SLE155 Chemistry for the Professional Sciences

Burwood and Geelong

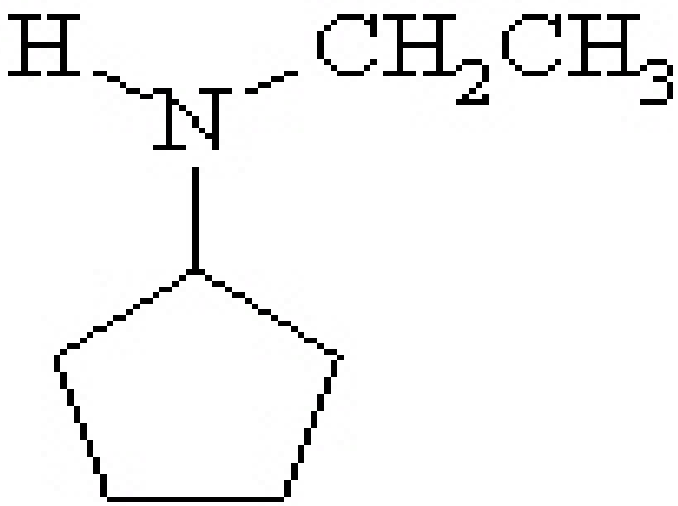
DEAKIN COLLEGE

in association with

DEAKIN UNIVERSITY AUSTRALIA

Q 1

The name of the following compound is N-cyclopentylethanamine.

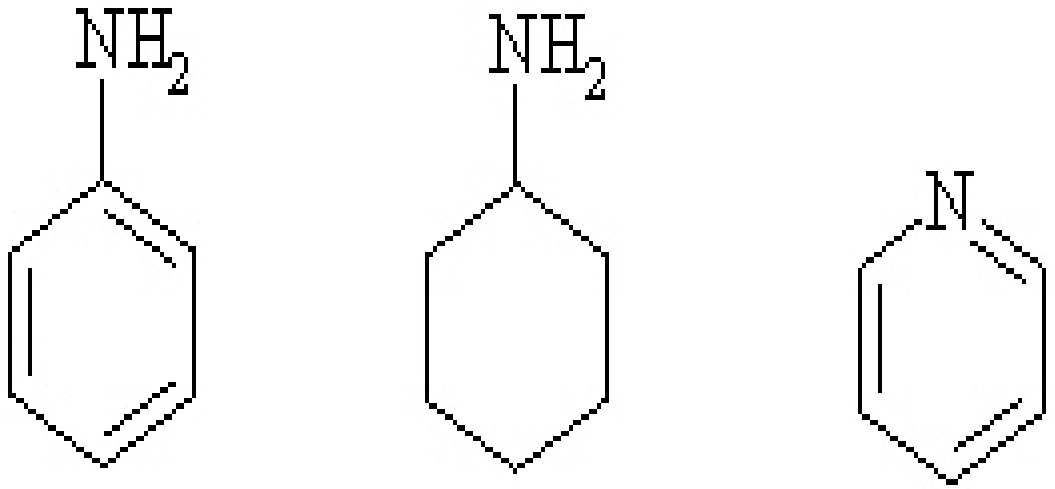


a. True
b. False

Q 2

The strongest base in the following group is aniline.

a. True
b. False



Q 3

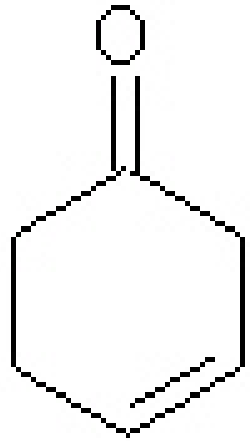
Aromatic amines are weaker bases than aliphatic amines.

