higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NASIENRIGLYN

NASIONALE SERTIFIKAAT

CHEMIE N5

19 April 2021

Hierdie nasienriglyn bestaan uit 5 bladsye.

Kopiereg voorbehou

VRAAG 1

1.1 C (1)

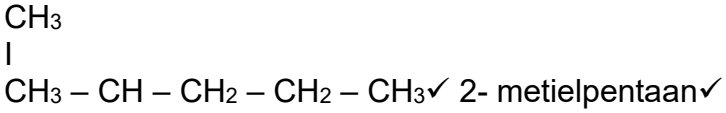
1.2 D (1)

1.3 Ketone (1)

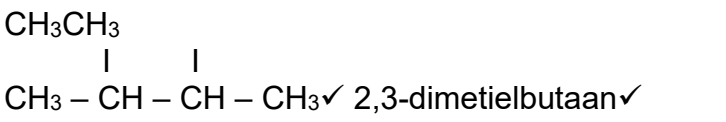
1.4 C_nH_{2n+2} (1)

1.5 A: 1-propeen
B: Fenol
F: Propanoon (3 × 2) (6)

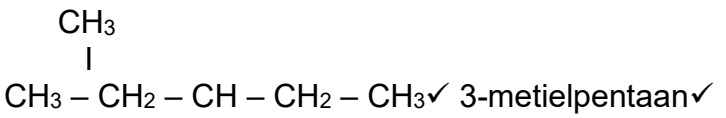
1.6



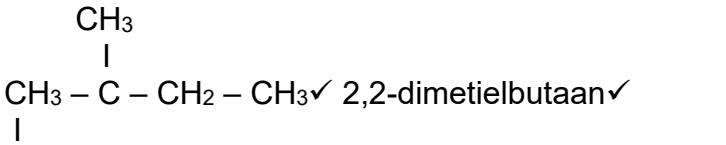
$CH_3 – CH – CH_2 – CH_2 – CH_3$✓ 2- metielpentaan✓



$CH_3 – CH – CH – CH_3$✓ 2,3-dimetielbutaan✓



$CH_3 – CH_2 – CH – CH_2 – CH_3$✓ 3-metielpentaan✓



$CH_3 – C – CH_2 – CH_3$✓ 2,2-dimetielbutaan✓

(Enige 3 × 2) (6)

1.7 $C_4H_6 + {}^{11}/_2O_2\,(g) \rightarrow 4CO_2\,(g) + 3H_2O\,(\ell)$ (4)

1.8 Addisiereaksie (1)

1.9 C1: Sp^3
C2: Sp (2)

1.10
- Verbinding B:✓ Alkohol is wateroplosbaar, maar die oplosbaarheid daarvan is beperk.✓
- Verbinding F:✓ Asetoon is wateroplosbaar.✓ (Enige 2 × 1) (2)

[25]

VRAAG 2

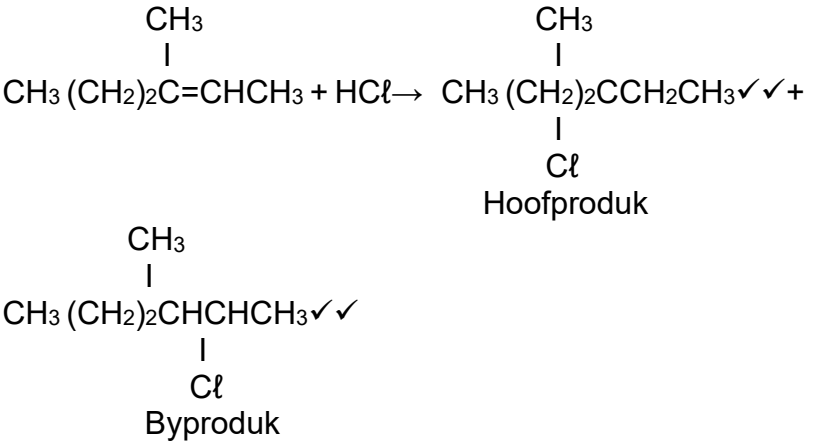
2.1 2.1.1 C_7H_{14} (1)

