



# higher education & training

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

## **MARKING GUIDELINE**

**NATIONAL CERTIFICATE**

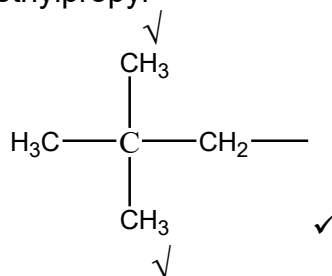
**CHEMISTRY N5**

**25 November 2022**

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

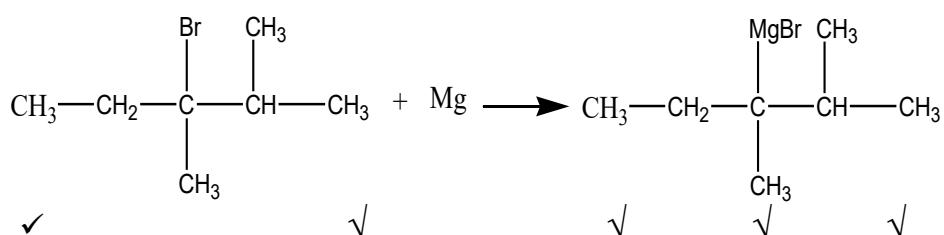


2.2.2 Neopentyl or 2,2-dimethylpropyl



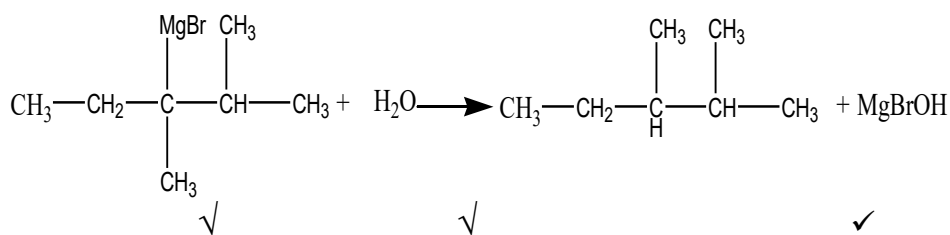
(2)

2.3 2.3.1



(3)

2.3.2



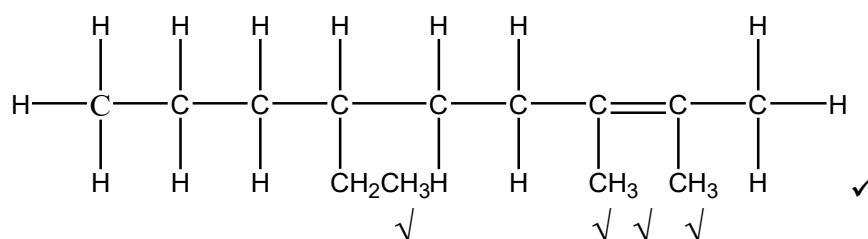
(2)

2.3.3 2,3-dimethylpentane

(1)  
[14]

### QUESTION 3: ALKENES

3.1



(3)

3.2

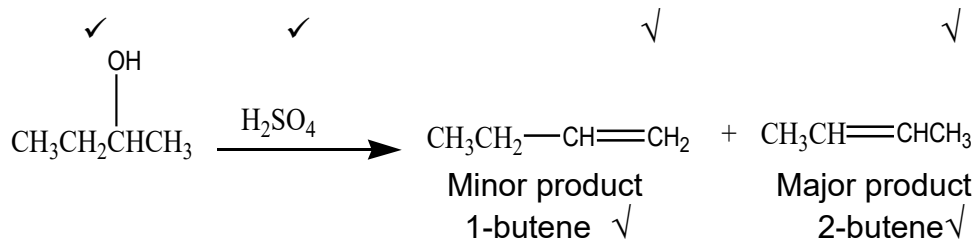
3.2.1

Saytseff's rule: In an elimination reaction, the alkene with the greatest number of alkyl substituents predominates (that is, the most highly substituted alkenes).

