

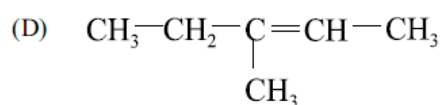
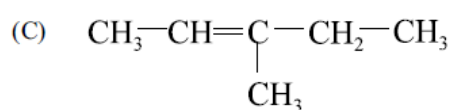
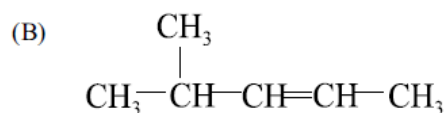
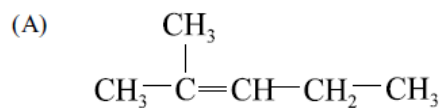
Unit 3 Organic Review Old Finals

2008

32. Which is an organic compound?

- (A) CHCl_3
- (B) Cl_2
- (C) NaHCO_3
- (D) NH_4Cl

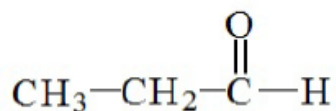
33. Which molecule is 4-methyl-2-pentene?



34. Which chemical is an isomer of cyclopentane?

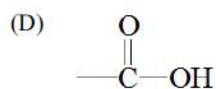
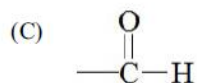
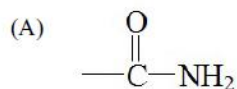
- (A) cyclopentene
- (B) cyclopentyne
- (C) 1-pentene
- (D) 1-pentyne

35. What is the IUPAC name of the compound below?



- (A) ethanal
- (B) ethanone
- (C) propanal
- (D) propanone

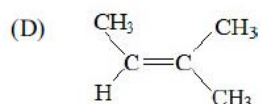
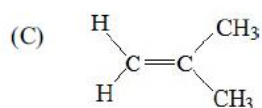
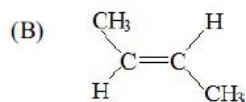
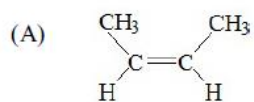
36. Which functional group is found in amines?



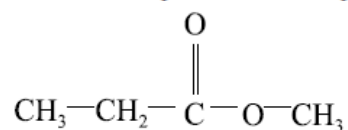
37. Which substance can undergo an acid elimination reaction?

- (A) ethanal
- (B) ethanoic acid
- (C) ethanol
- (D) ethyl ethanoate

38. Which is *trans*-2-butene?



39. Which substance reacts with methanol to produce the compound below?



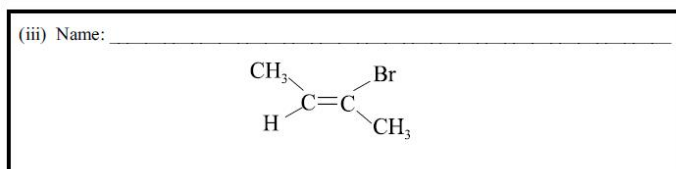
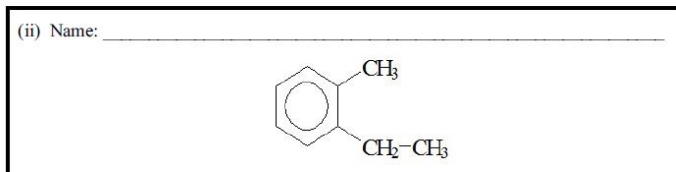
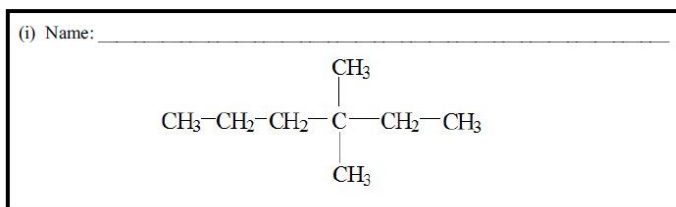
- (A) ethanoic acid
- (B) ethanol
- (C) propanoic acid
- (D) propanol

40. Which reaction occurs when a condensation polymer forms from its monomers?

- (A) addition
- (B) elimination
- (C) esterification
- (D) substitution

2008 Part 2 Questions

6 43. (a) *Name* each compound using IUPAC naming rules.



