

Hydrocarbon Jeopardy

Game Theme

Hydrocarbon
Nomenclature

Grade Level

X-XII

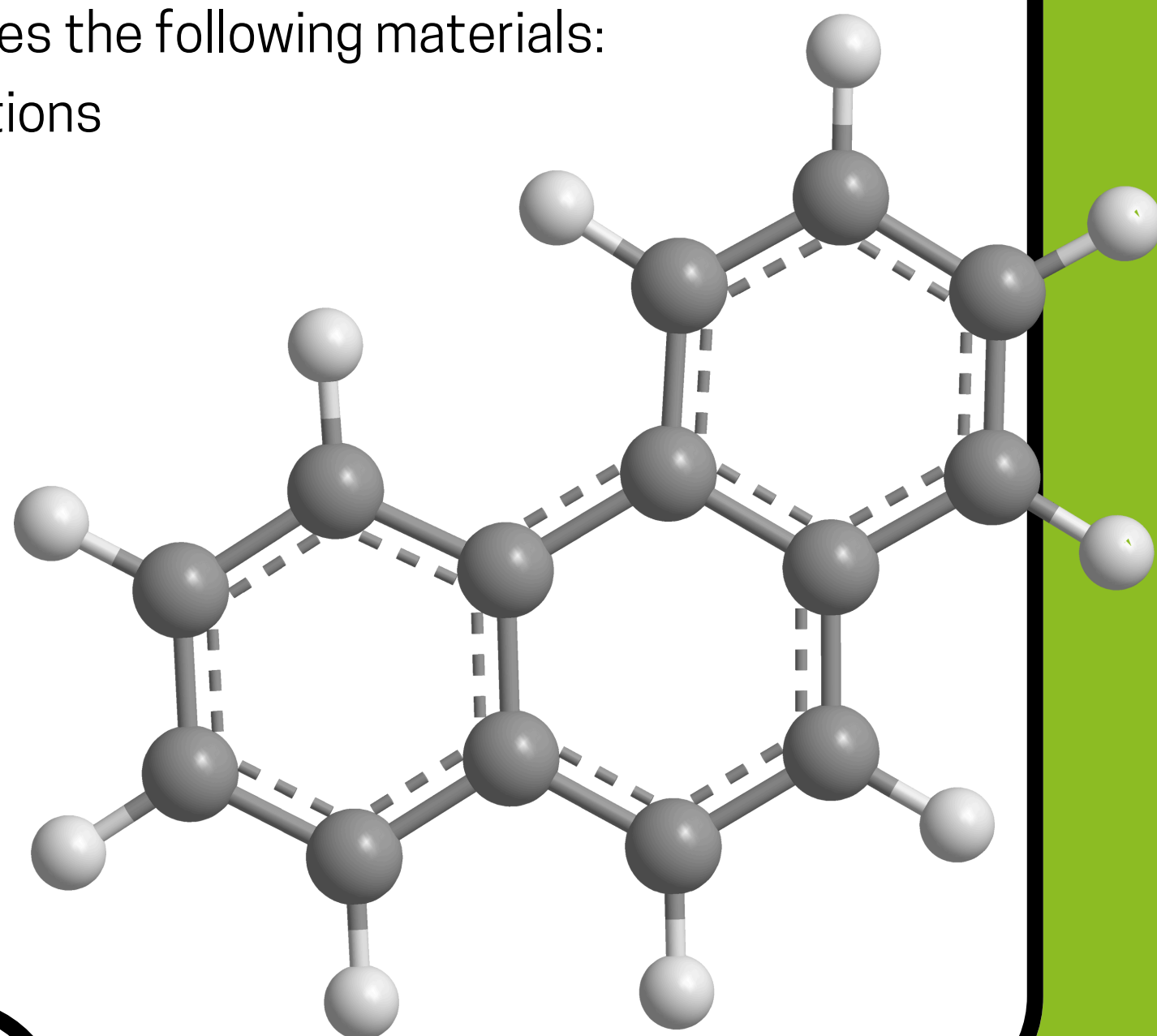
Game Type

Board and
card Game



Game Overview

- Hydrocarbons form the foundation of organic chemistry; however, they present significant challenges for students due to their wide variety of structures, reactions, and real-world applications. From alkanes to alkenes and alkynes, the properties and reactivity of hydrocarbons vary in ways that require a deep understanding of molecular geometry, bonding, and reaction mechanisms. Through the game 'Hydrocarbon Jeopardy', students will have the opportunity to practice creating the structure hydrocarbon nomenclature.
- By the end of the gameplay, players will be able to construct the molecular structures of various hydrocarbons.
- For students to play this game effectively, they should already have a solid understanding of hydrocarbons and their nomenclature. With this knowledge in place, students will be well-prepared to actively participate in the gameplay.
- A complete game set, for one group, includes the following materials:
 - Jeopardy table with pointers and questions
 - Sticks and C and H cards
 - Scoring board
 - Answer sheet



