Organic Chimestry

Chapter 2 test bank

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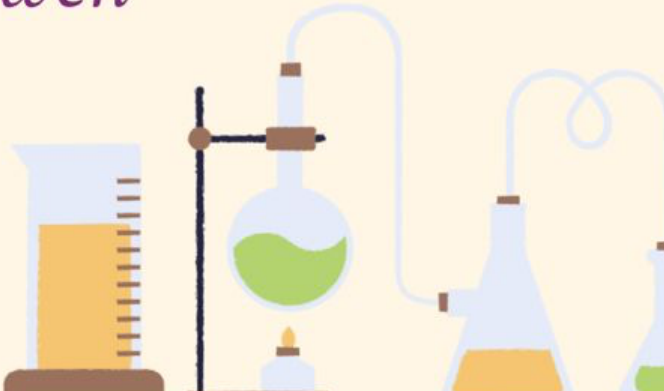
hana masarweh



Hemmeh asnan

Chapter two past papers

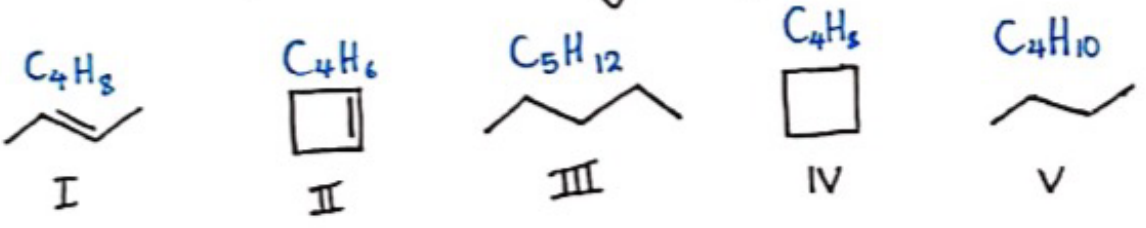
2019

Q_1: Circle the correct answer in each of the following:

1- Which of the following structures is the least stable?

A B C D E

2- Which of the following compounds are isomers?



A- I and II B- I and IV C- III and V D- IV and V E- II and IV

3- The correct IUPAC name for the following compound:

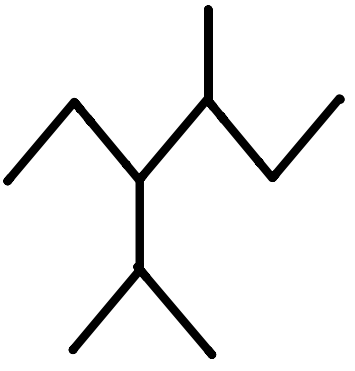
A- 3-ethyl-2,4-dimethyl hexane.

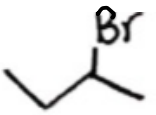
B- 3-Isopropyl-4-methylhexane

C- 4-ethyl-3,5-dimethylhexane.

D- 3-sec-butyl-2-methylpentane.

E- 3,4-di ethyl-2-methylpentane.

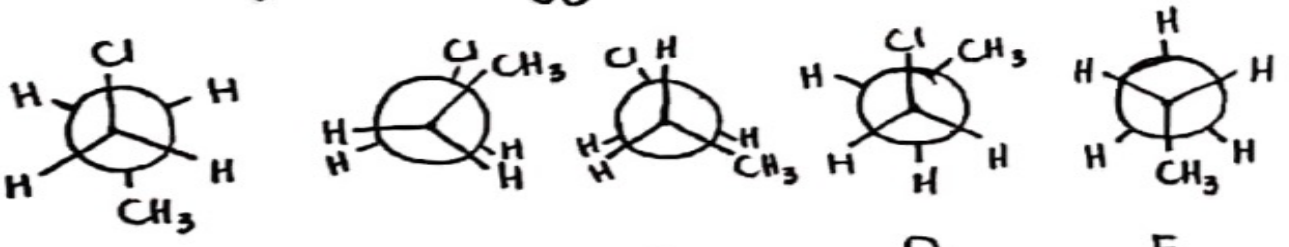


4. What is the common name for the following molecule 

A - isobutyl bromide B- tert-bubyl bromide C - butylbromide

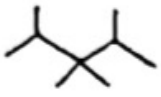
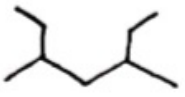
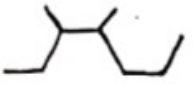
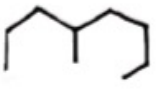
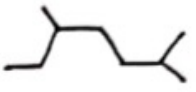
D - sec-butyl bromide E - bromo-sec-butane.

5- The highest energy rotomer is: (الأعلى إستقرار)



A B C D E

6- Which one of the following has the lowest boiling point ?

A-  B-  C-  D-  E- 

7- Alkyl groups in the most stable conformation of 1-butyl-1-ethylcyclohexane are:

A- both on same side of ring.

B- butyl equatorial, ethyl axial

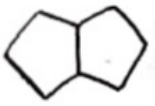
C - both axial

d - butyl axial, ethyl equatorial.

E - both equatorial.

8- The total number of mono chlorinated alkanes which are produced from the following compound with $Cl_2/h\nu$ is (ignore cis/trans isomers):

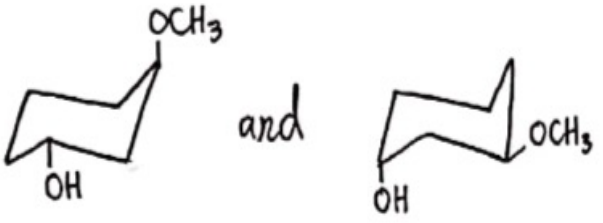
A-1 B-2 C-3 D-4 E-5



9. Which trace by-product is formed in a chain-terminating step in the bromination of ethane?

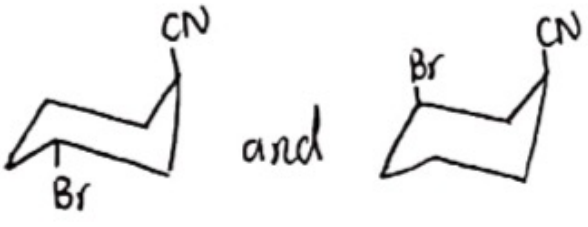
A-butane B. HBr C. bromoethane D. 1,2-dibromoethane E. propane.

10. What is the relationship between the two following structures?



A- Not related C- Conformational
B- Configurational (cis-trans) D- Identical
E - Constitutional.

11. What is the relationship between the two following structures?



A- Not related C- Conformational
B- Configurational (cis-trans) D- Identical
E - Constitutional.

12. Which hydrocarbon will have lowest boiling point?

A. 3-methylpentane. B. 2,3-dimethylbutane C. 2-methylpentane.
D. n-hexane E. isohexane.

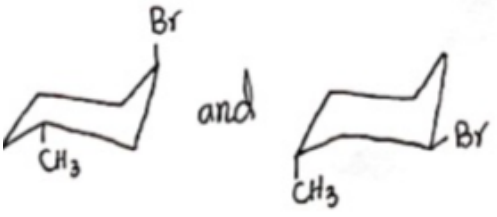
13. Alkyl groups in the most stable conformation of trans-1-methyl-3-propyl-cyclohexane are:

A. methyl equatorial, propyl axial.
B. both equatorial
C. both axial
D. propyl equatorial, methyl axial

14. How many monobromination products would this compound give upon free radical bromination?

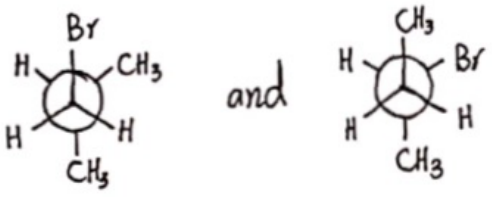
a. 7 B. 5 C. 6 D. 3 E. 4

15 - What is the relationship between the two following structures



A. Not related B. Constitutional
C. Configurational D. Identical
E. Conformational

16 - What is the relationship between the two following structures



A. Identical B. Constitutional
C. Configurational D. Conformational
E. not related.

Answers:

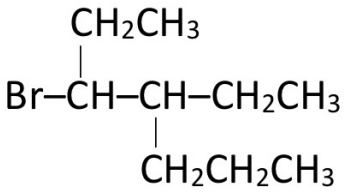
1	D
2	B
3	A
4	D
5	B
6	A
7	B
8	C
9	A

10	C
11	B
12	B
13	D
14	B
15	E
16	B

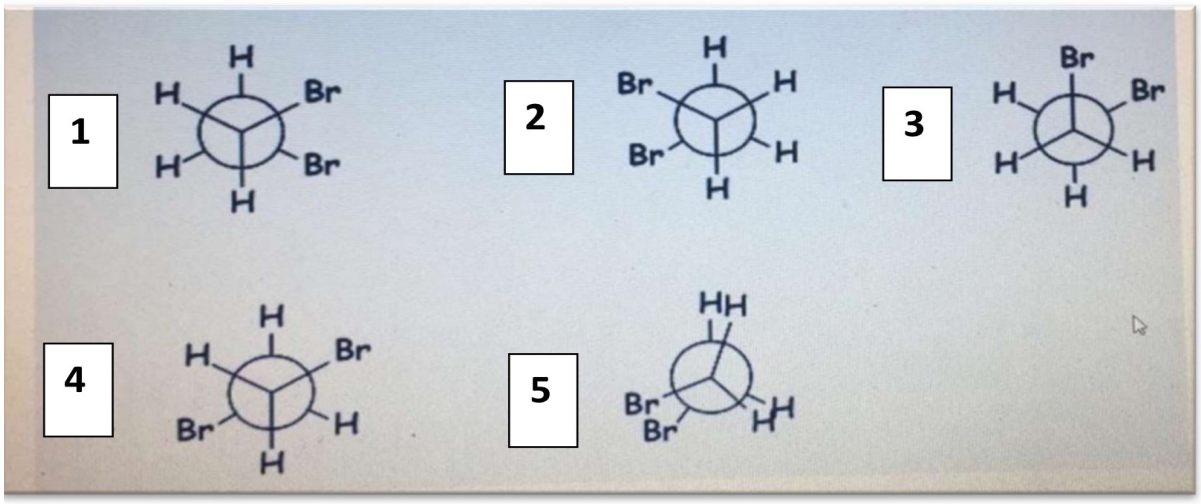
2019:

1- The name for the following molecule is?

A) 3-bromo-4-propylhexane
B) 4-bromo-3-propylhexane
C) 3-bromo-4-ethylheptane
D) 5-bromo-4-ethylheptane
E) 1-Bromo-1-ethyl-2-propylbutane



2- The most stable conformation of 1,2-dibromoethane is:



A) 1 AND 2
B) 3
C) 4
D) 5

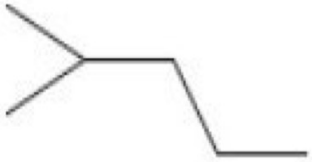
3- Which of the following reactions is a termination step in the radical chlorination of methane?

1) $\cdot Cl + CH_3 - Cl \longrightarrow CH_3 + Cl - Cl$
2) $\cdot CH_3 + \cdot CH_3 \longrightarrow CH_3 - CH_3$
3) $\cdot CH_3 + Cl - Cl \longrightarrow CH_3 - Cl + Cl\cdot$
4) $Cl - Cl \xrightarrow[\text{Uv-light}]{\text{Or heat}} 2Cl\cdot$
5) $\cdot Cl + CH_3 - Cl \longrightarrow \cdot CH_2Cl + H - CL$

A) 1
B) 2
C) 3
D) 4
E) 5

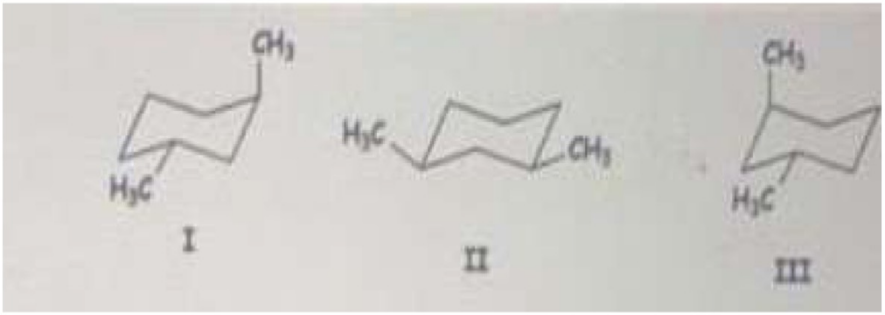
4- **How many monochloro structure isomers can be obtained from the chlorination the following compound?**

A) 3
B) 4
C) 5
D) 6



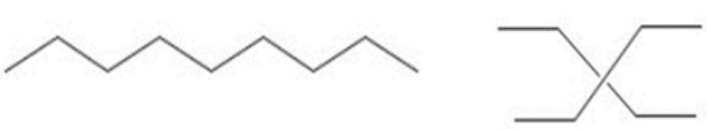
5- **cis -1,3-dimethylcyclohexane is represented by structure(s)?**

A) I ONLY
B) II AND III
C) III ONLY
D) II ONLY
E) I AND III



6- **Which of the following alkanes has the lowest boiling point?**

I II



III IV

A) I
B) II
C) III
D) IV

Answers:

1	C
2	C
3	B
4	C
5	D
6	D

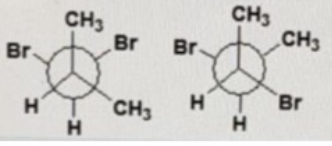
2020

1) Which of the following will give two mono-bromination products upon free radical bromination:
A)Butane B)Cyclopentane C)Propane D)1,1-Dimethylcyclohexane E)Heptane

A) C and D
B) A and C
C) E only
D) A only
E) A and B
F) D only
G) B only
H) C only

2)

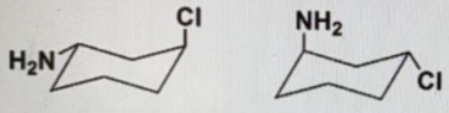
What is the relasionship between the following molecules ?



A)constitutional isomers
B)identical
C)configurational stereoisomers
D)resonance structures
E)conformations

3)

What is the relationship between the following molecules ?

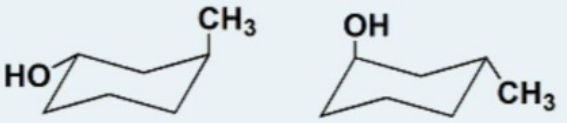


A) Conformation
B) Unrelated
C) Configurational (Cis/trans) stereoisomers
D) Identical
E) Resonance structures
F) Constitutional (structural) isomers

1	B
2	A
3	A

4) Time left 0:37:28

What is the relationship between the following molecules ?



A)Unrelated
B)Identical
C)Resonance structures
D)Configurational (cis/trans) stereoisomers
E)Constitutional (structural) isomers
F)Conformations

5)Which name is not a correct IUPAC name ?
(Hint:Draw the structures first)
A) 3-Ethyl-4-methylhexane
B) 2-Bromo-5-chlorohexane
C) 2,5,5-Trimethylhexane
D) 2,5-Dimethylhexane

6) What is the geometry, hybridization of C-atom ,and the (H-C-H) bond angle in (CH3-CH3)?
A)trigonal planer, sp3, 109.5
B)linear, sp, 180
C)tetrahedral, sp2, 180
D)planar, sp2, 120
E)tetrahedral, sp3, 109.5

7) Which name is not a correct IUPAC name?
(Hint:Draw the structures first)
A)1-bromo-3-ethylbutane
B)3-bromo-1-chlorobutane
C)1,1,1-trichlorobuane
D)2,2-dimethylbutane
E)2-bromo-3-chlorobutane

4	F
5	C
6	E
7	A

8) Which of the following isomeric (C7) alkanes has lowest boiling point?

A)n-heptane
B)isoheptane
C)3,3-dimethylpentane
D)3-methylhexane
E)3-ethylpentane

9) Which "trans by -product" is formed in a chain-termination step in the bromination of **ethane**?

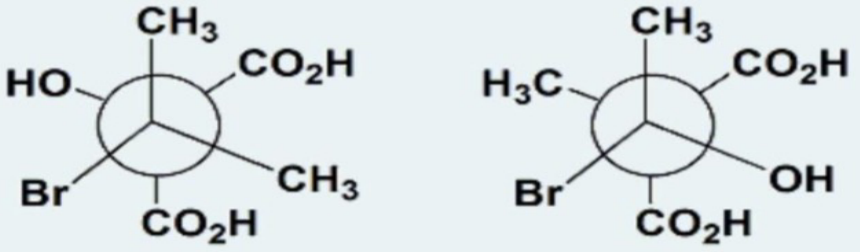
A)n-butane
B)propane
C)cyclopropane
D)cyclobutane
E)isobutane

10) The most stable conformation of trans-1-methyl-3-prpylcyclohexane will have?

A)propyl equatorial , methyl axial
B) both groups at the same side of ring
C)both groups axial
D) both grups equatorial
E)methyl equatorial ,propyl axial

8	C
9	A
10	A

11) What is the relationship between the following molecules ?



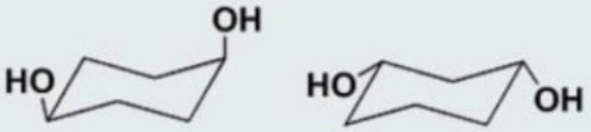
A)conformations
B)configurational stereoisomers
C)identical
D)resonance structures
E)constitutional isomers

12)Which name is not a correct IUPAC name?

A)3-ethyl-3-methylhexane
B)3-bromo-3-methylhexane
C)2-ethyl-3-methylhexane
D)2-bromo-5-methylhexane
E)1-bromo-6-chlorohexane

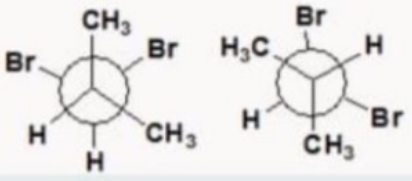
11	D
12	C

13) What is the relationship between the following molecules ?



