phenols can act as antioxidant because:

- (A) they are acidic.
- (B) they undergo electrophilic substitution.
- (C) they are free radical scavengers.
- (D) they are easily oxidised.

Why might an ester derivative of a drug be made?

- (A) To increase lipid solubility
- (B) To increase molecular weight
- (C) To improve compliance
- (D) To increase the melting point

Which of the following is used in the manufacture of bakelite ?

(A) Formaldehyde

(B) Phenol

(C) Ethyl alcohol

(D) Both A and B

For making distinction between 2-pentanone and 3-pentanone the reagent to be employed is.....

(A) $K_2Cr_2O_7/H_2SO_4$

(B) Zn-Hg/HCl

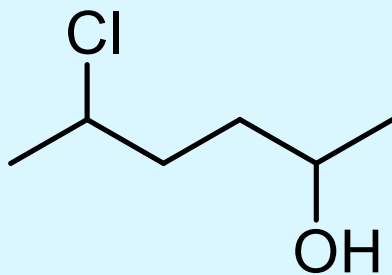
(C) SeO_2

(D) Iodine/NaOH

In which of the following reactions new carbon-carbon bond is not formed?

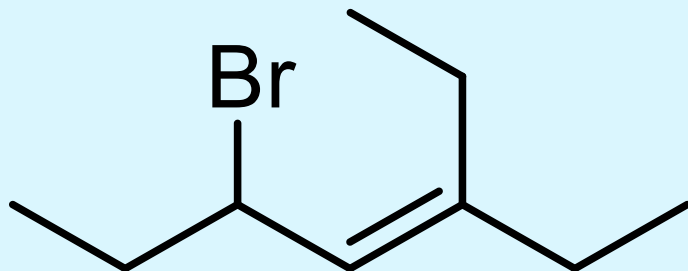
- (A) Cannizzaro reaction (B) Wurtz reaction
(C) Aldol condensation (D) Friedel-Crafts reaction

IUPAC name of the following compound:



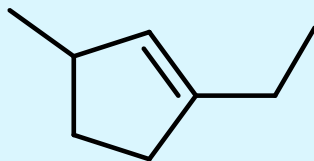
- (A) 2-Chloro-5-hydroxyhexane.
- (B) 2-Hydroxy-5-chlorohexane.
- (C) 5-Chloro-hexan-2-ol.
- (D) 2-Chloro-hexan-5-ol..

IUPAC name of the following compound:



- (A) 3-ethyl-5-bromohept-3-ene
- (B) 5-bromo-3-ethylhept-3-en
- (C) 3-bromo-5-ethylhept-4-ene
- (D) 1,1-diethyl-3-bromopent-1-ene

IUPAC name of the following compound:



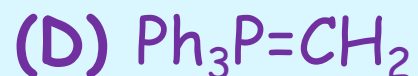
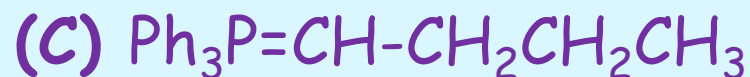
- (A) 1-ethyl-4-methylcyclopentene
- (B) 1-ethyl-3-methylcyclopentene
- (C) 1-ethyl-3-methyl-1-cyclopentene
- (D) 1-ethyl-3-methyl-2-cyclopentene

The appropriate reagent for the transformation



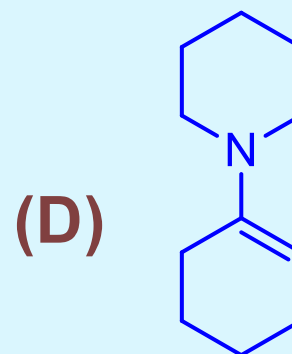
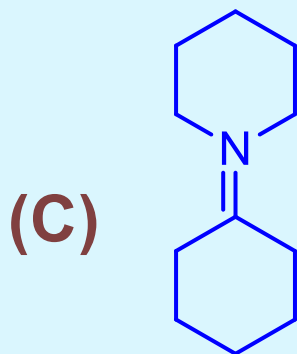
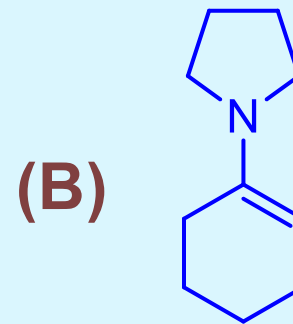
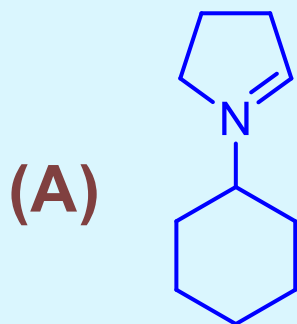
- (A) Zn (Hg), HCl
- (B) NH₂NH₂, OH⁻
- (C) H₂, Ni
- (D) NaBH₄

What ylide is needed to make 3-ethyl-3-heptene from 3-pentanone in a Wittig reaction?

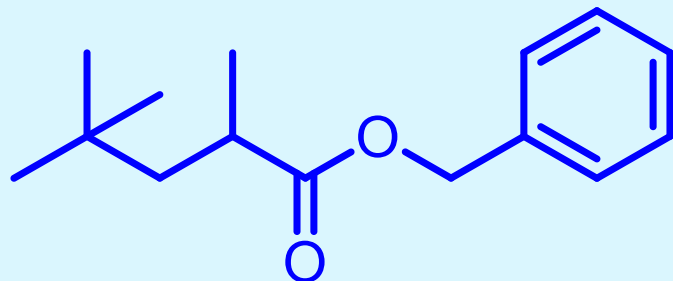


What product do you expect in the following reaction?

Cyclohexanone + Pyrrolidine + Tosylic acid



The correct IUPAC name for



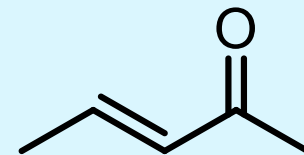
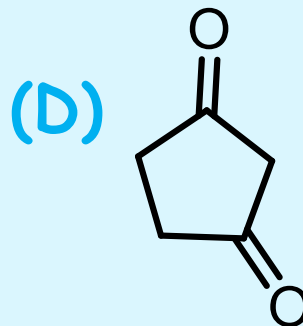
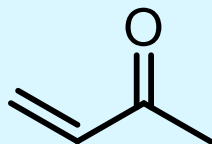
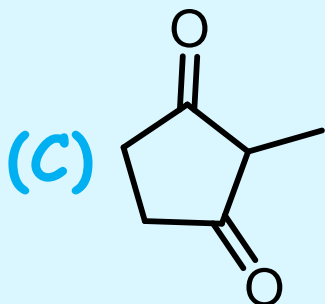
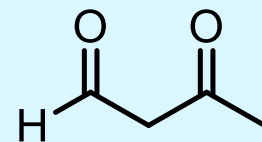
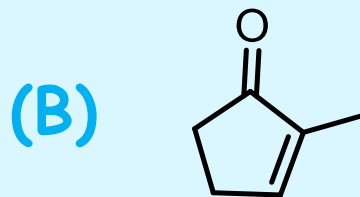
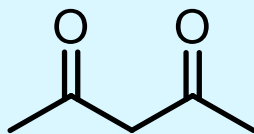
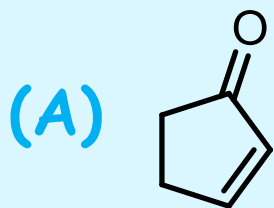
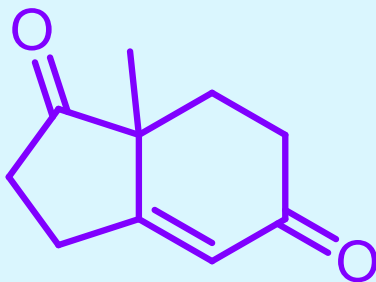
- (A) phenylmethyl-2,4,4-trimethylpentanoate
- (B) benzyl 2-methyl-4,4-dimethylpentanoate
- (C) benzyl 2,4,4-trimethylpentanoate
- (D) benzyl 2,4,4-trimethylbutanoate

Which of the following aldehydes is required to make compound



- (A) phenylethanal
- (B) 2-phenylpropanal
- (C) benzaldehyde
- (D) 2-phenylbutanal

What two components can be used to prepare the following compound using the Robinson annulation reaction?



Predict the product of the following reaction.



- (A) ethyl heptanoate
- (B) 2-methylhexanoic acid
- (C) 2-butyl-2-methylpropanedioic acid
- (D) hexanoic acid

Predict the product of the following reaction.