a. True

b. False

Q 4

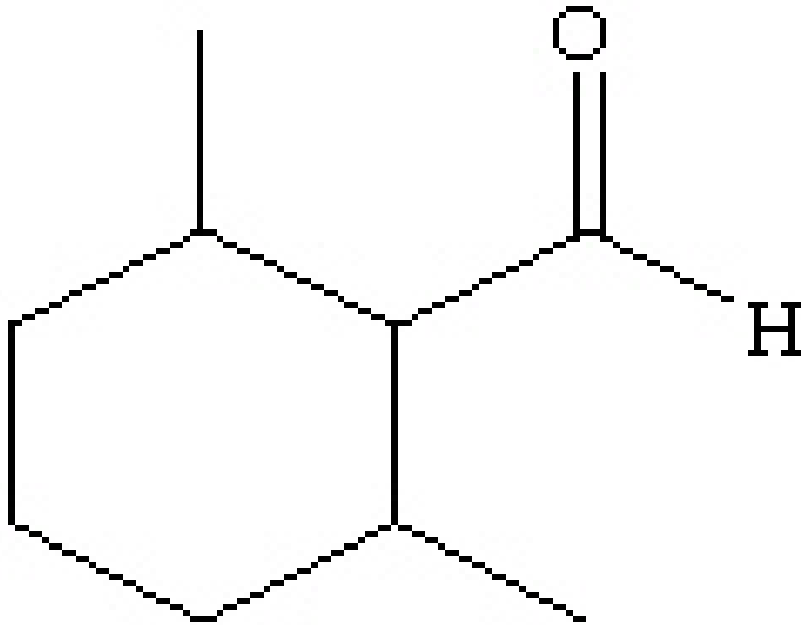
The name of the following compound is 3-cyclohexenone.



a. True
b. False

Q 5

The name of the following molecule is 1,5-cyclohexanecarbaldehyde.



a. True
b. False

Q 6

The common name for propanone is acetone.

a. True

b. False

Q 7

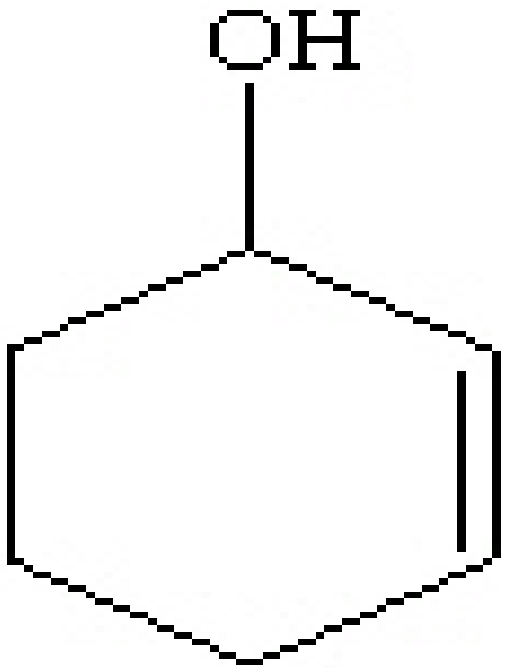
The product of the reaction of hexanal with chromic acid is hexanoic acid.

a. True

b. False

Q 8

The enol form of cyclohexanone is:

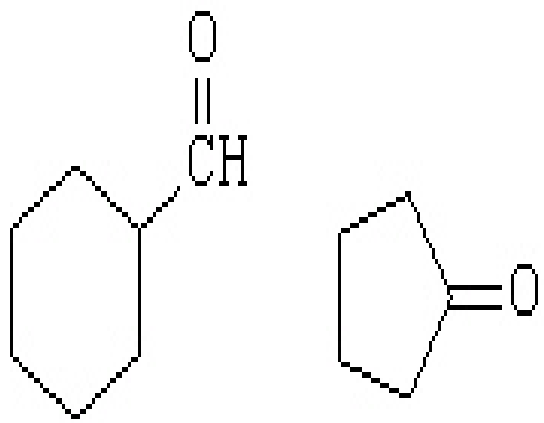


a. **True**
b. **False**

Q 8

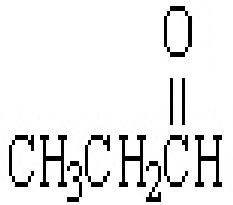
Arrange the compounds in order of increasing boiling point (lowest first).