A)Conformational stereoisomers
B)identical
C)Configurational (cis/trans)stereoisomers
D)Not related
E)resonance structures
F)Constitutional (structural) isomers

14) What is the relasionship between the following molecules ?



A)conformation
B)constitutional isomers
C)resonance structures
D)configurational stereoisomers
E)identical

13	F
14	A

15) Which compound would show cis-trans isomers ?

A)2,3-dimethyl-2-butene
B)2-methyl-1-butene
C)1,1-dibromo-2-methylcyclobutane
D)1-bromo-2-methylcyclobutane
E)methylpropene

16) The most stable conformation of 1-butyl-1-ethylcyclohexane will have :

A) both groups equatorial
B)both groups axial
C)butyl equatorial, ethyl axial
D)butyl axial,ethyl equatorial
E)both groups on same side of ring

17) Which of the following isomeric (C6) alkanes has lowest boilling point?

A)n-hexane
B)2,2-dimethylbutane
C)3-methylpentane
D)isohexane
E)2-methylpentane

18) which of the following will give three mono-bromination product upon free radical bromination:

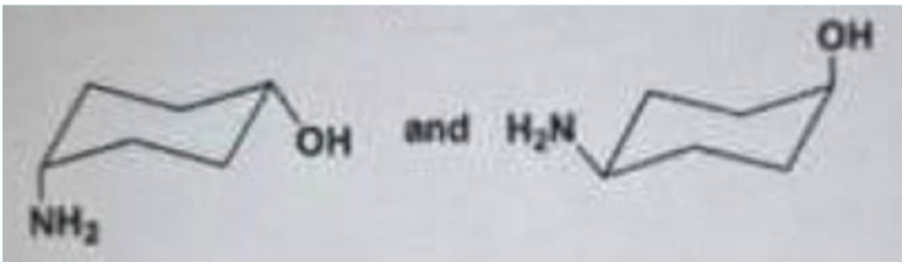
A)Butane B)pentane C)hexane D)1,1-dimethylcyclohexane E)Heptane

A)B only
B)C and E
C) D only
D)B and C
E)D and E
F) E only
G)C only

15	D
16	C
17	B
18	D

19) What is the relationship between the following pair of molecules?

a.Identical
b.Constitutional isomers
c.conformers
d.Enantiomers
E.Cis-trans isomers



20) What is the relationship between the following pair?

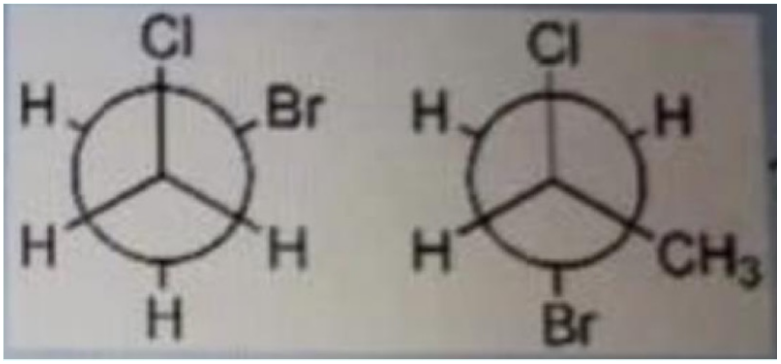
a.Identical

b.Enantiomers

c.Conformers

d.Not isomers

e.Diastereomers



21) What is relationship between the following pair of molecules?

