King Saud University

Petroleum and Natural Gas Engineering

PGE 362: Properties of Reservoir Fluids

Thursday, October 6, 2016

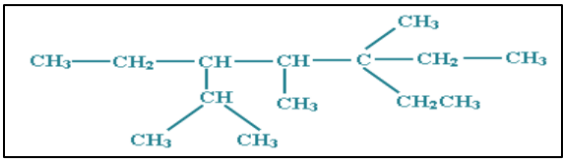
Tutorial one

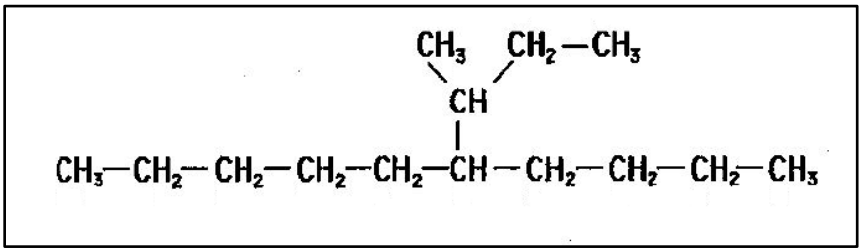
The numerical multiplier (or multiplying affix) in IUPAC nomenclature indicates how many particular atoms or functional groups are attached at a particular point in a molecule. The affixes are derived from both Latin and Greek.

Number	Multiplier
1	mono-
2	di-
3	tri-
4	tetra-
5	penta-
6	hexa-
7	hepta-
8	octa-
9	nona-
10	deca-

11	undeca-
12	dodeca-
13	trideca-
14	tetradeca-
15	pentadeca-
16	hexadeca-
17	heptadeca-
18	octadeca-
19	nonadeca-
20	icosa-/eicosa-

Q1) Name the following hydrocarbons:



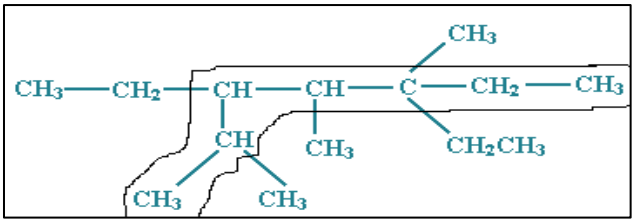


Q2) Draw the following hydrocarbon:

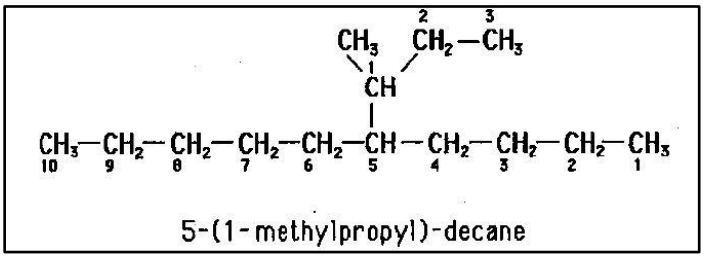
1,2-Dimethyl-5-propylcycloheptane

Q3) Draw the formulas of the Heptane isomers

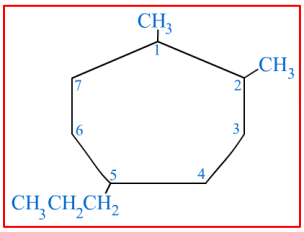
Q1-A)



3 , 5 - Diethyl - 2 , 4 , 5 – Trimethylheptane

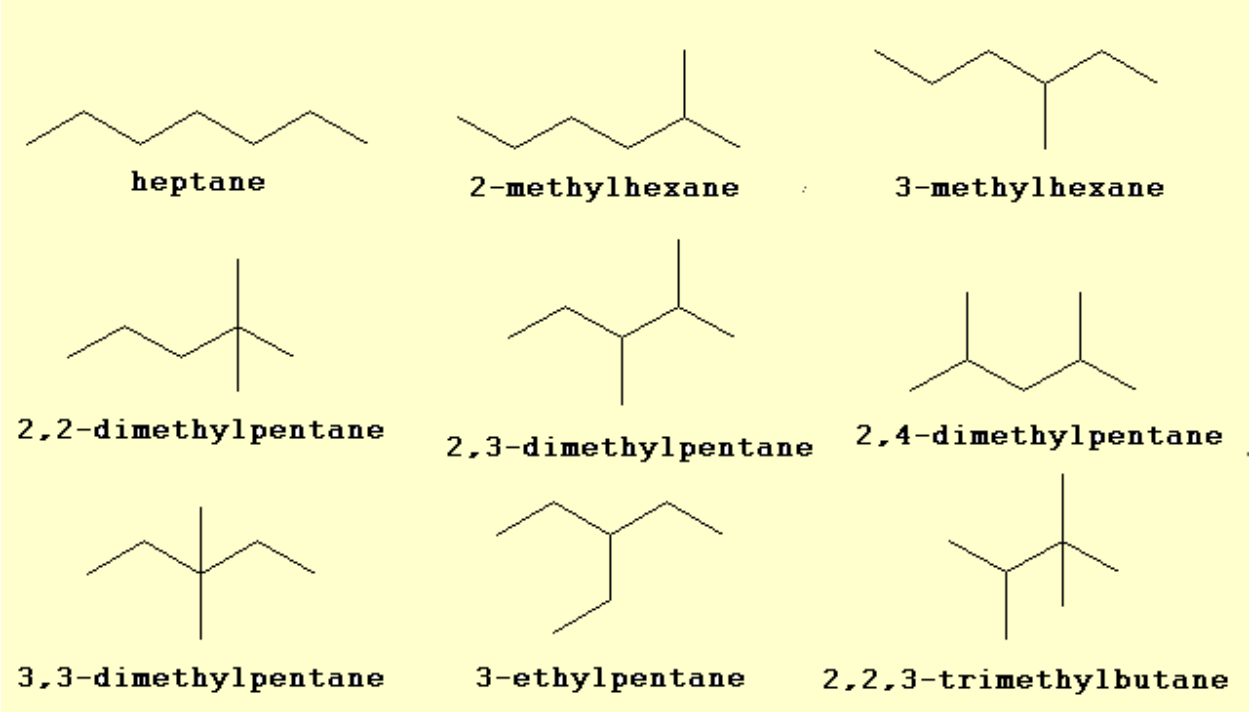


Q2-A)



Q3-A) There are nine <u>structural</u> isomers of formula C_7H_{16}

1. Heptane
2. 2-Methylhexane
3. 3-Methylhexane
4. 2,2-Dimethylpentane
5. 2,3-Dimethylpentane
6. 2,4-Dimethylpentane
7. 3,3-Dimethylpentane
8. 3-Ethylpentane
9. 2,2,3-Trimethylbutane



Structural isomers

- have the same molecular formula.
- have different bond connectivities.
- are different compounds.
- have unique names.
- have different physical properties.
- may or may not have similar chemical properties.
- are sometimes called "constitutional isomers".

https://www.youtube.com/watch?v=FoMa6j2-Yjc