



**Table 6.2** Bond Dissociation Energies for Some Common Bonds [A–B → A• + •B]

Bond	$\Delta H^\circ$ kJ/mol	Bond	$\Delta H^\circ$ kJ/mol
<b>H–Z bonds</b>		<b>R–X bonds</b>	
H–F	569	CH <sub>3</sub> –F	456
H–Cl	431	CH <sub>3</sub> –Cl	351
H–Br	368	CH <sub>3</sub> –Br	293
H–I	297	CH <sub>3</sub> –I	234
H–OH	498	CH <sub>3</sub> CH <sub>2</sub> –F	448
<hr/>		CH <sub>3</sub> CH <sub>2</sub> –Cl	339
<b>Z–Z bonds</b>		CH <sub>3</sub> CH <sub>2</sub> –Br	285
H–H	435	CH <sub>3</sub> CH <sub>2</sub> –I	222
F–F	159	(CH <sub>3</sub> ) <sub>2</sub> CH–F	444
Cl–Cl	242	(CH <sub>3</sub> ) <sub>2</sub> CH–Cl	335
Br–Br	192	(CH <sub>3</sub> ) <sub>2</sub> CH–Br	285
I–I	151	(CH <sub>3</sub> ) <sub>2</sub> CH–I	222
HO–OH	213	(CH <sub>3</sub> ) <sub>3</sub> C–F	444
<hr/>		(CH <sub>3</sub> ) <sub>3</sub> C–Cl	331
<b>R–H bonds</b>		(CH <sub>3</sub> ) <sub>3</sub> C–Br	272
CH <sub>3</sub> –H	435	(CH <sub>3</sub> ) <sub>3</sub> C–I	209
CH <sub>3</sub> CH <sub>2</sub> –H	410	<hr/>	
CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> –H	410	<b>R–OH bonds</b>	
(CH <sub>3</sub> ) <sub>2</sub> CH–H	397	CH <sub>3</sub> –OH	389
(CH <sub>3</sub> ) <sub>3</sub> C–H	381	CH <sub>3</sub> CH <sub>2</sub> –OH	393
CH <sub>2</sub> =CH–H	435	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> –OH	385
HC≡C–H	523	(CH <sub>3</sub> ) <sub>2</sub> CH–OH	401
CH <sub>2</sub> =CHCH <sub>2</sub> –H	364	(CH <sub>3</sub> ) <sub>3</sub> C–OH	401
C <sub>6</sub> H <sub>5</sub> –H	460	<hr/>	
C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> –H	356		
<hr/>			
<b>R–R bonds</b>			
CH <sub>3</sub> –CH <sub>3</sub>	368		
CH <sub>3</sub> –CH <sub>2</sub> CH <sub>3</sub>	356		
CH <sub>3</sub> –CH=CH <sub>2</sub>	385		
CH <sub>3</sub> –C≡CH	489		

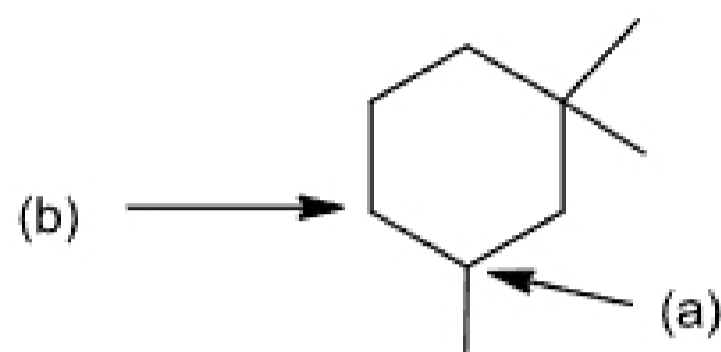
Enter your answers to Problems 1-19 on the SCANTRON SHEET

Multiple Choice (57 points total; 3 points each).

Questions 1-3 refer to the cycloalkane at right:

1. The **IUPAC name** for the compound:

- A. 1-methyl-3-isopropylcyclohexane
- B. 1-isopropyl-3-methylcyclohexane
- C. 1,3,3-trimethylcyclohexane
- D. 1,1,3-trimethylcyclohexane



2. The **carbon atom labeled (a)** is classified as:

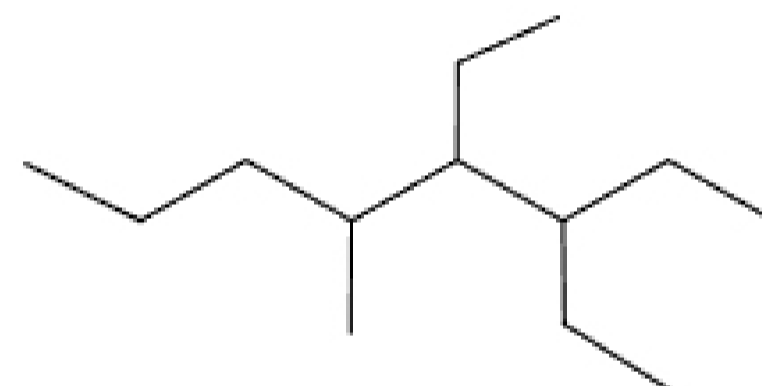
- A. 1°
- B. 2°
- C. 3°
- D. 4°

3. The **hydrogen atoms attached to carbon (b)** are classified as:

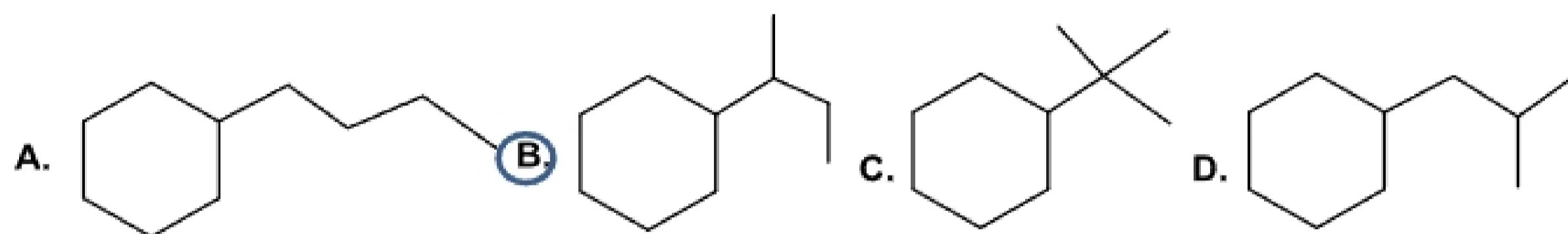
- A. 1°
- B. 2°
- C. 3°
- D. 4°

4. The **number of stereoisomers** for the molecule at right:

- A. 2
- B. 3
- C. 4
- D. 8



5. The structure of **sec-butylcyclohexane**



6. The **gauche conformation** of butane:

