



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

## **MARKING GUIDELINE**

**NATIONAL CERTIFICATE**

**CHEMISTRY N5**

**11 July 2022**

**This marking guideline consists of 7 pages.**

**QUESTION 1**

- 1.1 1.1.1 False.✓ Hydrocarbons contain only hydrogen✓ and carbon✓ atoms.
- 1.1.2 False.✓ Aromatic compounds are cyclic compounds which contain✓ a benzene ring.✓
- 1.1.3 True.✓ Hexane contains only single✓ bonds✓ in its structure.
- 1.1.4 True.✓ Bonds✓ are not shown✓ in the formula.
- 1.1.5 False.✓ A carbonium is a carbon carrying a positive✓ charge.✓  
(5 × 2) (10)
- 1.2 1.2.1 Catenation  
1.2.2 Isomers  
1.2.3 Covalent bonds  
1.2.4 Cation  
1.2.5 Homologous series  
(5 × 1) (5)  
**[15]**

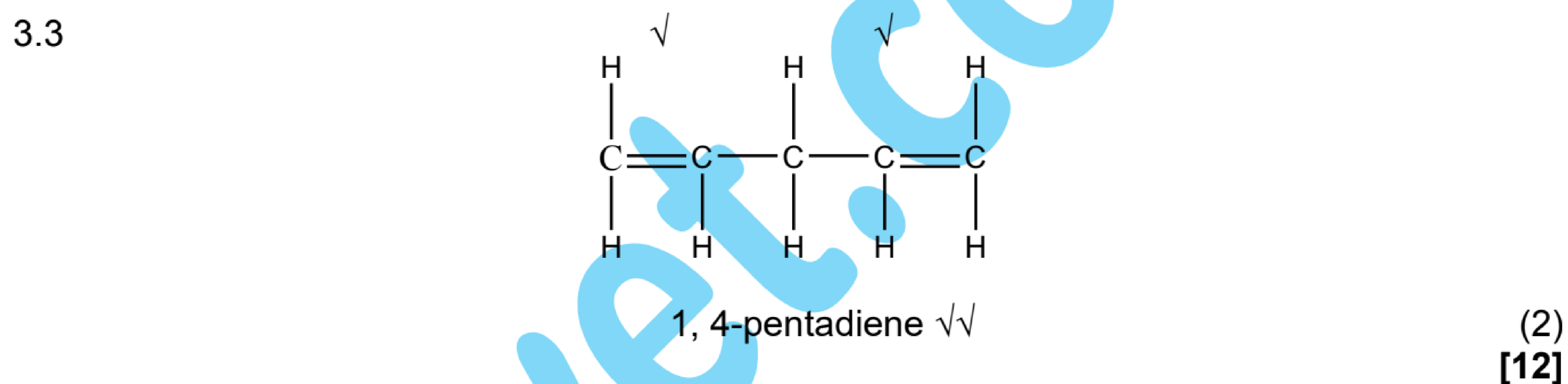
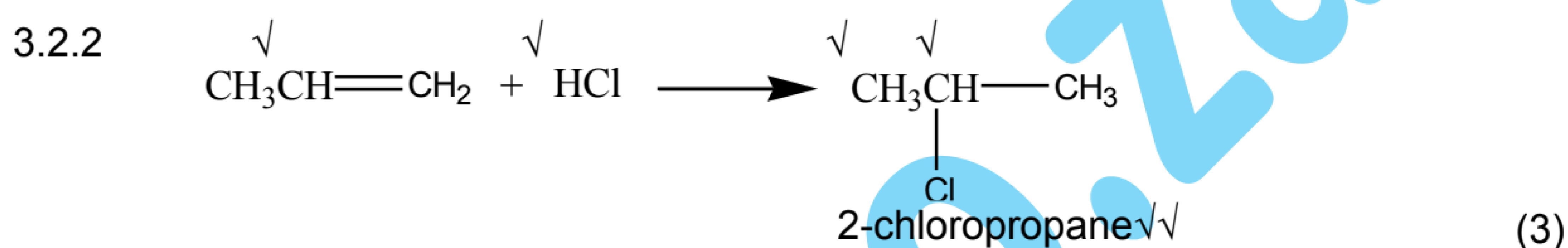
**QUESTION 2: ALKANES**

- 2.1  $C_{288}H_{576}$   
✓ ✓ (2)
- 2.2 2.2.1 Isopropyl/2-propyl  
2.2.2 Tert-butyl/2-methyl propyl  
(2 × 2) (4)
- 2.3 3-t-butyl-2-ethyl heptane  
✓ ✓ ✓ ✓ ✓ (3)
- 2.4 Water is a polar✓ compound, whilst crude petroleum is a nonpolar✓ compound. Polar✓ compounds dissolve✓ only polar✓ compounds, whilst nonpolar✓ dissolves✓ only nonpolar.✓  
**OR**  
Water✓ is a polar✓ compound, whilst crude petroleum is✓ a nonpolar✓ compound. Like✓ dissolves✓ like.✓ (4)
- 2.5 2.5.1 The boiling point increases with an increase in the carbon number. Therefore: gasoline; kerosene; diesel✓✓✓ (2)
- 2.5.2 Octane:  $C_8H_{18}$   
Heptane:  $C_7H_{16}$   
These two compounds belong to gasoline.✓ (1)  
**[16]**

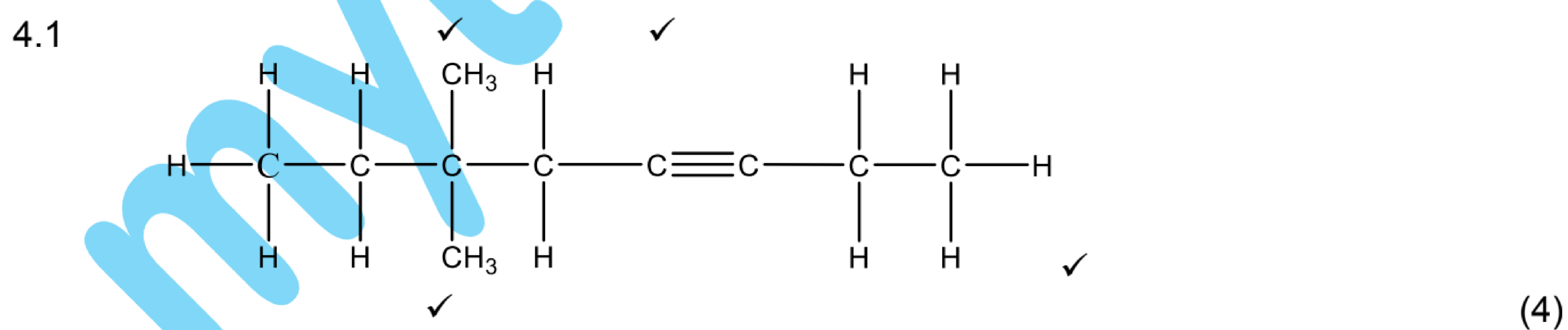
### QUESTION 3: ALKENES



3.2 3.2.1 In the addition of hydrogen halide to an unsymmetrical alkene, the H atom bonds to the less substituted carbon atom. That is the carbon that has more hydrogen atoms. (4)



### QUESTION 4: ALKYNES



4.2 4.2.1 Ethyne/Acetylene (1)  
4.2.2 sp (1)

