**Name of the Student**:_____
**Max. Marks : 19 Marks** **Time : 19 Minutes**

Mark Schemes

Q1.

(a) (i) Single / one (intense) peak / signal ***OR*** *all H or all C in same environment* ***OR*** *12 equiv H or 4 equiv C*

***Do not allow non-toxic or inert (both given in Q)***

*Any 2 from three*

*Ignore peak at zero*

***OR***

Upfield / to the right of (all) other peaks ***OR*** *well away from others* ***OR*** *doesn't interfere with other peaks*

*Ignore cheap*

*Ignore non-polar*

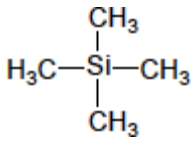
***OR***

Low bp ***OR*** *volatile* ***OR*** *can easily be removed*

*Ignore mention of solubility*

**2**

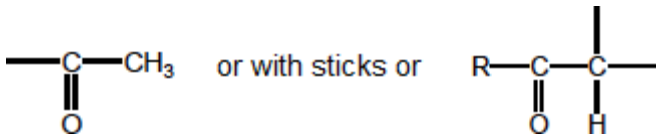
(ii)



*Allow $Si(CH_3)_4$*

**1**

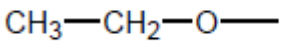
(b) (i)




*Ignore any group joined on other side of CO*
*Ignore missing trailing bond*
*Ignore charges*

**1**

(ii)



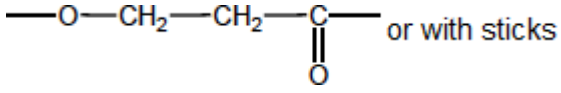

*Ignore any group joined on other side of −O−*
*Ignore missing trailing bond*

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*Ignore charges as if MS fragment*

**1**

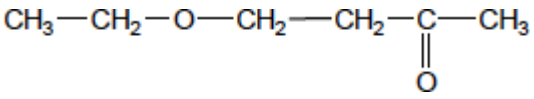
(iii)




*Ignore missing trailing bonds*
*Ignore charges as if MS fragment*

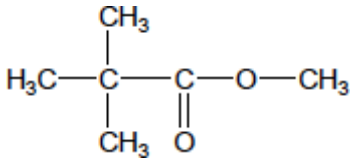
**1**

(iv)



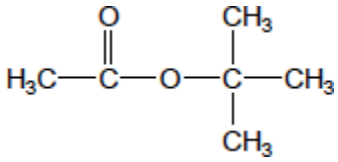
**1**

(c) (i) Check structure has 6 carbons



*Allow $(CH_3)_3CCOOCH_3$ or $(CH_3)_3CCO_2CH_3$*

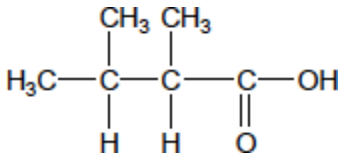
**1**



*Allow $CH_3COOC(CH_3)_3$ or $CH_3CO_2C(CH_3)_3$*

**1**

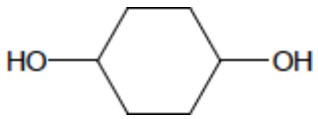
(ii) Check structure has 6 carbons



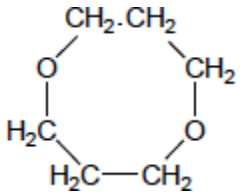
*Allow $(CH_3)_2CHCH(CH_3)COOH$ or $(CH_3)_2CHCH(CH_3)CO_2H$*
*Penalise $C_3H_7$*

**1**

(iii) Check structure has 6 carbons

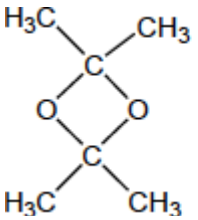


***OR***

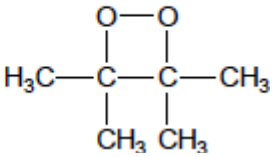


*Allow*

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OR



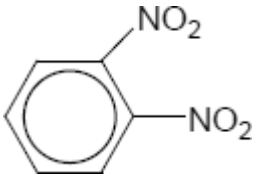

1

**[11]**

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Q2.

(a)

| F | G |
|---|---|
|  |  |

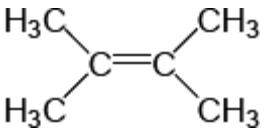
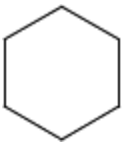
*Penalize $–O_2N$ once*

*Penalise missing circle once*

*Don't penalise attempt at bonding in $NO_2$*

**1**

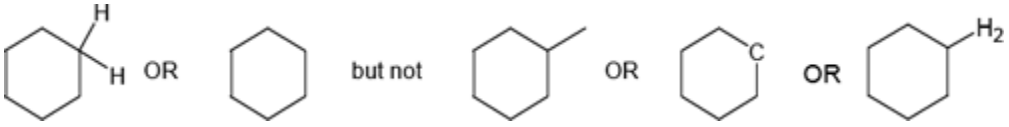
(b)

| H | J |
|---|---|
|  |  |

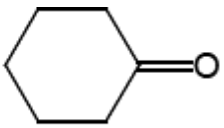
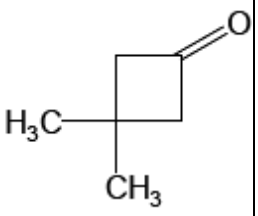
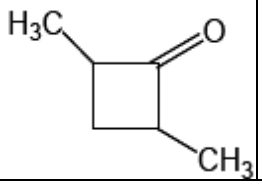
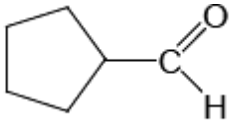
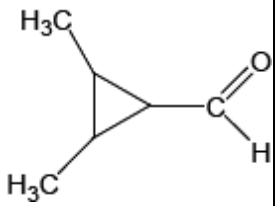
*If **both H** and **J** correct but reversed, award one mark*

**1**

A carbon in saturated ring structures should be shown as




(c)

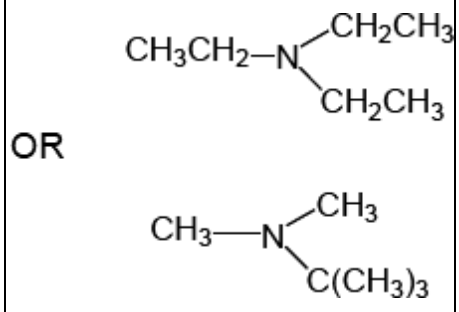
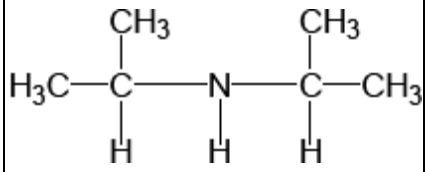
| K | L |
|---|---|
| <br>OR<br><br>OR<br> | <br>OR<br> |

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| | |
|---|---|

1

(d)

| M | N |
|---|---|
|  OR  |  |

*Allow $C_2H_5$ but*
*NOT allow $C_4H_9$ or $C_3H_7$*

1
1

**[8]**

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