a. III, II, I, IV
b. IV, I, II, III
c. IV, III, II, I
d. II, II, I, IV

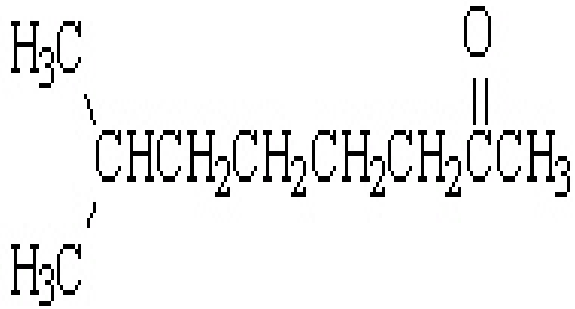


I

II



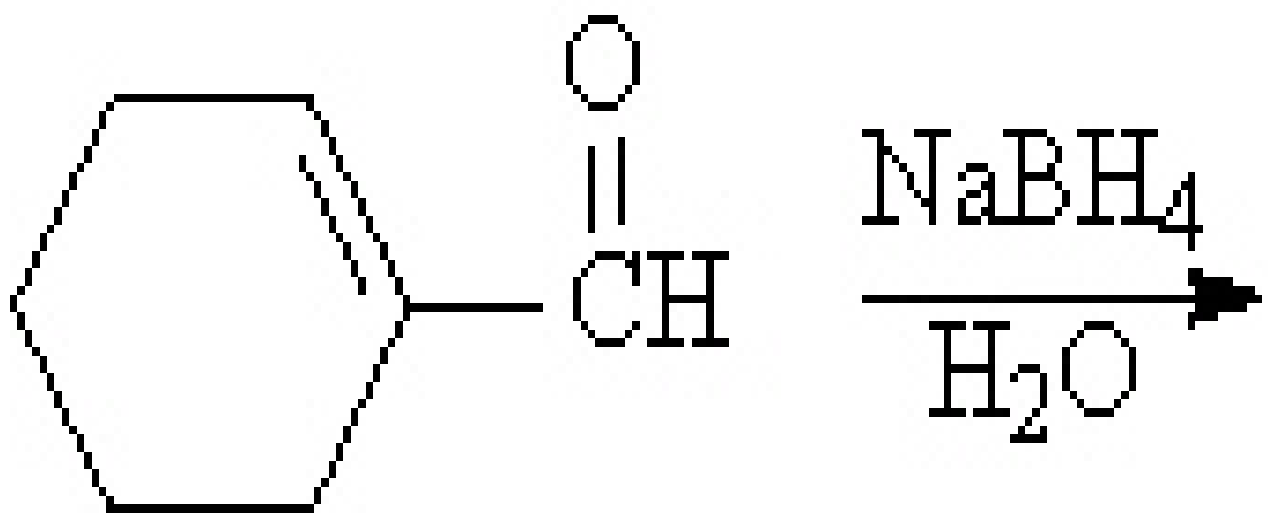
III



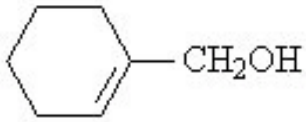
IV

Q 9

Which is the major product of the following reaction?

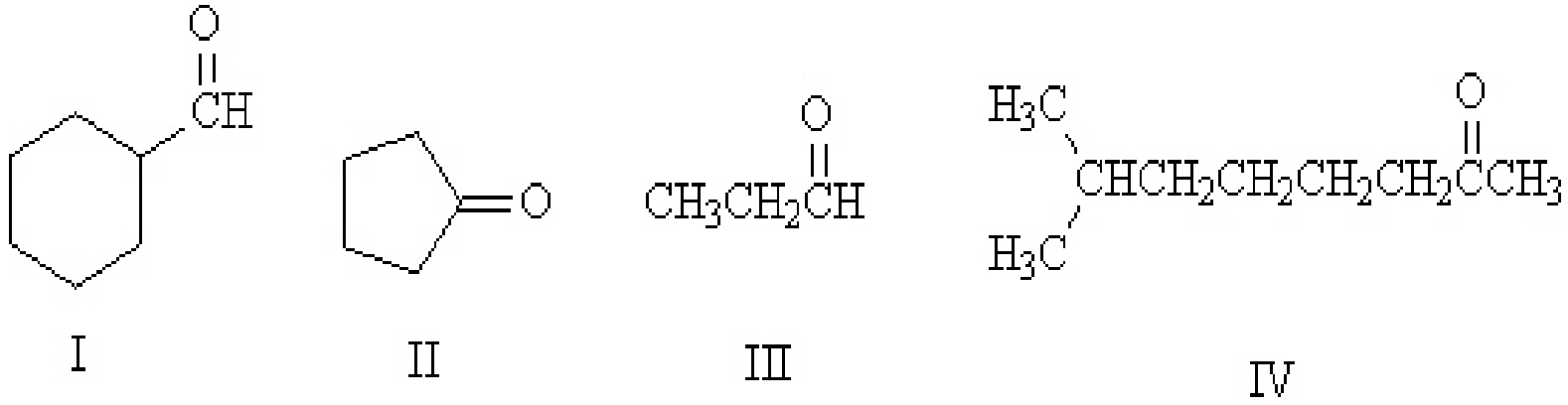


Answer:



Q 10

Arrange the compounds in order of increasing solubility in water (least first).

