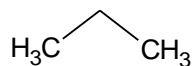


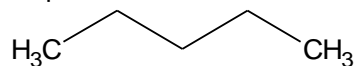
Lista de Exercícios
Hidrocarbonetos – Classificação e Nomenclatura.

01) Escreva as fórmulas estruturais e moleculares dos seguintes alcanos:

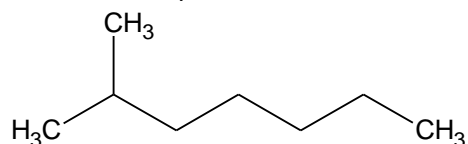
a) propano;



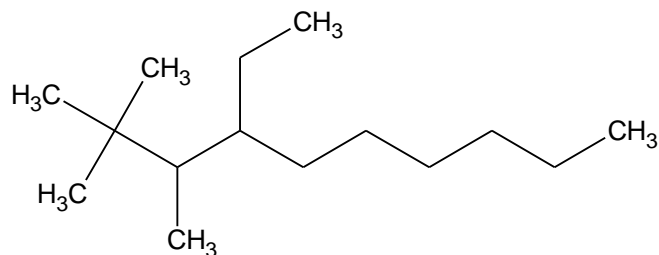
b) pentano;



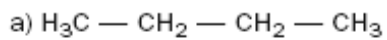
c) 2-metil-heptano;



d) 4-etil-2,2,3-trimetil-decano.



02) Dê os nomes dos alcanos representados por suas fórmulas estruturais:



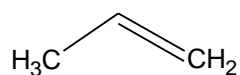
a) butano

b) octano

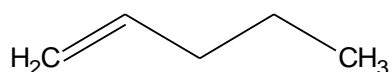
c) nonano

03) Escreva as fórmulas estruturais e moleculares dos seguintes alquenos:

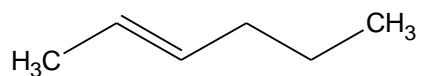
a) propeno;



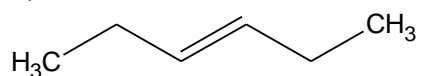
b) pent-1-eno;



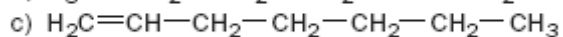
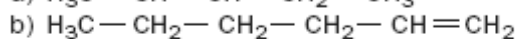
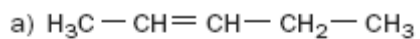
c) hex-2-eno;



d) hex-3-eno.



04) Dê o nome dos alquenos representados por suas fórmulas estruturais:



a) pent-2-eno

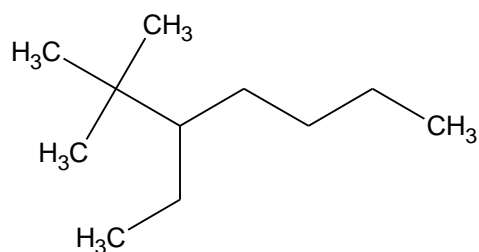
b) hex-2-eno

c) hept-1-eno

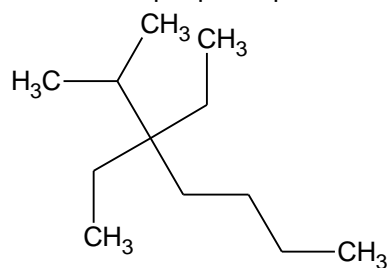
d) hept-3-eno

05) Dê a fórmula estrutural dos seguintes hidrocarbonetos

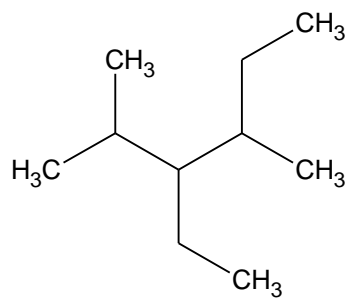
a) 3-etil-2,2-dimetil-hexano;



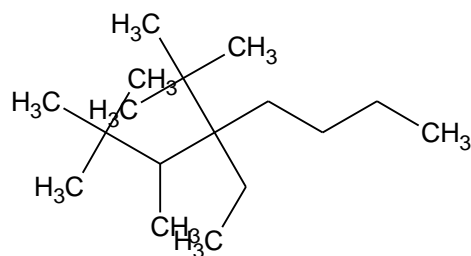
b) 3-etil-3-isopropil-heptano;