Alternative answer: When two alkenes can form from a single alcohol, the alkene that predominates is the one with the most alkyl substituents on the double bond.

(3)

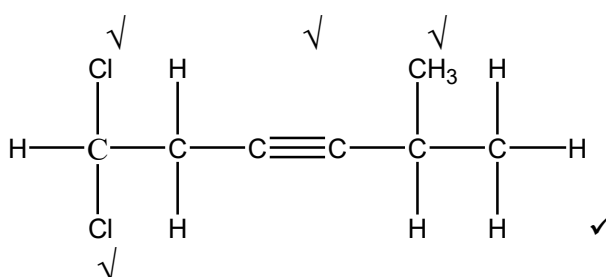
3.2.2



(4)  
 [10]

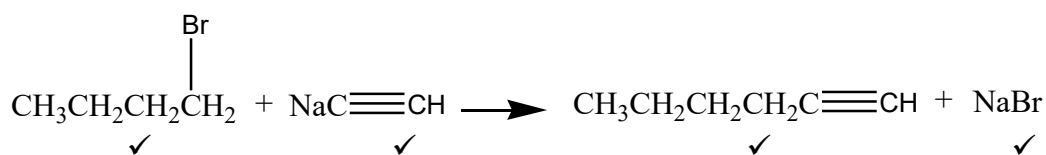
#### QUESTION 4: ALKYNES

4.1 Structural formula of 1,1-dichloro-5-methyl-3-hexyne.



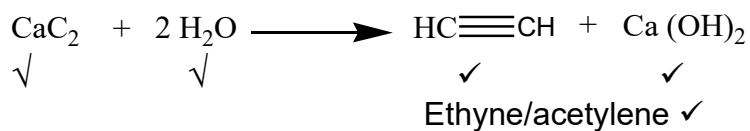
(3)

4.2



(4)

4.3

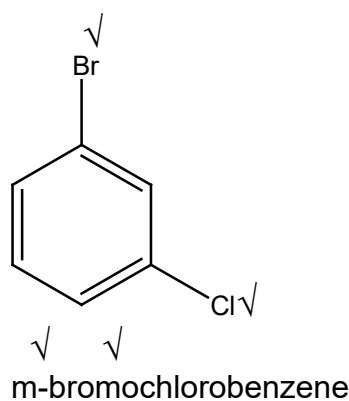


Ethyne/acetylene

(4)  
 [11]

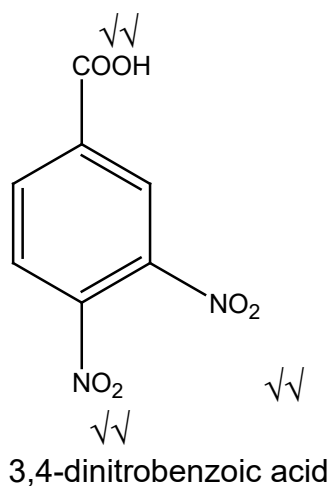
#### QUESTION 5: AROMATIC COMPOUNDS

5.1 5.1.1



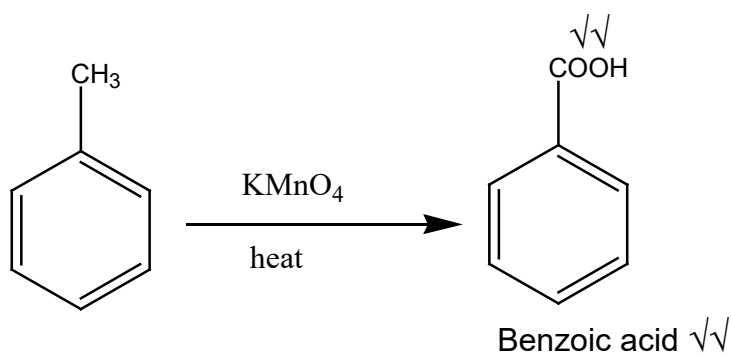
(2)

5.1.2



(3)

5.2



(2)

5.3 Nitration ✓✓

(2)