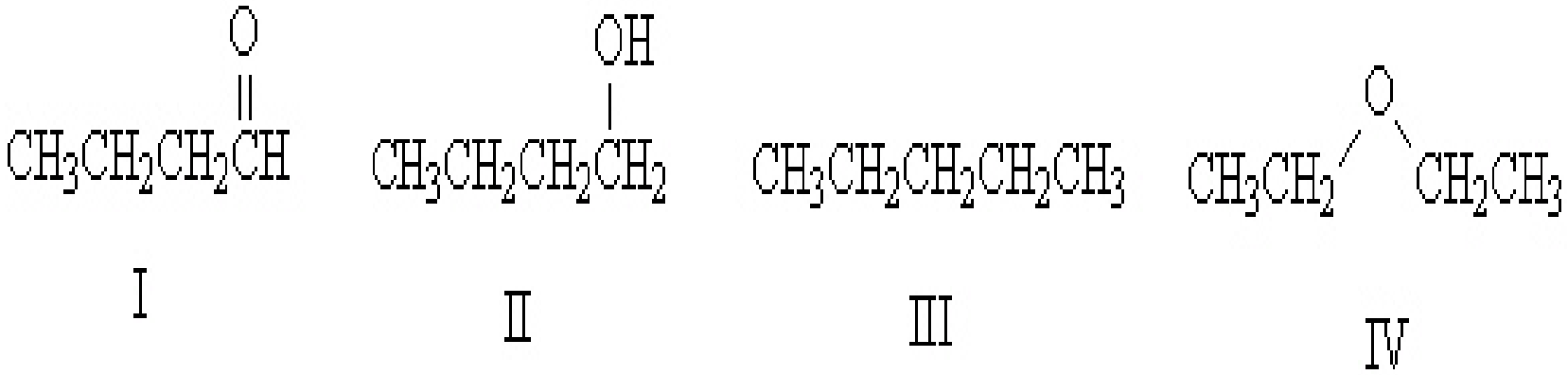


I II III IV

a. IV, I, II, III
b. I, II, III, IV
c. IV, III, II, I
d. II, II, I, IV

Q 11

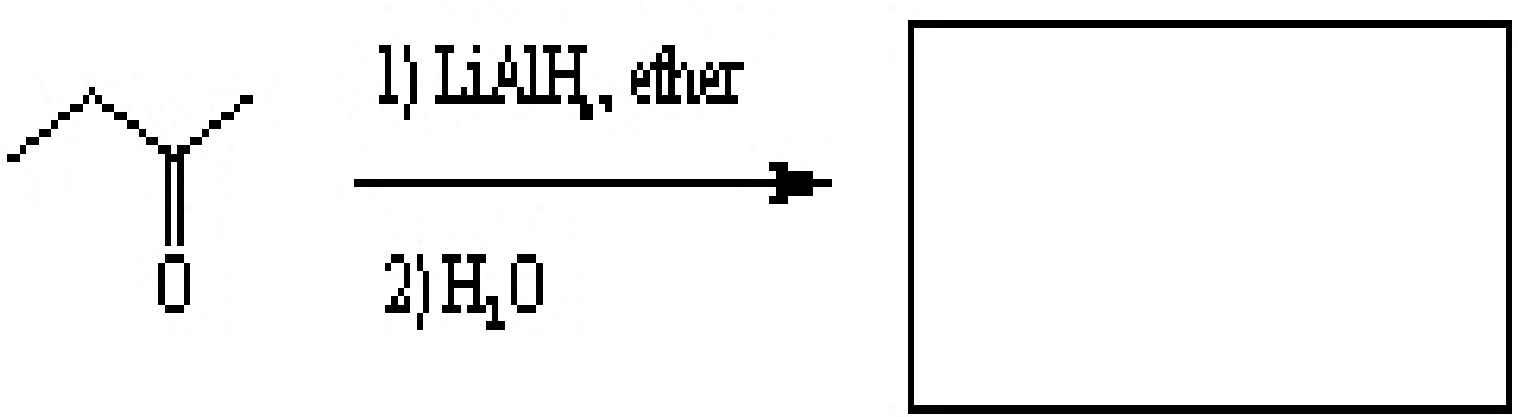
Arrange the compounds in order of increasing boiling point (lowest first).



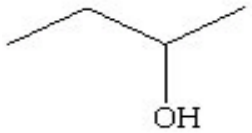
a. II, I, IV, III
b. I, II, IV, III
c. II, I, IV, III
d. III, IV, I, II

Q 12

The major product of the following reaction is:

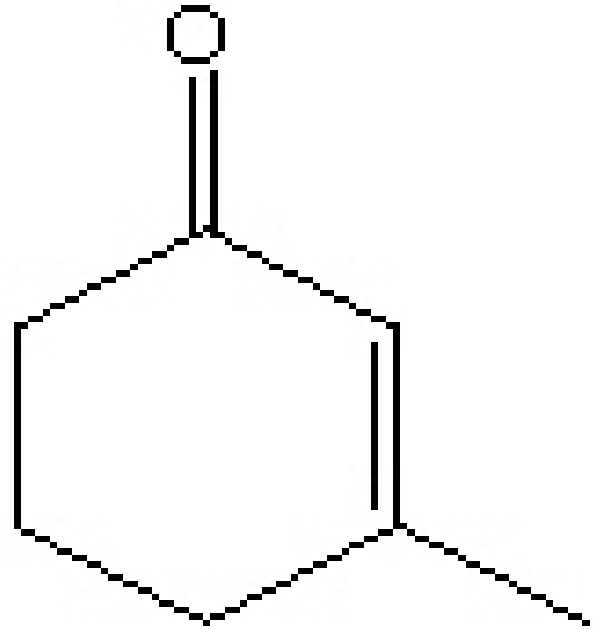


Answer



Q 13

What is the IUPAC name for the following compound?