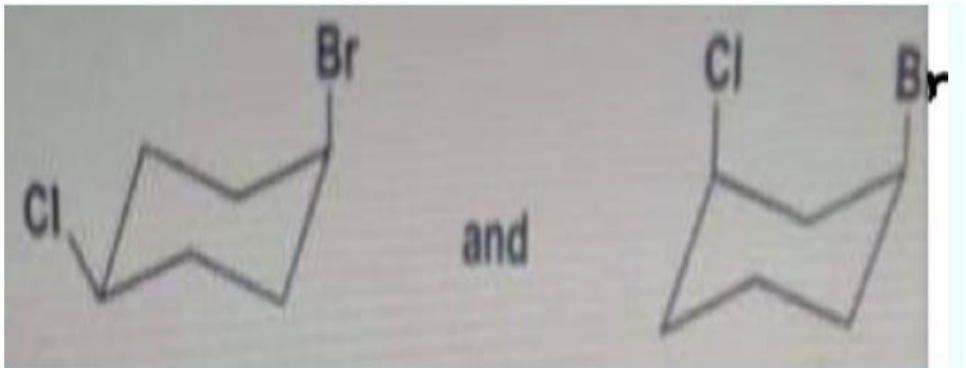
a.Cis-trans isomers

b.Enantiomers

c.Constitutional isomers

d.Conformers

e.Identical



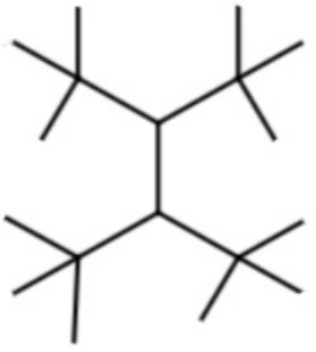
19	C
20	d
21	C

2021

1.Which of the following compound has the lowest boiling point ?

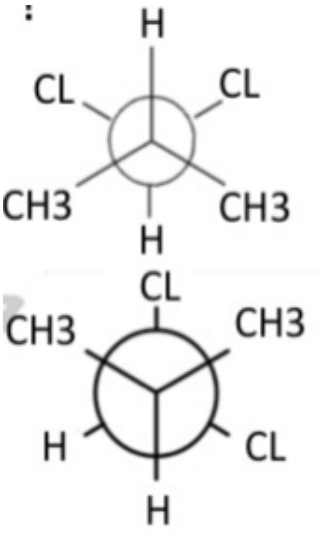
A) 2-methylhexane.
B) 2-methylpentane.
C) Hexane.
D) 2,2-dimethylpentane.
E) Heptane.

2.How many mono-brominated products this compound would have ?



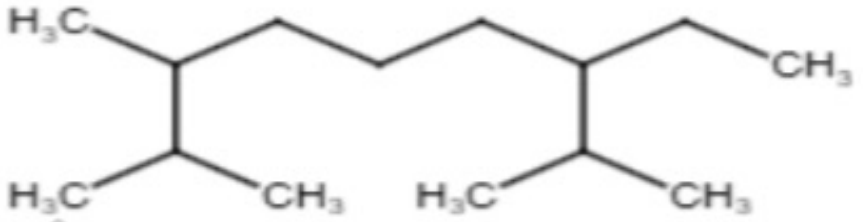
A) 5.
B) 2.
C) 4.
D) 3.
E) 1.

3) What is the relationship between these molecules ?



A) identical.
B) Configurational (geometric) stereoisomers.
C) Structural (constitutional) isomers.
D) Conformations (rotamers).
E) Unrelated.

4).What is the IUPAC name of this compound ?



A) 3-ethyl-2,7,8-trimethylnonane.
B) 2,6-diisopropyloctane.
C) 6-ethyl-2-isopropyl-7-methyloctane.
D) 7-ethyl-2,3,8-trimethylnonane
E) 7-isopropyl-2,3-dimethylnonane.

1	B
2	B
3	B
4	A

5).Which intermediate is formed when propane reacts with bromine in presence of heat or light ?

CH3$\dot{C}$HCH3 (1) CH3CH2$\overset{+}{C}$H2 (2) CH3CH2$\dot{C}$H2 (3) CH3$\overset{+}{C}$HCH3 (4)

A) 1 and 2. B) 1 and 4. C) 2 and 3. D) 1 and 3.

5	D

6) How many monochlorination products are possible for 2-methylpropane?

A) 1
B) 2
C) 3
D) 4

7) Which of the following statements describe the **propagation step**

A) Step that initially creates a radical species
B) Free radical species react with each other to form a stable, non-radical adduct
C) Two radicals colliding with one another
D) Once a reactive free radical is generated, it can react with stable molecules to form new free radicals. These new free radicals go on to generate yet more free radicals, and so on

8) The number of possible monobromination products, including cis-trans isomers, of methylcyclopentane is

A) 1
B) 6
C) 4
D) 2

9) In the chlorination of methane, the propagation steps involve forming

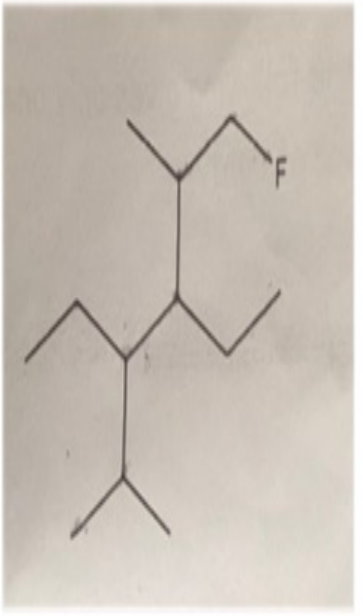
A) H radicals
B) Methyl radicals
C) Chlorine radicals
D) B and C

