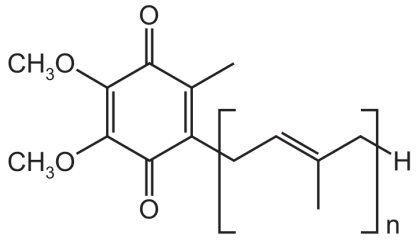
Unit 13: An introduction to AS Level organic chemistry

Subunit 13.1: Formulas, functional groups and the naming of organic compounds

Topical Question No: 1

20 People who take statin drugs to control their blood cholesterol may also take 'coenzyme Q_{10}'.

The diagram shows a simplified structure of one form of this coenzyme.



coenzyme Q_{10}

Which row describes this structure correctly?

	the coenzyme is	number of π bonds in one molecule
A	an aldehyde	*n* + 2
B	an aldehyde	*n* + 4
C	a ketone	*n* + 2
D	a ketone	*n* + 4

Topical Question No: 2

30 Which row of the table is correct?

	increasing number of carbon atoms ⟶			
A	ethyl methanoate	methyl propanoate	pentyl pentanoate	propyl butanoate
B	ethyl methanoate	methyl propanoate	propyl butanoate	pentyl pentanoate
C	methyl propanoate	propyl butanoate	ethyl methanoate	pentyl pentanoate
D	propyl butanoate	ethyl methanoate	pentyl pentanoate	methyl propanoate

Topical Question No: 3

40 Compound **X** has the molecular formula $C_3H_6O_3$.

Heating **X** under reflux with acidified $K_2Cr_2O_7$ forms HO_2CCOCO_2H.

Reacting **X** with $NaBH_4$ forms $HOCH_2CH(OH)CH_2OH$.

What is a possible structural formula for **X**?

1 $HOCH_2CH_2CO_2H$

2 $HOCH_2CH(OH)CHO$

3 $HOCH_2COCH_2OH$

Topical Question No: 4

21 An organic compound **J** reacts with sodium to produce an organic ion with a charge of –3. **J** reacts with NaOH(aq) to produce an organic ion with a charge of –1.

What could be the structural formula of **J**?

A $HO_2CCH(OH)CH_2CO_2H$

B $HO_2CCH(OH)CH_2CHO$

C $HOCH_2CH(OH)CH_2CO_2H$

D $HOCH_2COCH_2CHO$

Answer Key

1. Error
2. Error
3. Error
4. Error