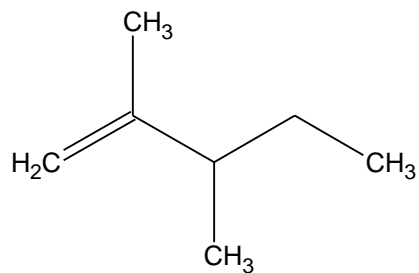
c) 3,4-dietil-2-metil-hexano;



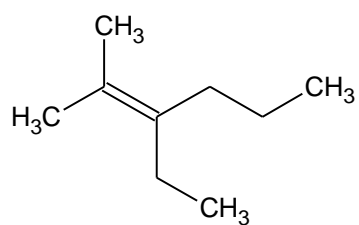
d) 4-terc-butil-4-etil-2, 2, 3-trimetiloctano.



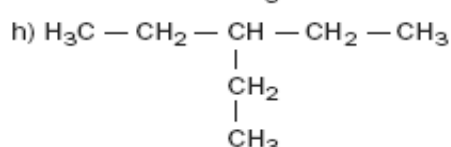
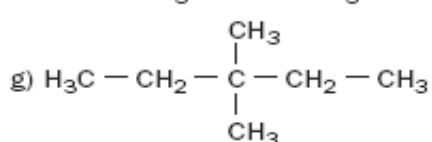
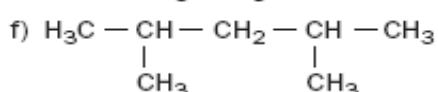
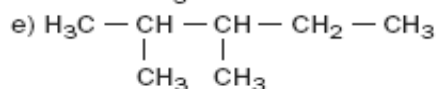
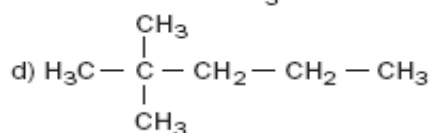
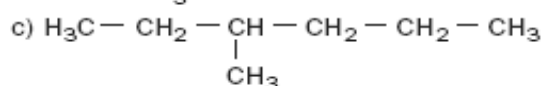
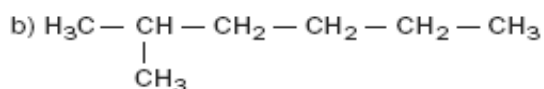
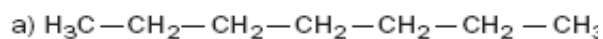
e) 2, 3-dimetil-pent-1-eno



f) 3-etil-2-metil-hex-2-eno;

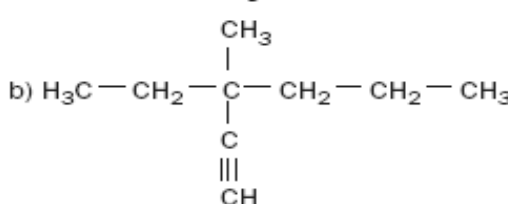
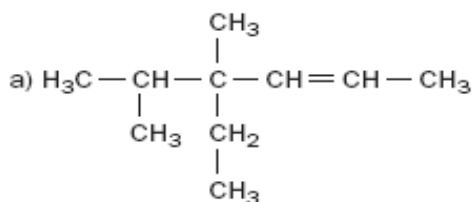


6) Considere os hidrocarbonetos cuja fórmula molecular é C_7H_{16} e que apresentam as estruturas abaixo. Dê o nome de cada hidrocarboneto classificando cada cadeia representada.



- a) heptano/ aberta, normal, saturada, homogênea.
- b) 2-metil-hexano/aberta, ramificada, saturada, homogênea.
- c) 3-metil-hexano/ acíclica, ramificada, saturada, homogênea.
- d) 2,2-dimetil-pentano/acíclica, ramificada, saturada, homogênea.
- e) 2,2,3-trimetil-pentano/aberta, ramificada, saturada, homogênea.
- f) 2,4-dimetil-pentano/aberta, ramificada, saturada, homogênea.
- g) 3,3-dimetil-pentano/ aberta, ramificada, saturada, homogênea.
- h) 3-etil-pentano/ aberta, ramificada, saturada, homogênea.