Gameplay Instructions

- The teacher will project a Jeopardy-style board on the multimedia screen or draw it on the blackboard.
- Divide students into groups of 5 or 6. A scoring table for each group will be displayed on the board to track points throughout the game.
- The teacher will call on each group, in turn, to select a category and point value from the Jeopardy board.
- Once a group selects a category and point value (e.g., "Alkenes for 200"), the teacher will reveal the corresponding question, which will require the group to construct a specific hydrocarbon (e.g., draw the structure of butene).
- Using the provided materials (C and H cards to represent carbon and hydrogen atoms, and sticks to represent bonds), the group will work together to construct the correct molecular structure of the hydrocarbon
- The group has a 1-minute time limit to complete the structure.
- After the group completes the structure, the teacher will check their answer for correctness. If the structure is correct, the group earns the points for that question, and their score is updated on the scoreboard. If the structure is incorrect, the group earns no points, and the next group gets a chance to "steal" by constructing the correct answer within the same time limit.
- Play continues with each group taking turns selecting categories and point values. The teacher reveals a new question after each selection, and the groups must work together to answer the question by drawing the hydrocarbon structures.
- The group with the highest score at the end of the game, after all questions have been answered is declared the winner.

Debriefing and Reflection

After the game, engage students with these content-focused reflection points:

- How did constructing molecular structures help you understand the bonding patterns of alkanes, alkenes, and alkynes?
- Which hydrocarbons were most difficult to build, and what did that teach you about double and triple bonds in organic molecules?
- How did working with physical models (C and H cards, sticks) reinforce your understanding of valency and molecular geometry?

Adaptations for Gamplay

For Lower Grades: The game can be simplified by focusing on basic concepts of hydrocarbons. Categories can include common hydrocarbons like methane, ethane, and propane, while questions focus on identifying or matching the names and basic structures of hydrocarbons, rather than drawing complex molecules.

For Higher Grades: The game can be adapted to include more complex categories such as isomerism, functional groups, hydrocarbon reactions, and aromatic compounds. Questions should challenge students to not only draw hydrocarbon structures but also explain reaction mechanisms, balance chemical equations, and analyze molecular geometry and bonding angles.

NAME THAT CHAIN: HYDROCARBON JEOPARDY GAME BOARD

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
100 Points	100 Points	100 Points	100 Points	100 Points	100 Points
200 Points	200 Points	200 Points	200 Points	200 Points	200 Points
300 Points	300 Points	300 Points	300 Points	300 Points	300 Points
400 Points	400 Points	400 Points	400 Points	400 Points	400 Points
500 Points	500 Points	500 Points	500 Points	500 Points	500 Points
600 Points	600 Points	600 Points	600 Points	600 Points	600 Points
700 Points	700 Points	700 Points	700 Points	700 Points	700 Points
800 Points	800 Points	800 Points	800 Points	800 Points	800 Points
900 Points	900 Points	900 Points	900 Points	900 Points	900 Points
1000 Points	1000 Points	1000 Points	1000 Points	1000 Points	1000 Points

