

1. June/2022/Paper_11/No.28How many esters have the molecular formula $C_4H_8O_2$?

- A 2 B 3 C 4 D 5

2. June/2022/Paper_11/No.37

Which compound produces butan-2-ol and ethanoic acid on hydrolysis?

- A $CH_3CO_2CH(CH_3)_2$
B $CH_3CO_2CH(CH_3)CH_2CH_3$
C $CH_3CH(CH_3)CO_2CH_2CH_3$
D $CH_3CH_2CO_2CH(CH_3)CH_2CH_3$

3. June/2022/Paper_11/No.38

Two 1g samples of Y are reacted separately and completely with sodium and with sodium carbonate. The volumes of the gases produced are collected and measured.

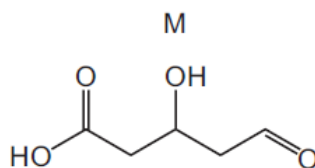
	relative volumes of gases	
	with Na	with Na_2CO_3
Y	2	1

What could Y be?

- A $CH_3CH(OH)CH_2OH$
B $CH_3CH(OH)CO_2H$
C CH_3COCH_2OH
D CH_3COCO_2H

4. June/2022/Paper_12/No.35

The skeletal formula of M is shown.

M is reacted with an excess of $LiAlH_4$. Dilute acid is then added.

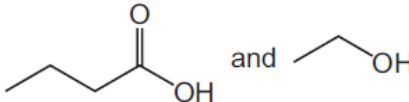
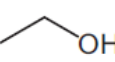
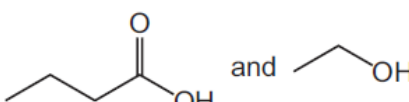
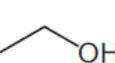
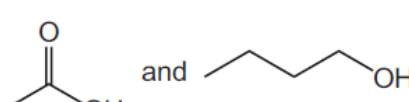
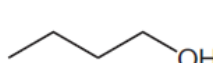
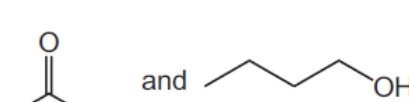
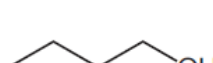
What is the molecular formula of the final organic product?

- A $C_5H_6O_5$ B $C_5H_{10}O_4$ C $C_5H_{10}O_3$ D $C_5H_{12}O_3$

5. June/2022/Paper_12/No.38

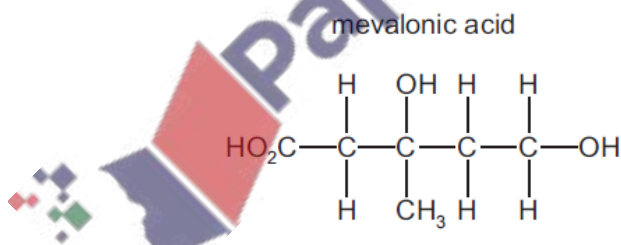
Ethyl butanoate is a flavouring, with a fruity flavour.

Which row is correct?

	alcohol and acid that react to form ethyl butanoate	the mass of water formed when 2.32 g of ester is formed
A	 and 	0.36 g
B	 and 	0.40 g
C	 and 	0.36 g
D	 and 	0.40 g

6. June/2022/Paper_13/No.28

The diagram shows the structural formula of mevalonic acid.

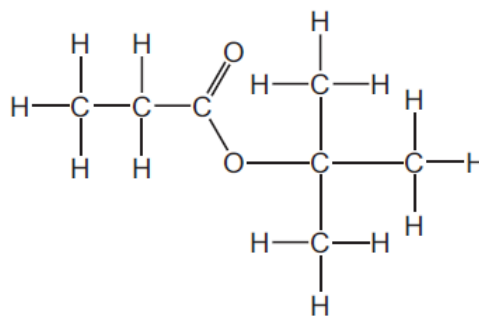


Which reagent and conditions will react with mevalonic acid to produce an organic compound **without** a chiral carbon atom?

- A heat under reflux with $\text{CH}_3\text{OH}/\text{H}^+$
- B heat under reflux with $\text{Cr}_2\text{O}_7^{2-}/\text{H}^+$
- C Na at room temperature
- D PCl_5 at room temperature

7. June/2022/Paper_13/No.37

An ester is shown.



Which two compounds react to form this ester?

- A 2-methylpropan-1-ol and propanoic acid
- B 2-methylpropan-2-ol and propanoic acid
- C propan-1-ol and 2-methylpropanoic acid
- D 2-methylpropan-2-ol and ethanoic acid

8. June/2022/Paper_13/No.38

Which compound can be used to make propanoic acid by treatment with a single reagent?

- A CH₂=CHCH₂CH₃
- B CH₃CH₂CH₂CN
- C CH₃CH(OH)CN
- D CH₃CH(OH)CH₃

9. June/2022/Paper_23/No.5(a)

- (a) But-2-ene reacts with KMnO_4 to form organic product, Y.
Y does not react with Na_2CO_3 .
A gas is produced when an excess of Na is added to Y.

(i) Describe the conditions for the KMnO_4 used in the reaction to form Y from but-2-ene.

..... [1]

- (ii) 24.0 cm^3 of gas is produced when an excess of Na is added to 0.001 mol of Y, when measured under room conditions.
Assume that 1 mol of gas occupies 24.0 dm^3 under room conditions.

Deduce a possible structure of Y. Explain your answer.

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[3]

