

Answers to Questions For O-Chem (Blue) Packet #1

Questions:

{1} They are identical; {2} They would have the same name; {3} 2,4-dimethylpentane; {4} cyclooctane; {5} 1,1,2-trimethylcyclobutane; {6} cyclopropane and cyclobutane; {7} the double bond can only be in the #1 position

Problems:

1.

a.	meth-	1	methane	CH ₄
b.	eth-	2	ethane	C ₂ H ₆
c.	prop-	3	propane	C ₃ H ₈
d.	but-	4	butane	C ₄ H ₁₀
e.	pent-	5	pentane	C ₅ H ₁₂
f.	hex-	6	hexane	C ₆ H ₁₄
g.	hept-	7	heptane	C ₇ H ₁₆
h.	oct-	8	octane	C ₈ H ₁₈
i.	non-	9	nonane	C ₉ H ₂₀
j.	dec-	10	decane	C ₁₀ H ₂₂

2.

a.	methane	CH ₄	CH ₄
b.	ethane	C ₂ H ₆	CH ₃ -CH ₃
c.	propane	C ₃ H ₈	CH ₃ -CH ₂ -CH ₃
d.	butane	C ₄ H ₁₀	CH ₃ -CH ₂ -CH ₂ -CH ₃
e.	pentane	C ₅ H ₁₂	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₃
f.	hexane	C ₆ H ₁₄	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃
g.	heptane	C ₇ H ₁₆	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃
h.	octane	C ₈ H ₁₈	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃
i.	nonane	C ₉ H ₂₀	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃
j.	decane	C ₁₀ H ₂₂	CH ₃ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃

3.

a.	methyl	-CH ₃
b.	ethyl	-CH ₂ -CH ₃
c.	propyl	-CH ₂ -CH ₂ -CH ₃
d.	butyl	-CH ₂ -CH ₂ -CH ₂ -CH ₃
e.	pentyl	-CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃
f.	hexyl	-CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₂ -CH ₃

4. a. pentane; b. propane; c. hexane; d. heptane; e. pentane; f. pentane

5. a. 2-methylpentane; b. 3-ethylhexane; c. 4-propyloctane; d. 4-isopropylnonane

6. a. 2, 2-dimethylpropane; b. 3, 3-dimethylpentane; c. 4, 4-diethyloctane; d. 2, 3, 4-trimethylheptane

7. a. 4-ethyl-6-methylnonane; b. 3, 3-dimethyl-6-propylnonane; c. 4-ethyl-5-isopropyl-2-methylheptane; d. 4-ethyl-2, 7-dimethyloctane

8. a. ethylcyclobutane; b. ethylcyclopropane; c. propylcyclopentane (or n-propylcyclopentane)

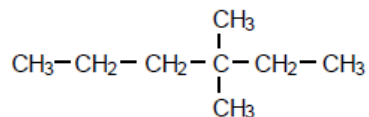
9. a. 1, 3-diethyl-5-methylcyclohexane; b. 1, 2-dimethylcyclopropane; c. 1-ethyl-2, 3-dimethylcyclopropane; d. 1, 2-diethylcyclopentane; e. 1, 3, 5-trimethylcyclohexane; f. 1-isopropyl-3-methylcyclobutane; g. 1-methyl-2-propylcyclooctane

10. a. butene; b. 2-butene; c. 2-pentene; d. 3-hexene; e. ethene; f. propene; g. 3, 5-dimethyl-1-hexene; h. 3-methyl-2-pentene; i. 3-methyl-1-butene; j. 4, 4-diethyl-2-hexene

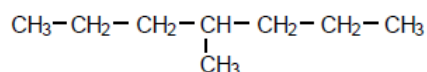
11. a. 4-ethylcyclopentene; b. 6-ethyl-3, 3-dimethylcyclohexene; c. 1, 3-dimethylcyclobutene;
d. 3-isopropylcyclopropene; e. 3, 5-dimethyl-6-propylcyclooctene; f. 2-butyl-3-ethylcyclobutene

12. a. 1-pentyne; b. 2-hexyne; c. 2-pentyne; d. 1-pentyne; e. 2-heptyne; f. 3-methyl-1-butyne;
g. 4-ethyl-3-methyl-1-hexyne; h. 3,3-dimethyl-1-hexyne; i. 6-methyl-4-propyl-2-heptyne

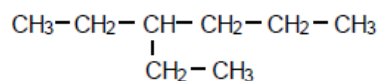
13. a. 3, 3-dimethylhexane



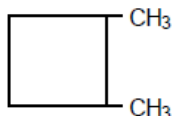
b. 4-methylheptane



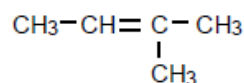
c. 3-ethylhexane



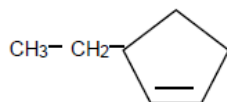
d. 1, 2-dimethylcyclobutane



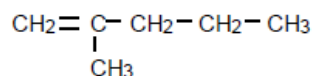
e. 2-methyl-2-butene



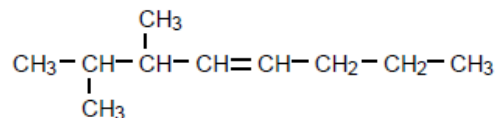
f. 3-ethylcyclopentene



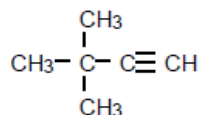
g. 2-methyl-1-pentene



h. 2, 3-dimethyl-4-octene



i. 3, 3-dimethyl-1-butyne



j. 3-octyne