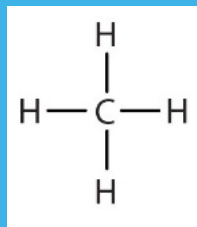
QUESTION BOARD FOR TEACHERS

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
100 Points Draw the structure of Methane	100 Points Draw the structure of Methyl	100 Points Draw the structure of Methylene	100 Points Draw the structure of 2-Methylpropane	100 Points Draw the structure of Ethene	100 Points Draw the structure of Ethyne
200 Points Draw the structure of Ethane	200 Points Draw the structure of Ethyl	200 Points Draw the structure of Ethylene	200 Points Draw the structure of 2, 2-Dimethylbutane	200 Points Draw the structure of Propene	200 Points Draw the structure of 1-Pentyne
300 Points Draw the structure of Propane	300 Points Draw the structure of n-Propyl	300 Points Draw the structure of 1-Propyl	300 Points Draw the structure of 2,2, 3-Trimethylbutane	300 Points Draw the structure of 3-Methyl-1-butene	300 Points Draw the structure of 3-Heptyne
400 Points Draw the structure of Butane	400 Points Draw the structure of n-Butyl	400 Points Draw the structure of sec-propyl	400 Points Draw the structure of 2,2,3,4-Tetramethylpentane	400 Points Draw the structure of 1,3-Butadiene	400 Points Draw the structure of 1,3,5, Hex-triyne
500 Points Draw the structure of Pentane	500 Points Draw the structure of n-Pentyl	500 Points Draw the structure of sec-Butyl	500 Points Draw the structure of 3-Ethyl-2-methylpentane	500 Points Draw the structure of 3,4-Dimethyl -1-heptene	500 Points Draw the structure of 1-Pentene-4-yne
600 Points Draw the structure of Hexane	600 Points Draw the structure of n-Hexyl	600 Points Draw the structure of tert--Butyl	600 Points Draw the structure of 3-Ethyl-2,3-dimethylhexane	600 Points Draw the structure of 3-Ethyl-2,4-dimethylpent-1-ene	600 Points Draw the structure of 1,2-Hexadiene-5-yne
700 Points Draw the structure of Heptane	700 Points Draw the structure of n-Heptyl	700 Points Draw the structure of Isobutyl	700 Points Draw the structure of 3-Ethyl-6-methyloctane	700 Points Draw the structure of 3-Methyl-1,3, 5-hexatriene	700 Points Draw the structure of 3-Ethylhex- 1,5-diyne
800 Points Draw the structure of Octane	800 Points Draw the structure of n-Octyl	800 Points Draw the structure of Neopentyl	800 Points Draw the structure of 3,6-Diethyl-2,6-dimethyloctane	800 Points Draw the structure of 5-Ethyl-hepta- 1,3,6-triene	800 Points Draw the structure of 4-Ethyl-5,5 -dimethyl-2-heptyne
900 Points Draw the structure of Nonane	900 Points Draw the structure of n-Nonyl	900 Points Draw the structure of 2-Methyl-1- propyl	900 Points Draw the structure of 5-Butyl-3,4-dimethyloctane	900 Points Draw the structure of 7-Ethyl-2,4,5,6-tetramethyldeca- 1,8-diene	900 Points Draw the structure of 4-Ethyl-5,6-dimethyl- 2-heptyne
1000 Points Draw the structure of Decane	1000 Points Draw the structure of n-Decyl	1000 Points Draw the structure of, 2-Dimethyl-1-butyl	1000 Points Draw the structure of, 4-ter-Butyl-2 -methyl- 5-isopropyldecane	1000 Points Draw the structure of 3,3,4,6- Tetramethylhepta- 1,4-diene	1000 Points Draw the structure of 7-Ethyl- 5-methylnon-3-yne