Value
4

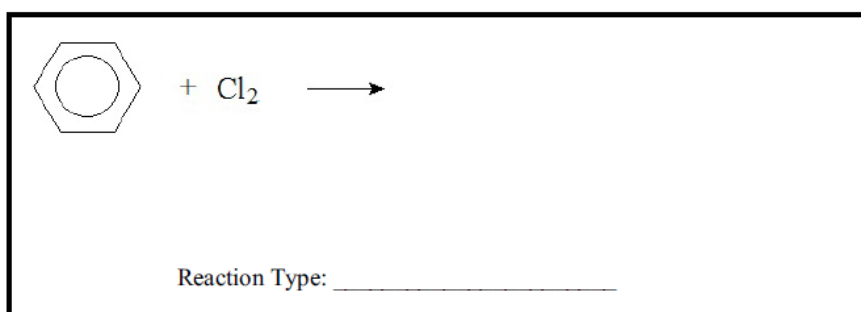
(b) Draw structural diagrams for the following:

(i) 2-chlorobutanal

(ii) 5-ethyl-2-heptyne

3 (c) For the reaction below:

- identify the *reaction type*.
- complete and balance the reaction, and show structures for all organic molecules.







3 (d) Two isomers (X and Y) have the formula $C_2H_4O_2$. Compound X can react to produce an ester. Compound Y is the organic product of an esterification reaction. Draw structural diagrams for compounds X and Y, and state the IUPAC name for each compound under its structure.

2009 Sample

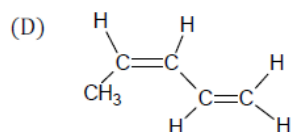
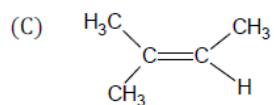
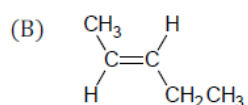
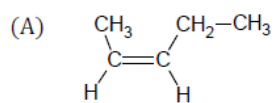
32. Which is an organic compound?

- Na_2CO_3
- C_2H_5OH
- $MgSO_4$
- $Be(ClO)_2$

33. Which compound is aromatic?

- 
- 
- 
- 

34. Which is cis -2-pentene ?



35. Which compound has a double bond?

- (A) butene
- (B) cyclohexane
- (C) ethyne
- (D) propane

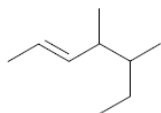
36. Which compound is a hydrocarbon derivative?

- (A) C_2H_6
- (B) C_4H_8
- (C) C_2H_5OH
- (D) C_5H_8

37. Which is an isomer of cyclononane?

- (A) 2,4 - dimethyl-heptane
- (B) 2 - nonene
- (C) cyclononene
- (D) nonyne

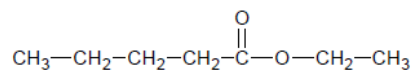
38. What is the name of this compound ?



- (A) 4,5-dimethyl-2-heptene
- (B) 3,4-dimethyl-5-heptene
- (C) 3,4-dimethyl-3-heptene
- (D) 3,4-dimethyl-2-heptene

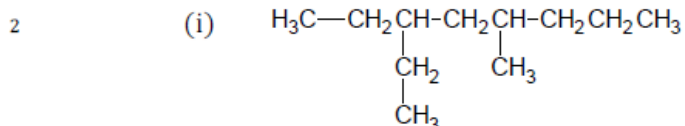
39. A student picks up a bottle containing four hydrocarbons. If the cover is left off the bottle, which hydrocarbon will vapourize last?
- (A) 2-methyl-3-ethylpentane
 (B) 2,3-dimethylhexane
 (C) 2-methyl-3-ethylheptane
 (D) 3-methyloctane

40. Which substance reacts with ethanol to produce the compound below?

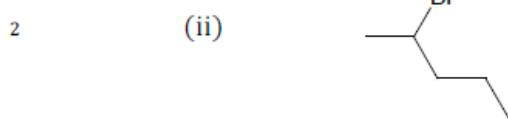


- (A) propanoic acid
 (B) pentanol
 (C) pentanoic acid
 (D) propanol

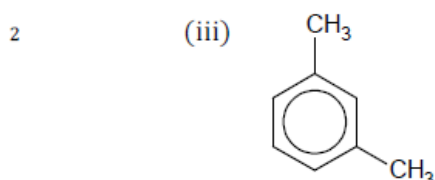
43. A. **Name** each compound using the IUPAC naming rules.



Name: _____



Name: _____



Name: _____

- B. Draw structural diagrams for each of the following compounds:

- 2 (i). 2-hexanol

- 2 (ii). 4-ethyl-4-methyl-2-heptyne

- 2 (iii). 3-pentanone

- 4 C. A reaction between ethene and water produces Compound A. Compound A is further reacted with ethanoic acid to produce Compound B.
- Use **structural diagrams** to show Compound A and Compound B.

June 2009

32. Which compound is organic?

(A) CH_3OH
(B) CaCO_3
(C) NaClO_3
(D) NCl_3

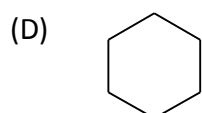
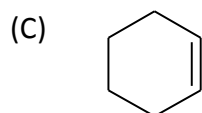
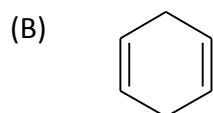
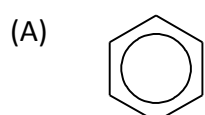
33. Which is an alkane?

(A) benzene
(B) ethyne
(C) hexene
(D) propane

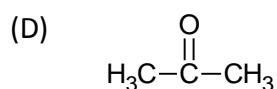
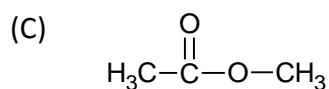
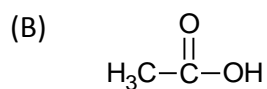
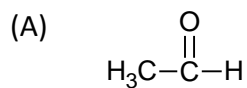
34. Which is a hydrocarbon?

(A) CH_3COOH
(B) CH_3OH
(C) CH_4
(D) CH_3Cl

35. Which is benzene?



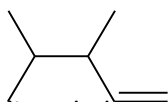
36. Which represents a carboxylic acid?



37. Which is a structural isomer of cyclopentane?

- (A) cyclopentene
- (B) methylbutane
- (C) methylcyclobutane
- (D) methylpropane

38. Which is the correct name for the structure below?

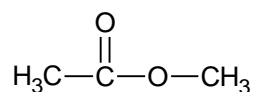


- (A) 3,4-dimethyl-1-pentene
- (B) 2,3-dimethyl-4-pentene
- (C) 3,4-dimethyl-2-pentene
- (D) 2,3-dimethyl-5-pentene

39. A student picks up a bottle containing four hydrocarbons. If the cover is left off the bottle, which hydrocarbon will vapourize first?

- (A) methylbutane
- (B) 2-heptene
- (C) hexane
- (D) 3,3,4,4-tetramethyldecane

40. Which substance reacts with methanol to produce the compound below?



- (A) ethanoic acid
- (B) ethanol
- (C) propanol
- (D) propanoic acid

June 2009 Part 2 Questions

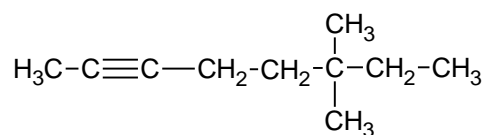
4 d. A molecule consists of carbon, nitrogen, and hydrogen. It has one multiple bond, one carbon atom and one nitrogen atom.

Draw two possible Lewis diagrams for this molecule.

43. a. Name each compound using the IUPAC naming rules.

2

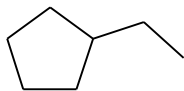
(i)



Name: _____

2

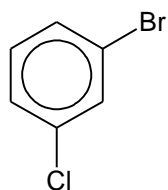
(ii)



Name: _____

2

(iii)



Name: _____

b. Draw a structural diagram for each compound.

2

(i) 3-ethylheptane

2

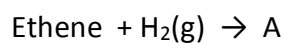
(ii) butanal

2

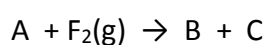
(iii) 3-methyl-2-hexanol

4

c. Ethene reacts with hydrogen gas to produce Compound A.



Compound A reacts with fluorine gas to produce Compound B and Compound C.



Use structural diagrams to identify Compounds A, B, and C.

June 2010

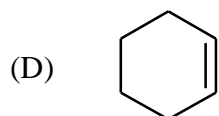
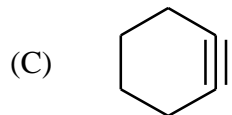
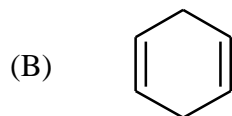
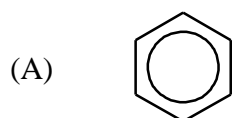
33. Which compound is classified as organic?