2.1.2 C_nH_{2n} (1)

2.1.3 Dit is niepolêr.✓ Alkene is niepolêre verbindings.✓ (2)

2.1.4 Markovnikov se reël bepaal: Wanneer HX by 'n alkeen gevoeg word, sal H aan die koolstofatoom met minder alkiel-substituente heg en X sal aan 'n koolstofatoom met meer alkielsubstituente heg. (2)

2.1.5



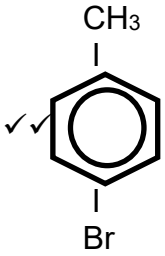
(4)

2.1.6
- 3-chloro-3-metielheksaan
- 2-chloro-3-methylheksaan (2 × 2) (4)

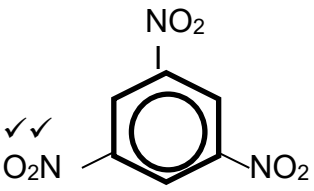
2.1.7
- Ketoon of 2-pentanoon
- Aldehied/Etanaal (2 × 2) (4)

2.2 $HC \equiv CCH_3$✓ (3)

2.3 2.3.1



2.3.2

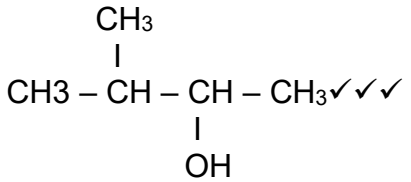


(2 × 2) (4)

[25]

VRAAG 3

3.1 3.1.1



(3)

3.1.2 Sekondêre alkohol ✓ Die -OH funksionele groep is gebind aan een koolstofatoom met een waterstofatoom.✓ (2)

3.1.3 Water (1)

3.1.4 3-metiel-2-butanol (2)

3.1.5 Dehidrasiereaksie (1)

3.1.6 RCOR (1)

3.1.7 Etanaal (2)

3.1.8
- Alkohol wat tot 12 koolstofatome bevat, is vloeibaar.
- Die kookpunt van alkohole neem toe met 'n toename in molekulêre massa.
- Die hoë kookpunt van alkohole is die gevolg van waterstofbinding.
- Metanol, etanol en propanol is oplosbaar in water by gewone temperatuur en druk.
- Die oplosbaarheid in water neem af met 'n toename in molekulêre massa. (5)

3.2 $CH_3CH_2OH\ (aq) + O_2\ (g) \rightarrow CH_3COOH\ (aq) + H_2O\ (\ell)$ (4)

3.3 3.3.1 Siklopropanoon
3.3.2 Metanaal
(2 × 2) (4)
[25]

VRAAG 4

4.1	4.1.1	Etanoësuur	(2)
	4.1.2	$CH_3(CH_2)_6CH_2OH$	(3)
	4.1.3	Ester	(1)
	4.1.4	$CH_3(CH_2)_6CH_2OH + CH_3COOH \rightarrow CH_3COOCH_2(CH_2)_6CH_3 + H_2O$	(4)
	4.1.5	RCOOR	(1)
4.2	4.2.1	$CH_3 - CH_2 - \overset{\overset{O}{\|\|}}{C} - OH$	
	4.2.2	$CH_3 - CH_2 - O - CH_3$	
	4.2.3	$(CH_3)_3N$	
		(3 × 2)	(6)
4.3		$CH_3COOH\ (aq) + H_2O\ (\ell) \rightarrow CH_3COO^-\ (aq) + H_3O^+\ (aq)$	(4)
4.4	4.4.1	Formalien	
	4.4.2	Anilien	
	4.4.3	Asyn	
	4.4.4	Ureum	
		(4 × 1)	(4)
			[25]
		TOTAAL:	**100**

Kopiereg voorbehou