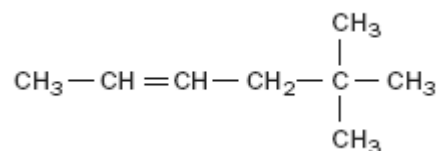
7) Dê o nome oficial dos hidrocarbonetos a seguir e classifique as cadeias:



a) 4-etil-3,4-dimetil-hex-2-eno / aberta, ramificada, insaturada, homogênea.

b) 3-etil-3-metil-hex-1-ino / aberta, ramificada, insaturada, homogênea.

8) O nome (IUPAC) para o composto é:



a) 5, 5-dimetil-2-hexino.

b) 5-etil-hex-2-eno.

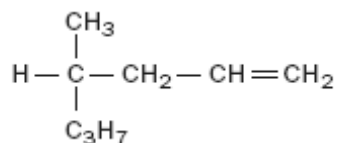
c) 2, 2, 5-trimetil-pent-4-eno.

d) 2-metil-hept-2-eno.

e) 5, 5-dimetil-hex-2-eno.

- Gab. Letra "A"

9) Ao composto foi dado erroneamente o nome de 4-propil-pent-2-eno. O nome correto é:



a) 4-propil-pent-2-ino.

b) 2-propil-pent-4-eno.

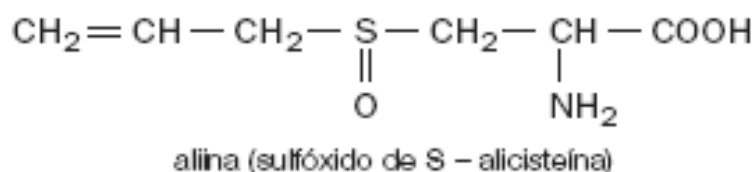
c) 4-metil-hept-1-eno.

d) 2-propil-pent-4-ino.

e) 4-metil-hept-2-ano.

- Gab. Letra "C"

10) O odor típico do alho é devido a um composto de enxofre chamado alicina, que é produzido pela ação de uma enzima do alho sobre a substância denominada aliina.

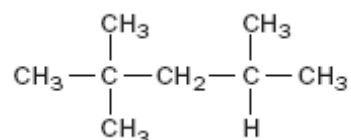


Sobre a alicina, é correto afirmar que:

- a) tem cadeia homogênea, alifática e saturada.
- b) tem fórmula molecular $C_6H_{11}O_3NS$.
- c) tem o radical propila ligado ao enxofre.
- d) tem, na sua estrutura, carbonos terciários e quaternários.
- e) tem o oxigênio e o nitrogênio como heteroátomos.

- Gab. Letra "B"

11) A octanagem é uma medida do grau da capacidade de a gasolina queimar nos motores, sem explodir. O grau de octanagem 100 é atribuído ao composto representado pela fórmula estrutural

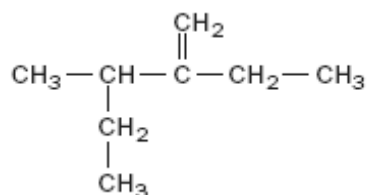


Com base nessa estrutura, o nome oficial do composto é:

- a) 2, 3, 4, 5-tetrametil-butano.
- b) 1, 2, 3-trimetil-pentano.
- c) 2, 3, 5-trimetil-pentano.
- e) 2, 2, 4-trimetil-pentano.

- Gab. Letra "E"

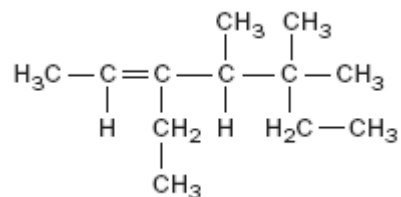
12) A nomenclatura oficial para a fórmula a seguir é:



- a) 2-etil-3-etil- butano.
- b) 2-etil-3-metil-hexano.
- c) 3-metil-3-etil-hexano.
- d) 3-metil-2-etil-pent-1-eno.
- e) 3-metil-2-etil-pentano.