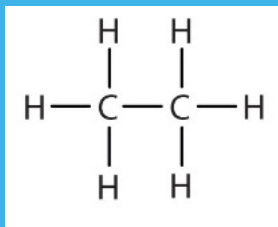
ANSWER SHEET

LEVEL 1

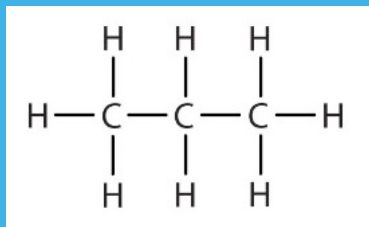
100 Points



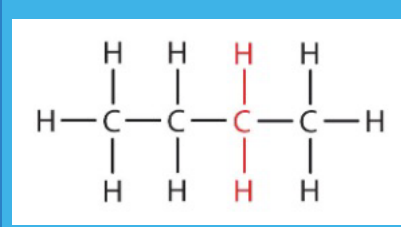
200 Points



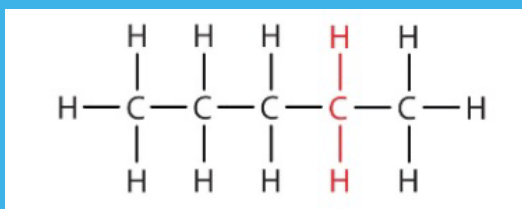
300 Points



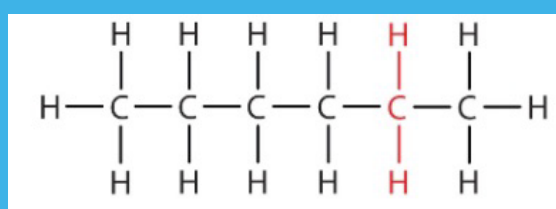
400 Points



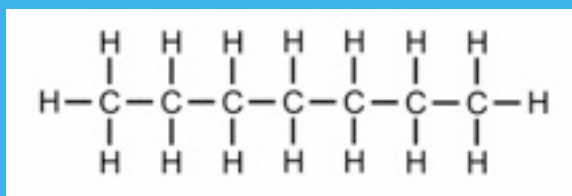
500 Points



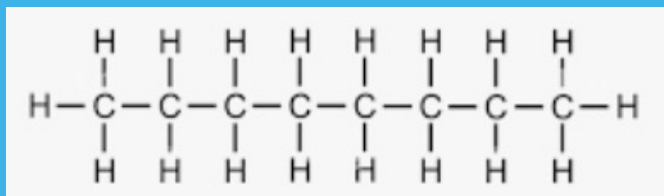
600 Points



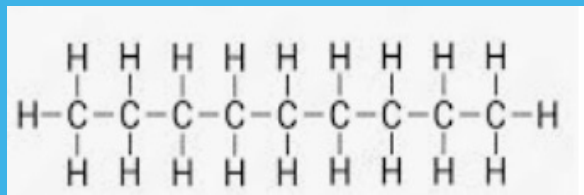
700 Points



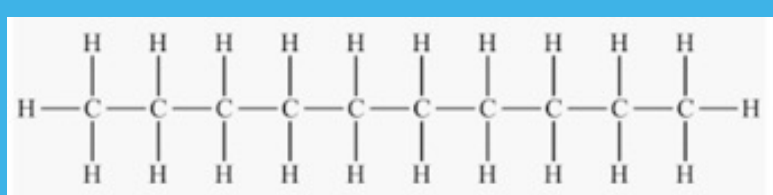
800 Points



900 Points



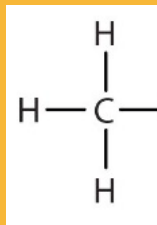
1000 Points



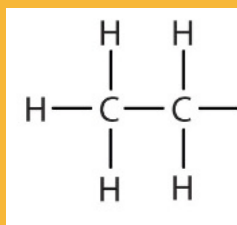
ANSWER SHEET

LEVEL 2

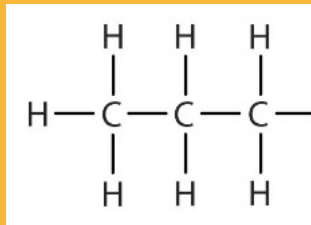
100 Points



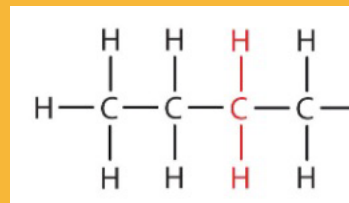
200 Points



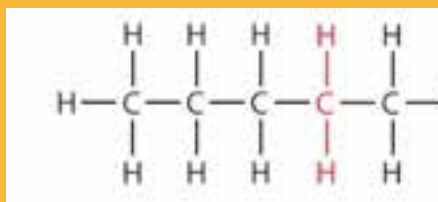
300 Points



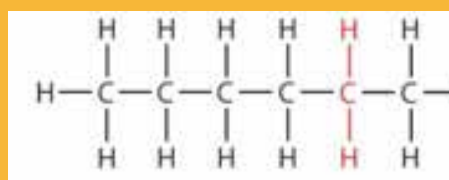
