higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

CHEMISTRY N5

23 November 2020

This marking guideline consists of 5 pages.

QUESTION 1

1.1

1.1.1 B: Dipropylcyclohexane
C: Phenol (2 × 2) (4)

1.1.2 A and D (2 × 1) (2)

1.1.3 C (1)

1.1.4 Sp^3 (1)

1.1.5 3-Ethyl-2-methylpentane (2)

1.1.6 $C_8H_{18}(l) + O_2(g) \rightarrow CO_2(g) + H_2O(l)$ (4 × 1) (4)

1.2 1.2.1 Radicals are a species that has an odd number of electrons
OR
An atom or a group of atoms with unpaired electrons (1)

1.2.2 A nucleophile is a species that donates a pair of electrons to an electrophile in a polar forming bond. **Nucleophiles are also referred to as "nucleus lover" or electron rich**. (1)

1.3 $CH_3 - CH_2$ ✓ $- CH_3 + Br_2$ ✓ $\rightarrow CH_3 - CH_2$ ✓ $- CH_2Br + HBr$ ✓ (4)

1.4 1.4.1 1,3-Butadiene (2)

1.4.2 It is a conjugated polyene, because the double bonds are altering. (2)

1.4.3 It is insoluble in water. (1)
[25]

QUESTION 2

2.1 2.1.1 Alkene (1)

2.1.2 3-Octene (2)

2.1.3 It is an unsaturated hydrocarbon.✓ It contains a double bond.✓ (2)

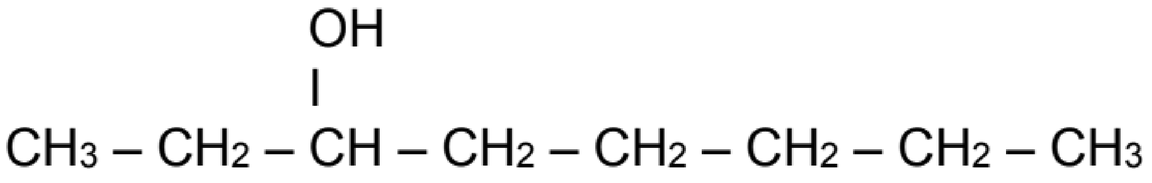
2.1.4 $CH_3CH=CHCH_2CH_2CH_2CH_2CH_3$

OR

$CH_3CH_2CH_2C=CHCH_2CH_2CH_3$

(1 × 3) (3)

2.1.5



(4)

2.1.6 Geometric isomers are compounds in which atoms are connected in the same way and only differ with respect to positions of identical groups in space. (2)

2.2
- They are more reactive than alkenes because of the presence of a double bond.
- They are classified as unsaturated hydrocarbons.
- They are insoluble in water.
- They dissolve in non-polar solvents.
- Their boiling points increase with an increase in molecular size.

(Any 2 × 1) (2)

2.3 2.3.1 C_nH_{2n-2} (1)

2.3.2 Alkane (1)

2.3.3 $CH_3CH_2C \equiv CCH_2CH_3$ (2)

2.3.4 $CH_3CH_2CH_2CH_2CH_2CH_3$ (2)

2.3.5 **Lindlar catalyst** is a finely divided palladium metal precipitated onto a calcium carbonate support and then deactivated by treatment with lead acetate and quinoline and aromatic amine. (3)

[25]

QUESTION 3

3.1 3.1.1 2-Methyl ✓ -1-propene ✓ (2)

3.1.2 Molozonide (1)

3.1.3 Ozonide (1)

3.1.4 Ketone (1)

3.1.5 RCOR (1)