- Gab. Letra "D"

13) Dado o composto orgânico a seguir formulado:

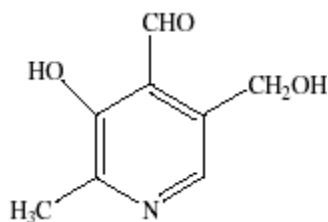


Seu nome correto é:

- a) 5-etil-3, 3, 4-trimetil-hept-5eno.
- b) 3, 5-dietil-4, 5-dimetil-hex-2-eno.
- c) 2, 4-dietil-2, 3-dimetil-hex-4-eno.
- d) 3-etil-4, 5, 5-propil-hept-2-eno.
- e) 3-etil-4, 5, 5-trimetil-hept-2-eno.

- Gab. Letra "E"

14) Considere a fórmula estrutural da vitamina B₆:

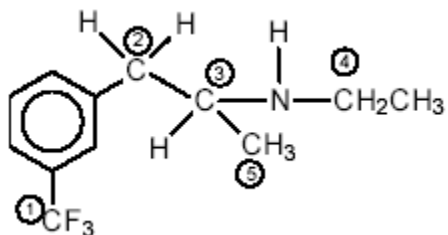


Vitamina B₆

Identifique sua fórmula molecular da vitamina B₆.

C₈H₉O₃N.

15) Considere a seguinte estrutura orgânica:



- a) Classifique os carbonos numerados em primário, secundário, terciário ou quaternário.

- 1) Primário
- 2) Secundário
- 3) Secundário
- 4) Primário
- 5) Primário

- b) Escreva a fórmula molecular do composto. $C_{12}H_{16}NF_3$
- c) Determine a hibridização de cada carbono numerado no composto.
Todos possuem hibridização sp^3 .

16) O petróleo é composto, principalmente, por hidrocarbonetos, que são substâncias orgânicas compostas, apenas por:

- a) sulfato de sódio.
- b) conservantes.
- c) carbono e hidrogênio.
- d) microorganismos.
- e) ouro e cobre.

-Gab. Letra "C"

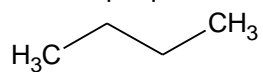
17) Os biodigestores possibilitam o reaproveitamento de detritos para gerar gás e adubos. Geralmente são alimentados com restos de alimentos e fezes de animais, acrescidos de água. Dentro do aparelho, esses detritos entram em decomposição pela ação de bactérias anaeróbicas. Durante o processo, todo material orgânico acaba convertido em gás metano, que é utilizado como combustível em fogões de cozinha ou geradores de energia elétrica. O resíduo sólido que sobra no biodigestor também pode ser aproveitado com fertilizante.

- a) O gás metano é um hidrocarboneto insaturado.
- b) O carbono no metano é híbrido sp^2 .
- c) O ângulo entre as valências do carbono no metano é de 120° .
- d) No metano o carbono é trivalente.
- e) Todas as ligações existentes no metano são do tipo sigma.

- Gab. Letra "E".

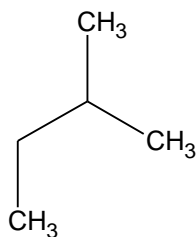
18) Escreva a fórmula estrutural e o nome do composto formado pela união dos radicais:

a) metil e propil



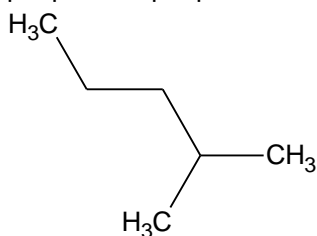
Butano

b) etil e isopropil



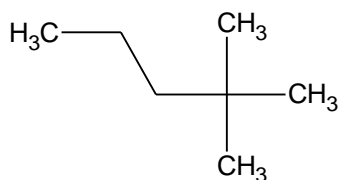
2-metil- butano

c) propil e isopropil



2-metil-pentano

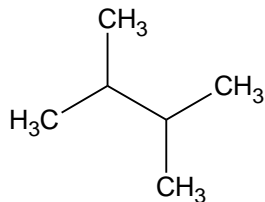
d) propil e tercbutil



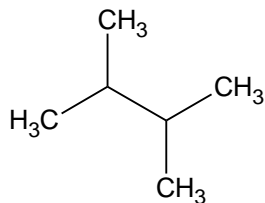
2,2-dimetil-pentano

19) Dê a fórmula estrutural dos compostos abaixo:

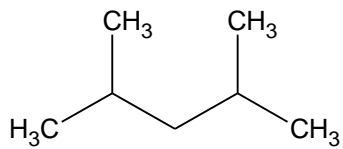
a) 2,3-dimetil-butano



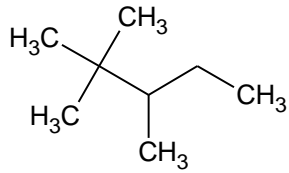
b) 2,3-dimetil-pentano



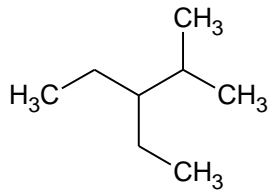
c) 2,4-dimetil-pentano



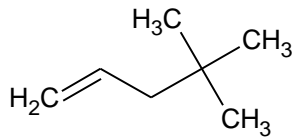
d) 2,2,3-trimetil-pentano



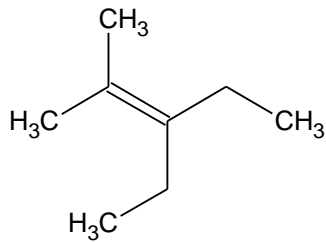
e) 3-etil-2-metil-pentano



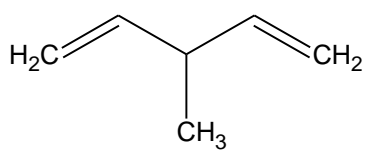
f) 4,4-dimetil-pent-1-eno



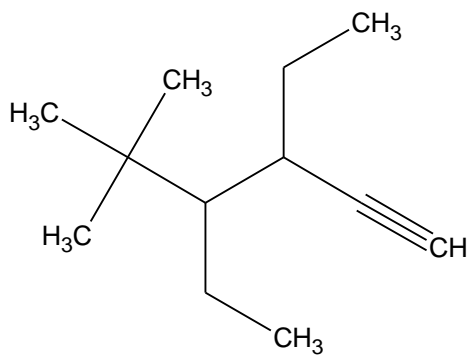
g) 3-etil-4-metil-pent-2-eno



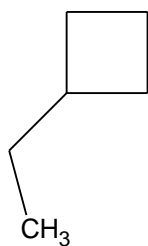
h) 3-metil-penta-1,4-dieno



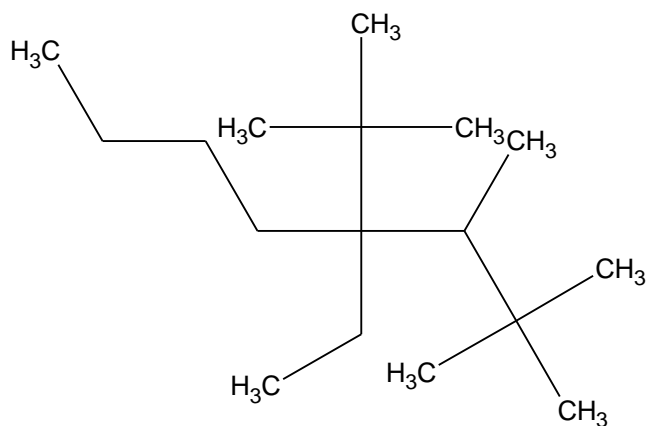
i) 3,4-dietyl-5,5-dimetil-hex-1-ino



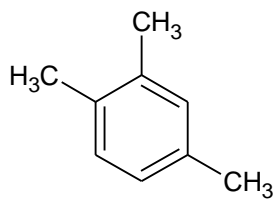
j) etilciclobutano



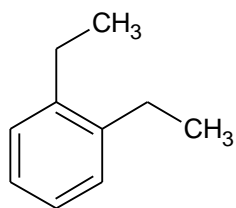
k) 4-terc-butil-4-etil-2,2,3-trimetil-octano