400 Points



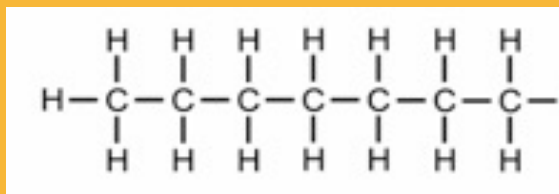
500 Points



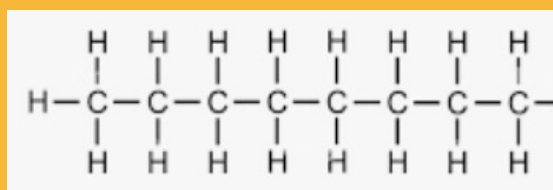
600 Points



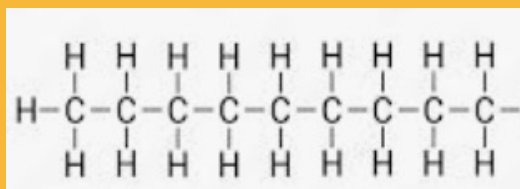
700 Points



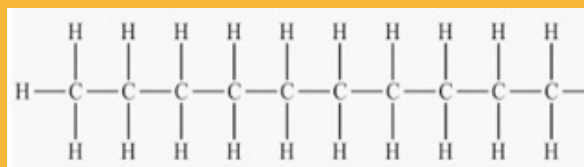
800 Points



900 Points



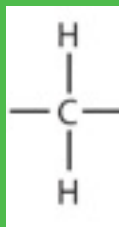
1000 Points



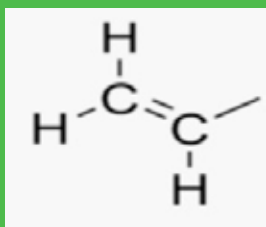
ANSWER SHEET

LEVEL 3

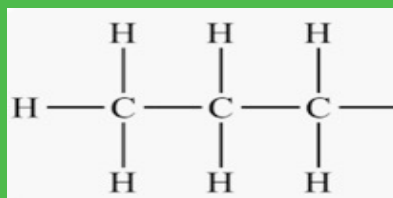
100 Points



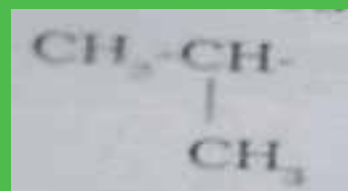
200 Points



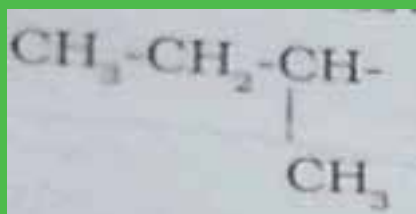
300 Points



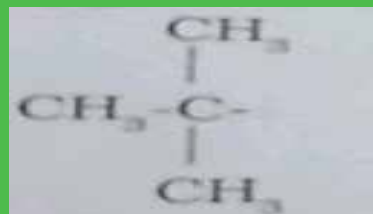
400 Points



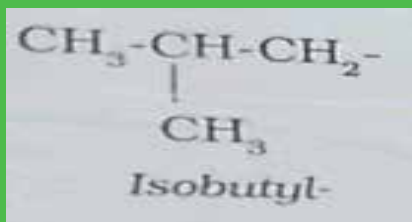
500 Points



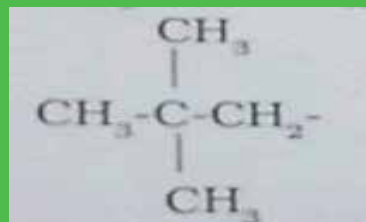
600 Points



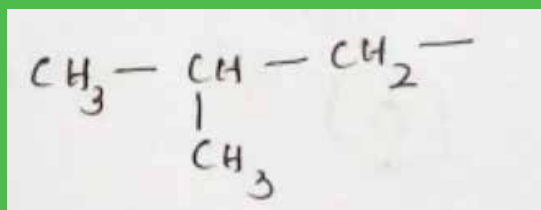
700 Points



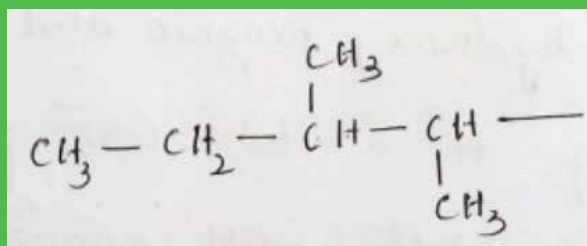
800 Points



900 Points