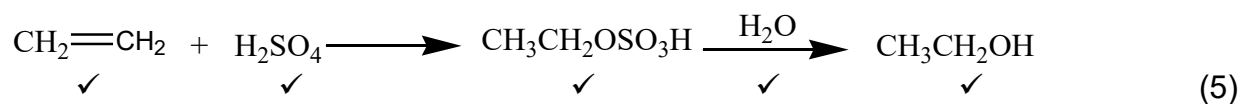
5.4  $sp^2$  ✓

(1)

[10]

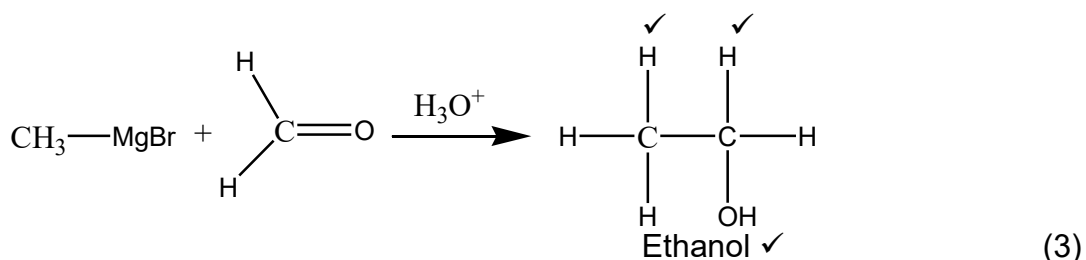
### QUESTION 6: ALCOHOLS

6.1



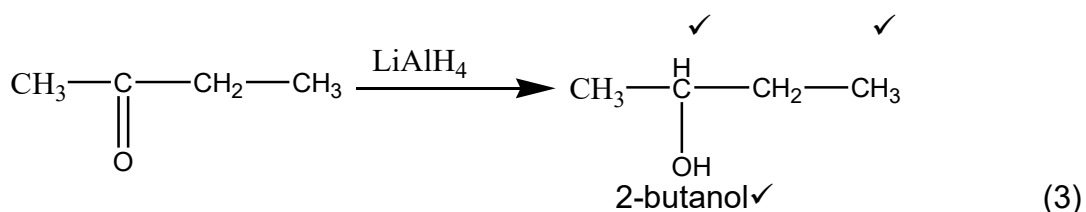
(5)

6.2 6.2.1



(3)

6.2.2



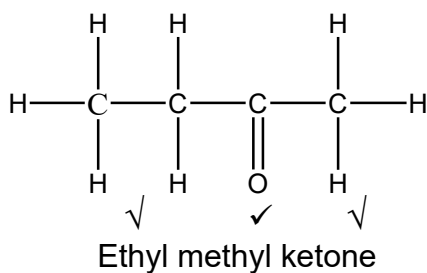
(3)

[11]

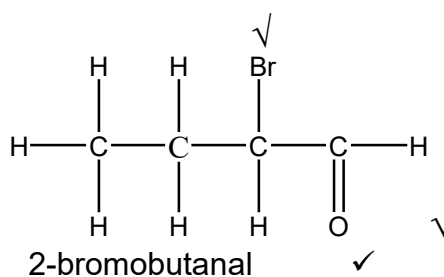
### QUESTION 7: ALDEHYDES AND KETONES

7.1 Acetone ✓ (1)

7.2 7.2.1

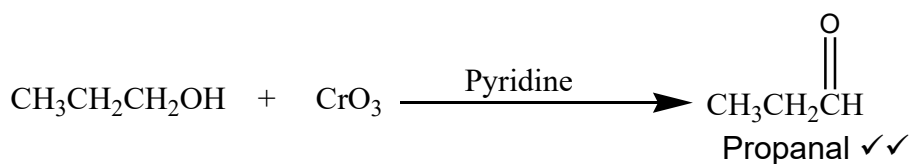


7.2.2

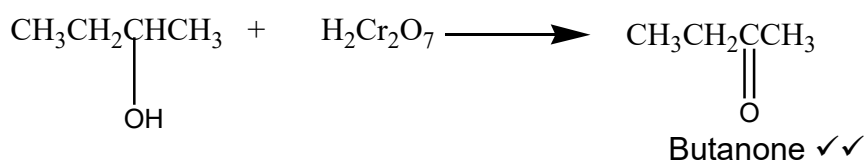


(2 × 2) (4)