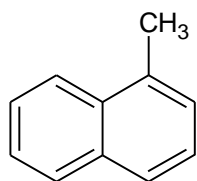
l) 1,2,4-trimetilbenzeno



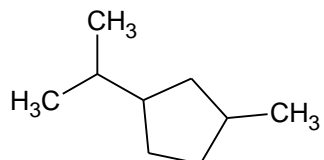
m) orto-dietetilbenzeno



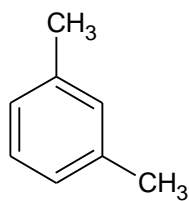
n) α -metilnaftaleno



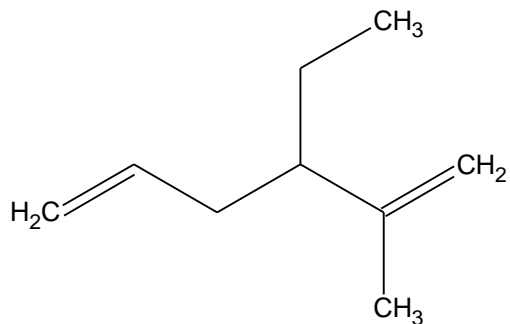
o) 1-metil-3-isopropil-ciclopenteno



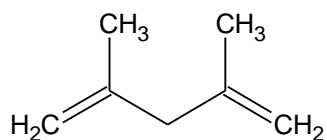
p) meta-dimetilbenzeno



q) 3-etil-2-metil-hex-1,5-dieno

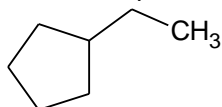


r) 2,4-dimetil-pent-1,4-dien

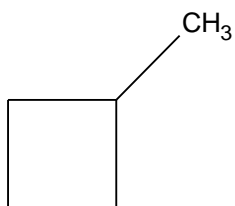


20) Dê a fórmula estrutural dos compostos abaixo:

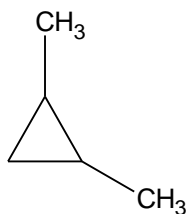
a) etilciclopentano



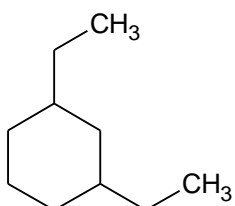
b) metil-ciclobutano



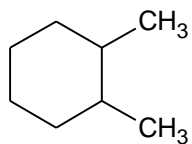
c) 1,2-dimetilciclopropano



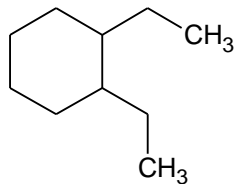
d) 1,3-dietil-ciclo-hexano



e) 1,2-dimetilcicloexeno

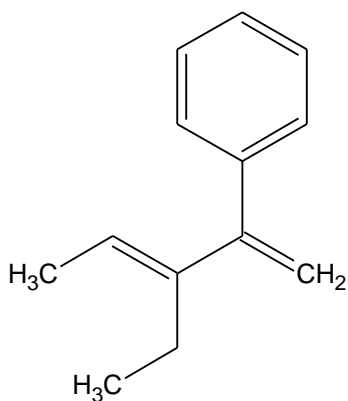


f) 2-etil-1-metilcicloexeno

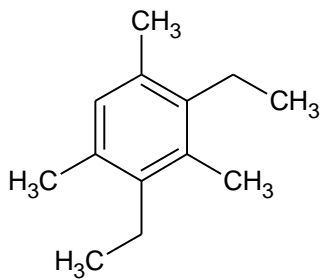


21) Faça a fórmula estrutural e molecular dos compostos:

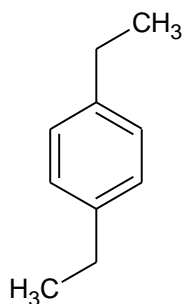
a) 3-etil-4-fenil-penta-2,4-dieno



b) 1,3,5-trietil-2,4-dimetil-benzeno

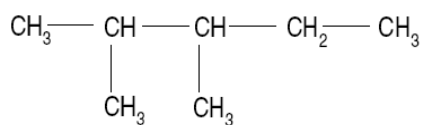


c) orto-dietil-benzeno



20) Dê o nome dos compostos abaixo:

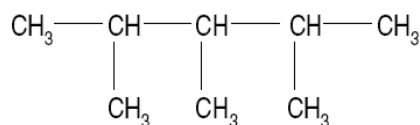
a)



a) 2,3-dimetil-pentano

b) 3-metil-pent-1,2-dieno

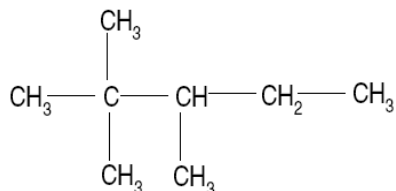
c)



c) 2,3,4-trimetil-pentano

d) 2,4-dimetil-hex-1-eno

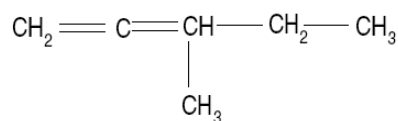
e)



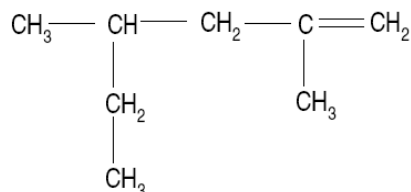
e) 2,2,3-trimetil-pentano

f) 2-etil-4-metil-hex-1-eno

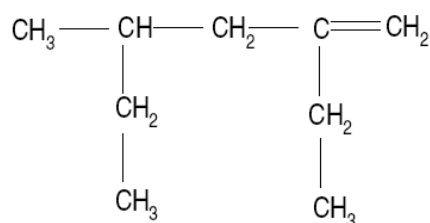
b)



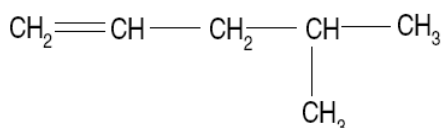
d)



f)



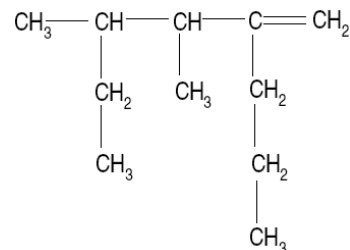
g)



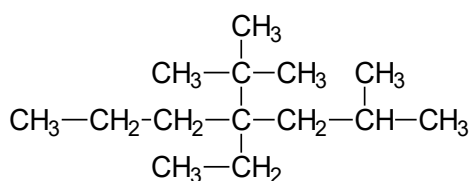
g) 4-metil-pent-1-eno

h) 3,4-dimetil-2-propil-hex-1-eno

h)



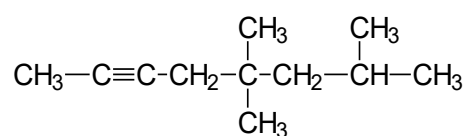
i)



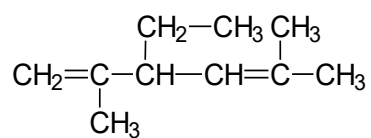
i) 4-etil-4-isopropil-2-metil-heptano

j) 5,5,7-trimetil-oct-2-ino

j)



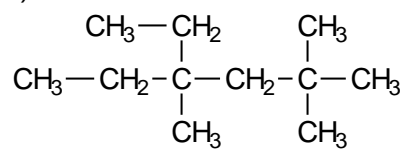
k)



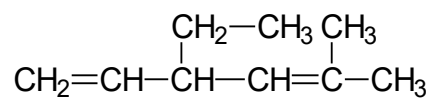
k) 3-etil-2,5-dimetil-hex-1,4-dieno

l) 2-etil-2,2,4-trimetil-hexano.

l)



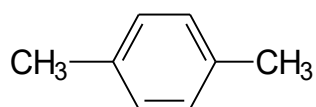
m)



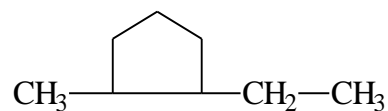
m) 3-etil-5-metil-hex-1,4-dieno.

n) 1,4-dimetil-benzeno

n)



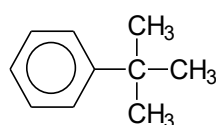
o)



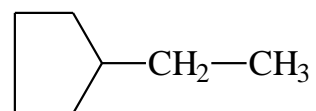
o) 1-etil-2-metil-ciclo-pentano

p) Terc-butil-benzeno

p)



q)



q) Etil-ciclo-pentano

r) 2,5,5-trimetil-hex-1-eno

r)