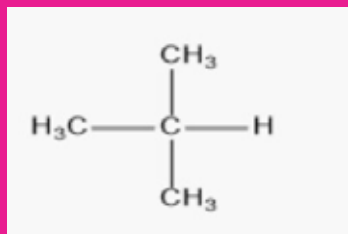
1000 Points



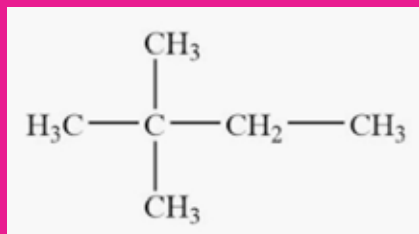
ANSWER SHEET

LEVEL 4

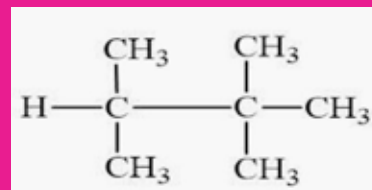
100 Points



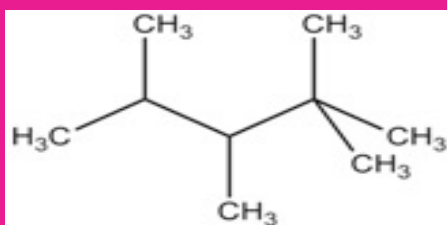
200 Points



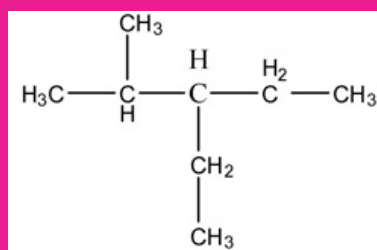
300 Points



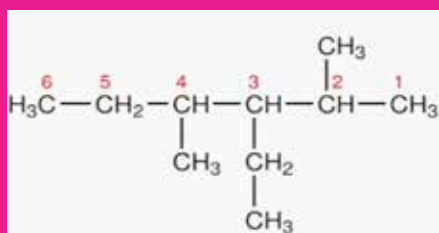
400 Points



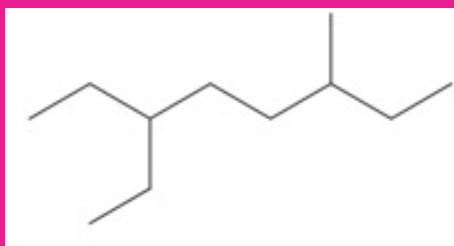
500 Points



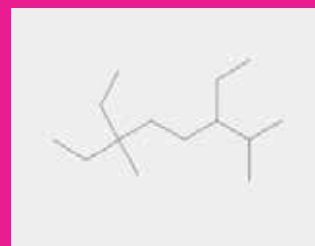
600 Points



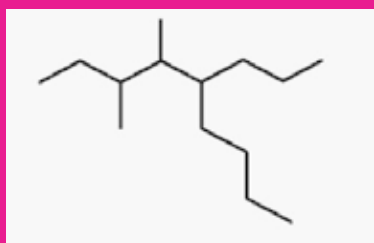
700 Points



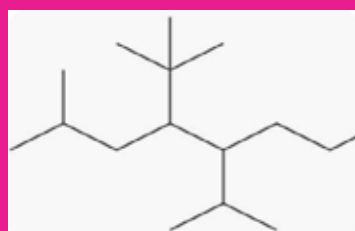
800 Points



900 Points



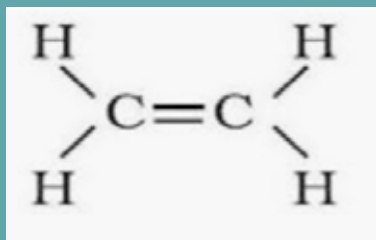
1000 Points



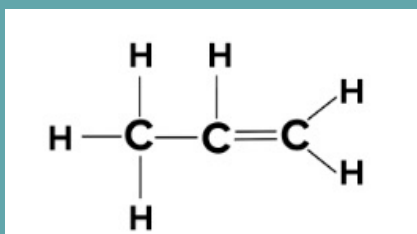
ANSWER SHEET

LEVEL 5

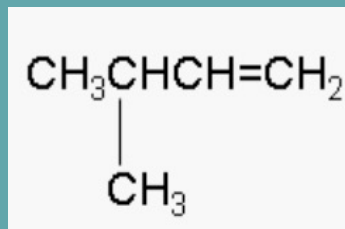
100 Points



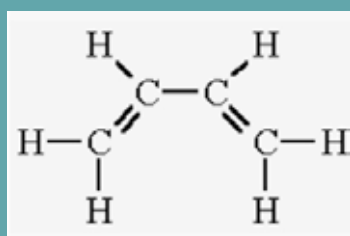
200 Points