7.3 7.3.1



7.3.2



(2 × 2) (4)  
[9]

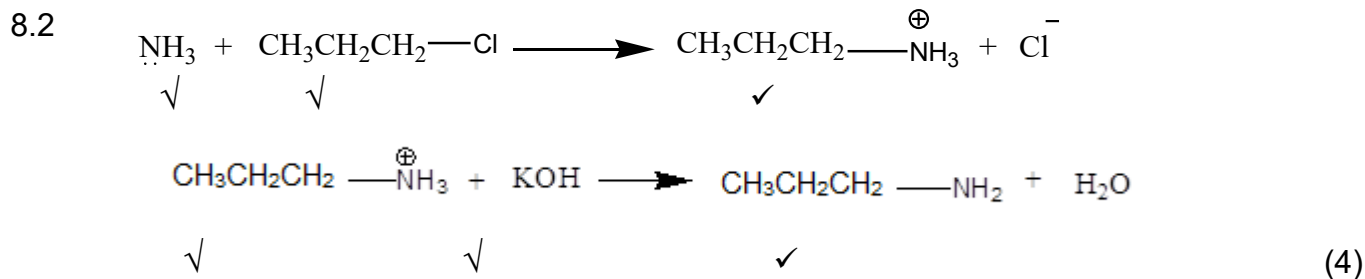
### QUESTION 8: AMINES

8.1 8.1.1  $\text{CH}_3-\ddot{\text{N}}\text{H}_2$   
Methyl amine ✓ Primary amine ✓

8.1.2  $\text{CH}_3\text{CH}_2-\ddot{\text{N}}(\text{CH}_3)-\text{CH}_2\text{CH}_3$   
Diethyl methyl amine ✓ Tertiary amine ✓

8.1.3  $\text{CH}_3\text{CH}_2-\ddot{\text{N}}(\text{H})-\text{CH}_3$   
Ethyl methyl amine ✓ Secondary amine ✓

(3 × 2) (6)

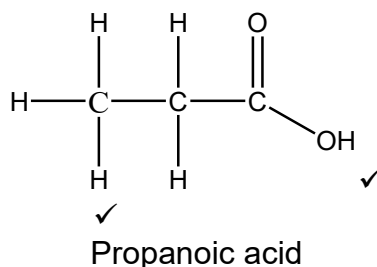


8.3 Amines can be classified as Lewis bases because they can donate a pair of electrons.  
Alternative answer: Amines can be classified as Lewis bases because they have a lone/free pair of electrons that they can give away.

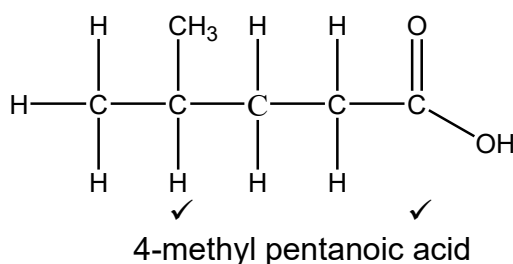
(2)  
**[12]**

**QUESTION 9: CARBOXYLIC ACIDS**

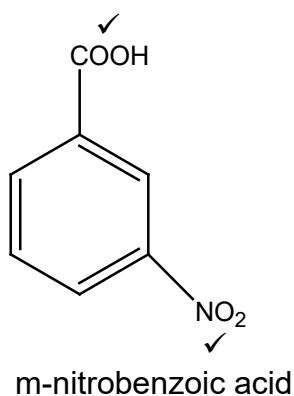
9.1 9.1.1



9.1.2



9.1.3



(3 × 2) (6)

9.2 Methyl methanoate or methyl formate ✓✓ (2)  
**[8]**

**TOTAL: 100**