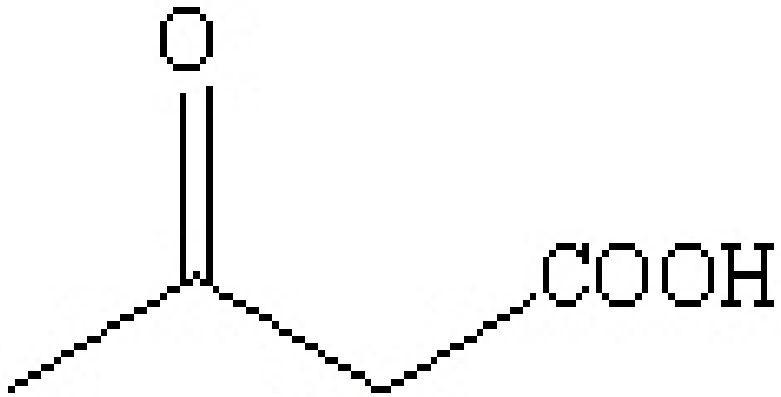


a. 3-methyl-2-cyclohexenone
b. 2-methyl-2-cyclohexenone
c. 2-methyl-2-cyclohexanone
d. 3-methyl-2-cyclohexanone

Q 14

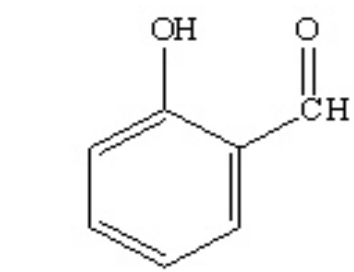
What is the IUPAC name for the following structure?

a. 2-oxopropanoic acid
b. 2-oxobutanoic acid
c. 3-oxobutanoic acid
d. 3-oxopropanoic acid



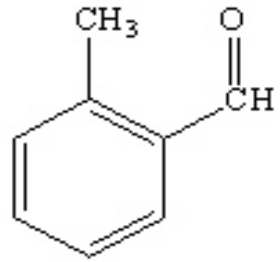
Q 15

Which compounds are named correctly?



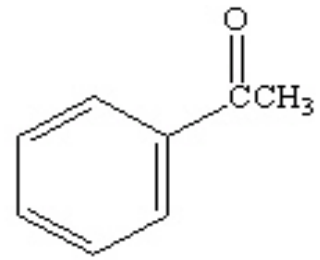
o-hydroxybenzaldehyde

I



2-methylbenzaldehyde

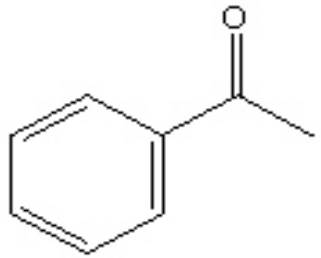
II



benzophenone

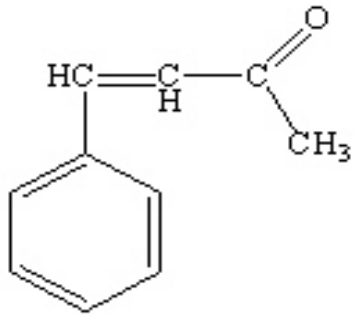
III

a. I, II, III
b. IV, II, I
c. II, I, IV
d. III, V, II



acetophenone

IV



cinnamaldehyde

V

Q 16

Arrange the compounds in order of increasing boiling point (lowest first).

I. propionoic acid II. 1-butanol III. butanal IV. 2-butanone

a. I, II, III, IV

b. II, I, III, IV

c. IV, II, III, I

d. III, IV, II, I

Q 17

How can aldehydes be formed from alcohols?

Answer below:

Primary alcohols can be oxidised under mild conditions to give aldehydes. PCC is a mild oxidising agent that will oxidise primary alcohols to aldehydes, but will not further oxidise them to carboxylic acids.

Q 18

How are ketones oxidised to carboxylic acids?

Answer below:

Ketones are much more resistant to oxidation than aldehydes. For examples, ketones are not normally oxidised by chromic acid or potassium permanganate. Ketones undergo oxidative cleavage *via* their enol form, using potassium dichromate and potassium permanganate at higher temperatures, as well as by higher concentrations of nitric acid.