6	7	8	9
B	D	B	D

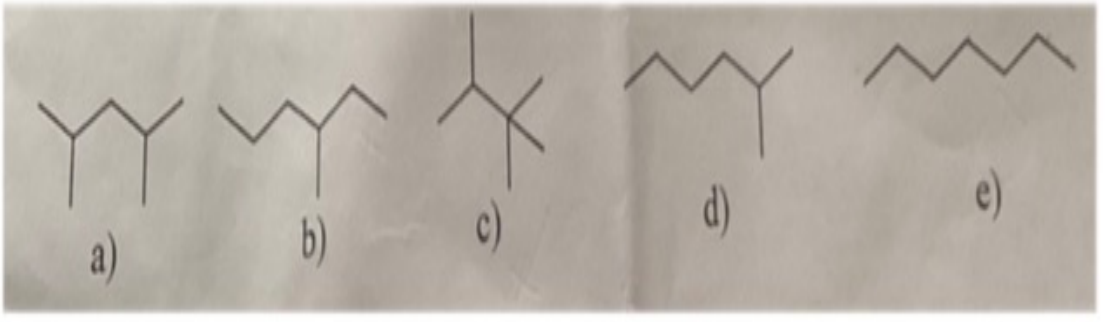
2022 (2)

1) What is the name of the following compound?

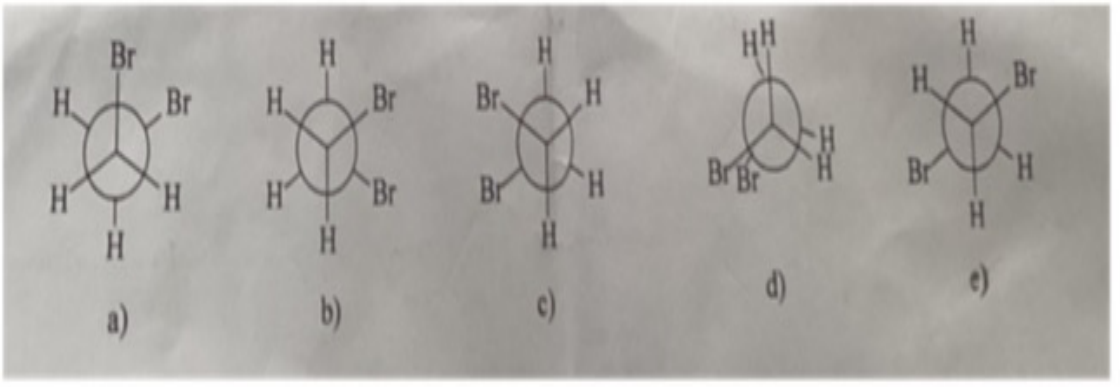
a) 1-fluoro-3,4-diethyl-2,5-dimethylhexane
b)4,5-diethyl-1-fluoro-3,6-dimethylheptane
c)3,4-diethyl-1-fluoro-2,5-dimethylhexane
d)3,4-diethyl-2,5-dimethyl-1-fluorohexane
e)3-ethyl-1-fluoro-4-isoproply-2-methylhexane



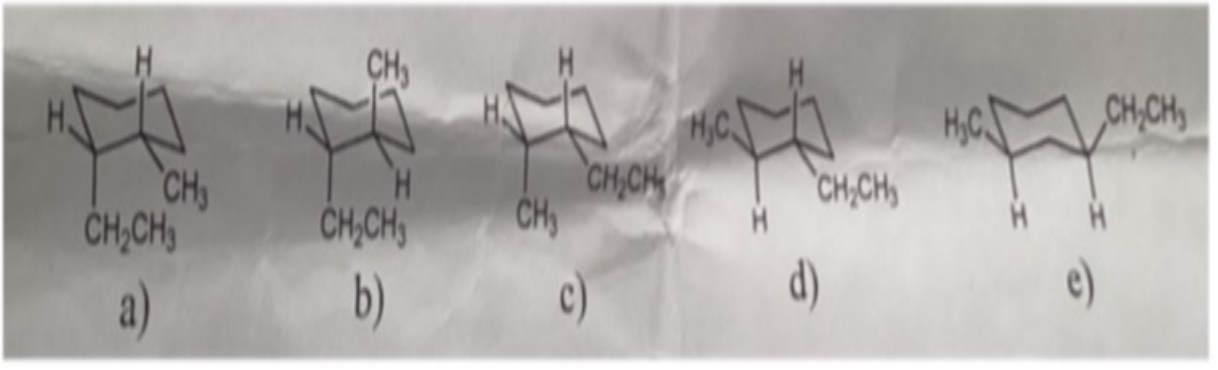
2) Which of the following has the highest boiling point?



