**CHM 1321** **First Midterm** **Feb 3 – 2012**
**(Prof. S. Gambarotta)**

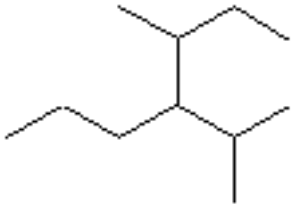
**Your Name: _____**
**Student #: _____**

| Exercise | key |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |

1. Deliver only the solution key in the above table. You can keep the text. The solution key will be posted today on the web.

2. You must respond to all exercises.

**Question 1**

An IUPAC name for  is:

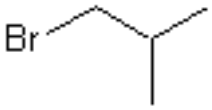
- 5-Methyl-4-(1-methylethyl)heptane
- 5-Methyl-4-(1-methylpropyl)hexane
- 2-Methyl-3-(1-methylpropyl)hexane
- 2-Methyl-3-(2-methylpropyl)hexane
- 3-Methyl-4-(1-methylethyl)heptane

**Question 2**

Which of the following pairs of compounds represent pairs of constitutional isomers?

- 2-Methylbutane and pentane
- 2-Chlorohexane and 3-chlorohexane
- sec-Butyl bromide and tert-butyl bromide
- Propyl chloride and isopropyl chloride
- All of the above

**Question 3**

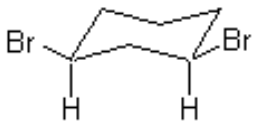



What is the common name for this compound?

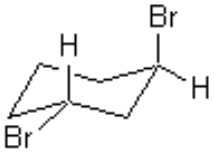
- Isobutyl bromide
- tert-Butyl bromide
- sec-Butyl bromide
- Butyl bromide
- Bromo-sec-butane

**Question 4**

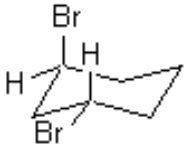
cis-1,3-Dibromocyclohexane is represented by




I




II



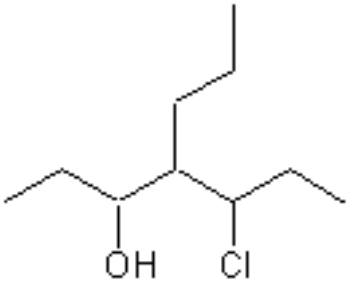

III

structure(s):

- I
- II
- III
- II and III
- I and II

**Question 5**

A correct IUPAC name for the following compound




is:

- 4-propyl-5-chloro-3-heptanol
- 3-hydroxy-4-propyl-5-chloroheptane
- 4-propyl-3-chloro-5-heptanol
- 4-(1-chloropropyl)-3-heptanol
- 5-chloro-4-propyl-3-heptanol

**Question 6**

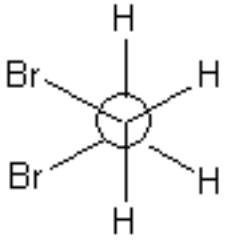
Which cycloalkane has the greatest ring strain?

- Cyclobutane
- Cyclohexane
- Cyclopropane
- Cycloheptane

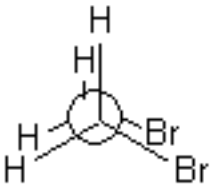
- Cyclopentane

**Question 7**

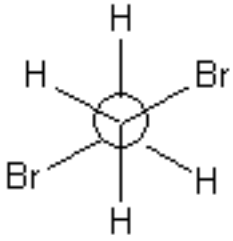
The most stable conformation of 1,2-dibromoethane



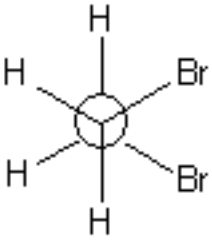
I



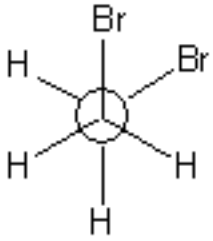
II



III



IV



V

is:

- I
- II
- III
- IV
- V

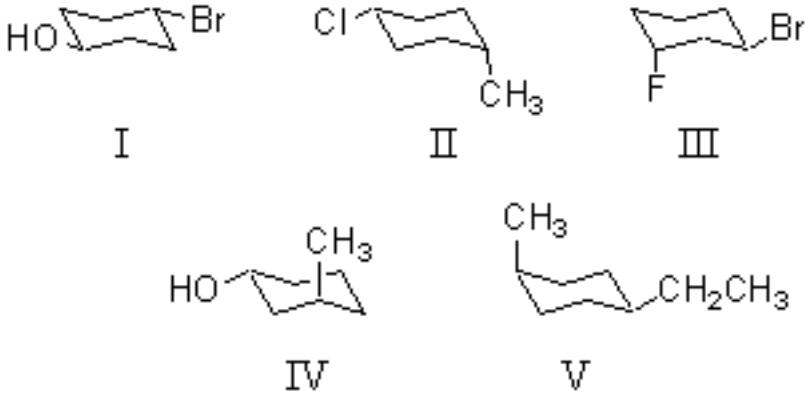
**Question 8**

The most stable conformation of cis-1-tert-butyl-2-methylcyclohexane is the one in which:

- the tert-butyl group is axial and the methyl group is equatorial.
- both groups are equatorial.
- the twist boat conformation is adopted.
- the methyl group is axial and the tert-butyl group is equatorial.
- both groups are axial.

**Question 9**

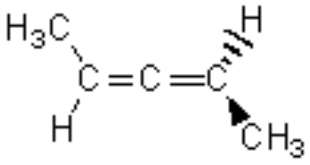
Which of the following can be described as *cis* isomers?



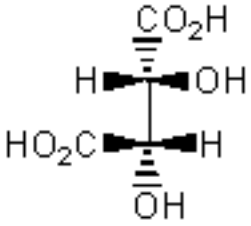

- I
- II, V
- III, IV
- I, III and IV
- None of the above are *cis* isomers.

**Question 10**

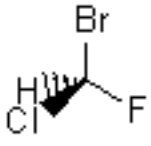
Which of the following molecules is



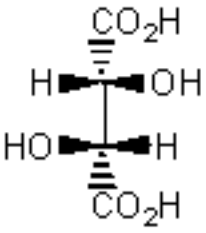
I



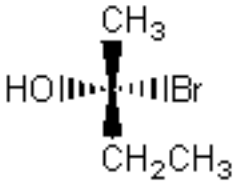
II



III



IV



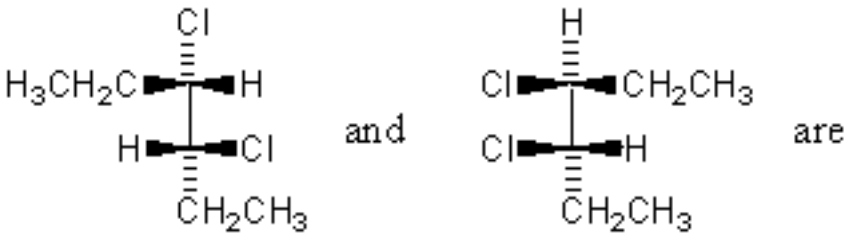
V

achiral?

- I
- II
- III
- IV
- V

**Question 11**

The molecules shown




are:

- not isomeric.
- enantiomers.
- diastereomers.
- constitutional isomers.
- two conformations of the same molecule.

**Question 12**

(2R,4S) –2,4–Dichloropentane and (2S,4R)-2,4-dichloropentane are:

- conformational isomers
- constitutional isomers
- diastereomers
- enantiomers
- identical