- (A) CsCN
- (B) H₂CO
- (C) Na₂CO₃
- (D) NH₂Cl

34. Which is a hydrocarbon?

- (A) methanal
- (B) methanamide
- (C) methane
- (D) methanol

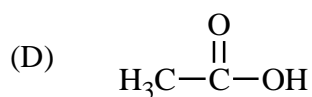
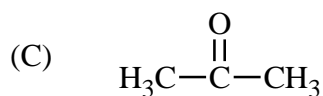
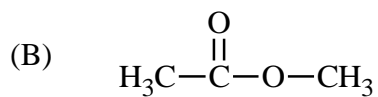
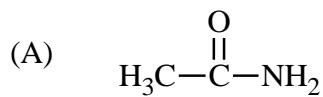
35. Which is a structural isomer of 2-hexyne?



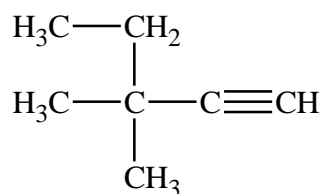
36. Which term represents a process that uses heat, in the absence of air, to break large hydrocarbon molecules into smaller molecules?

- (A) fractional distillation
- (B) hydrocarbon cracking
- (C) reforming
- (D) substitution

37. Which represents a ketone?



38. What is the name of this compound?



- (A) 3,3-dimethyl-1-pentyne
(B) 3-ethyl-3-methyl-1-butyne
(C) 3,3-dimethyl-1-ethyl-1-propyne
(D) 2-ethyl-2-methyl-3-butyne
39. Which pair could be used to produce octyl ethanoate?
- (A) ethanol and octanoic acid
(B) heptanol and ethanoic acid
(C) octanol and ethanoic acid
(D) octanol and methanoic acid
40. Reacting water with ethyl propanoate produces an alcohol and propanoic acid. What product is formed if this alcohol is heated in the presence of concentrated sulfuric acid?
- (A) $\text{H}_3\text{C}-\text{CH}_3$
(B) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_3$
(C) $\text{H}_3\text{C}-\text{CH}=\text{CH}_2$
(D) $\text{H}_2\text{C}=\text{CH}_2$

2010 Part 2 Questions

43. (a) Draw a structural diagram for each compound.

2 (i) 3-ethyl-4-methyl-1-hexene

2 (ii) butylethyl ether

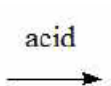
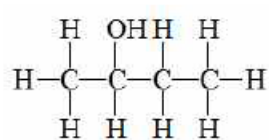
2 (iii) 2,3-dimethyl-1-pentanol

4 (b) In Reaction 1 of an experiment, 2-butanol undergoes an elimination reaction to produce isomers A and B.

In Reaction 2, isomers A and B are exposed to excess chlorine and products C and D are formed.

Draw and name structures for each chemical produced (A, B, C, and D).

Reaction 1:



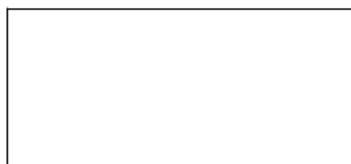
Isomer "A"



Isomer "B"

Reaction 2:

add excess
Cl₂



Chemical "C"

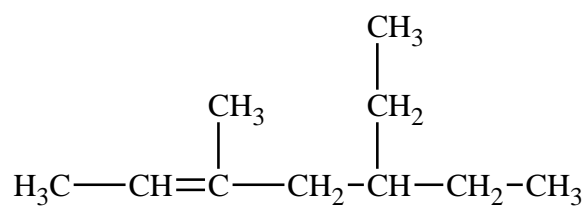
Reaction 3:

add excess
Cl₂

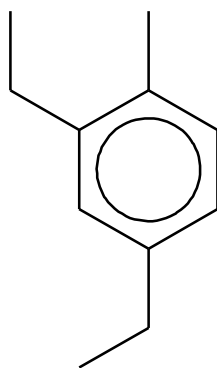


Chemical "D"

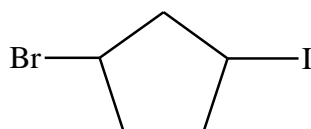
43. (c) Give the IUPAC name for the following structures.



2 (i) Name: _____



2 (ii) Name: _____



2 (iii) Name: _____