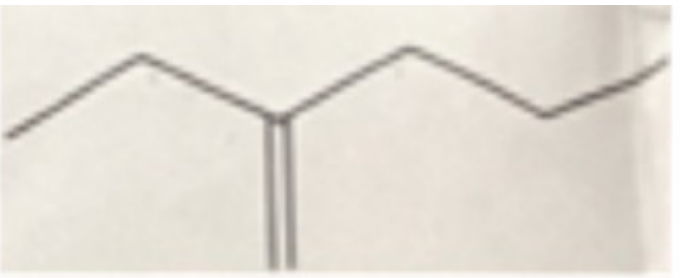
3) Which of the following represents the most stable Newman projection of 1,2-dibromoethane?



4) Which of the following represents the most stable conformation of cis-1-ethyl-2-methylcyclohexane?

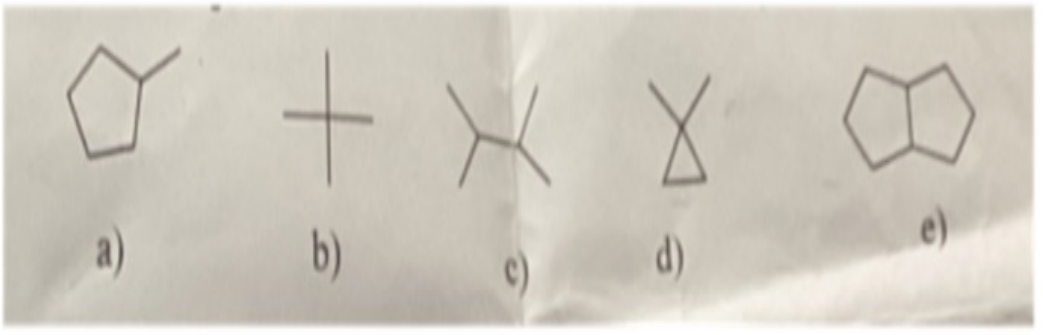


5) The IUPAC name for



a) 3-methyl-3-hexene
b) 2-propyl-1-butene
c) 3-methylenehexane
d) 2-ethyl-1-pentene
e) ethyl propyl ethene

6) Which of the following gives only one mono-chlorinated product upon trectment with Cl2 in the presence of light?



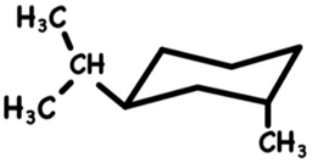
7) Which of the following compounds can exhibit cis/trans isomerism?

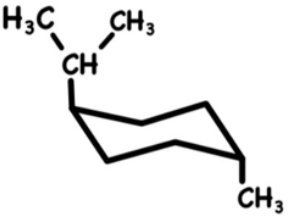
a) 1-pentene
b) 3-methyl-1-pentene
c) 2-methyl-2-pentene
d) 2-pentene
e) propene

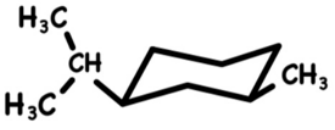
1	C
2	E
3	E
4	C

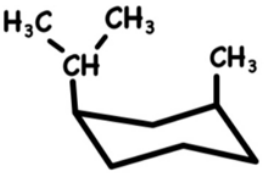
5	D
6	B
7	D

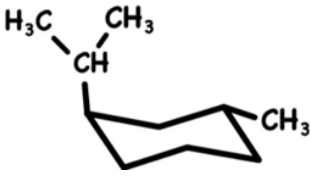
8) Which of the following is the most stable conformation for 1-isopropyl-3-methylcyclohexane?

a) 

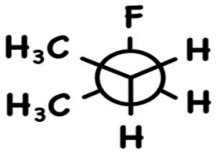
b) 

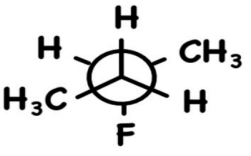
c) 

d) 

e) 

9) What is the relationship between the following pair of structures?





a) Resonance structures
b) Constitutional isomers
c) Conformational isomers
d) Configurational isomers
e) Identical

8	9
C	e