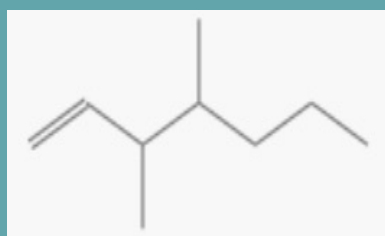
300 Points



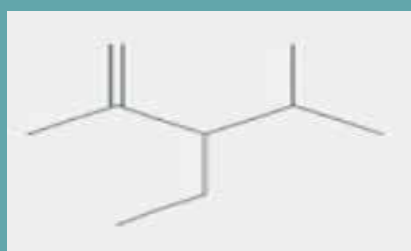
400 Points



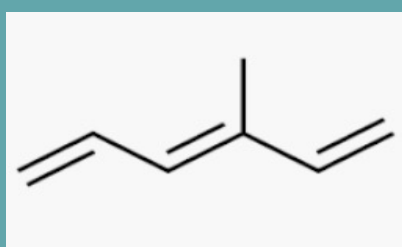
500 Points



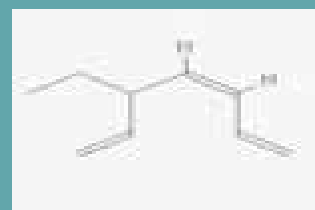
600 Points



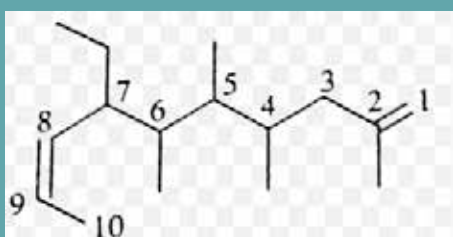
700 Points



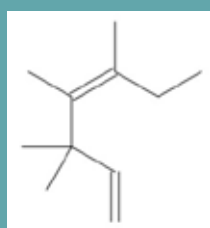
800 Points



900 Points



1000 Points



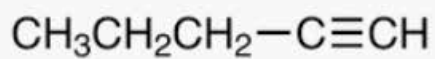
ANSWER SHEET

LEVEL 6

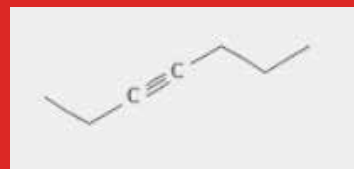
100 Points



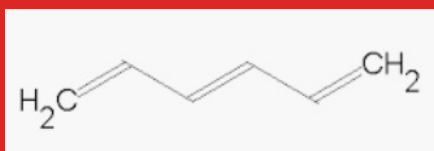
200 Points



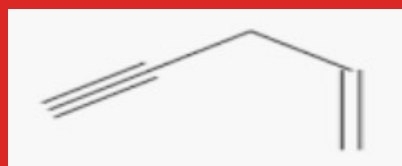
300 Points



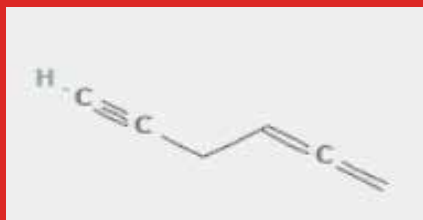
400 Points



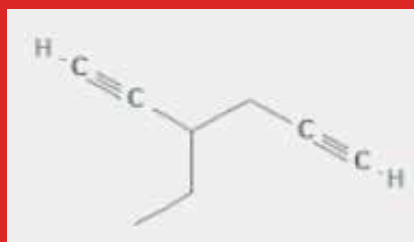
500 Points



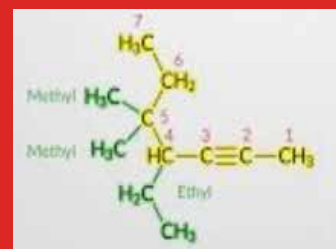
600 Points



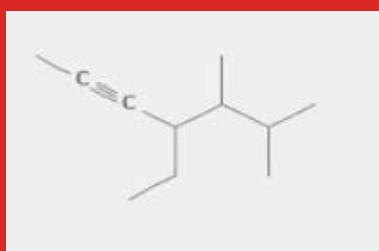
700 Points



800 Points



900 Points



1000 Points

