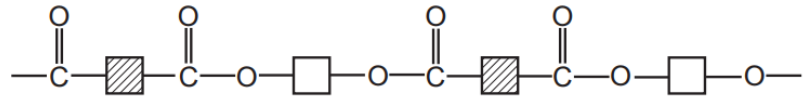
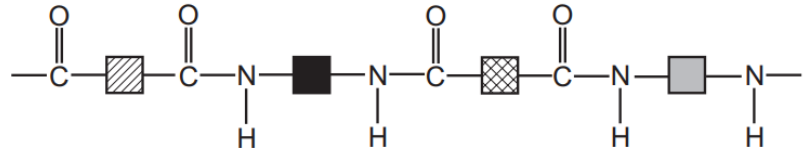
1. 5070/11/M/J/18 Q40

Which partial structure represents nylon?

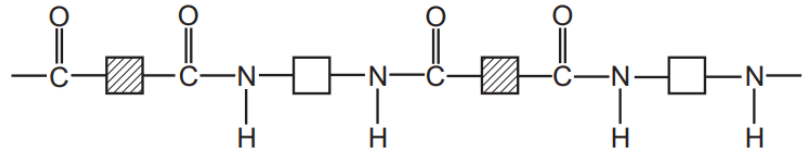
A



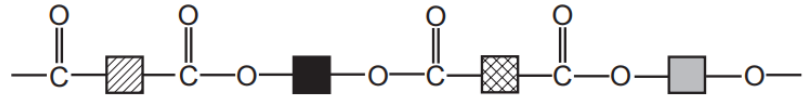
B



C

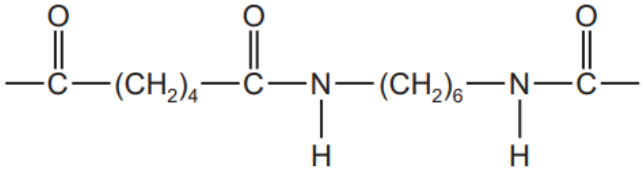


D



2. 5070/12/M/J/18 Q40

The diagram shows the formula of nylon.



From which compounds could nylon be made?

A $HO_2C–(CH_2)_6–CO_2H$ and $H_2N–(CH_2)_6–NH_2$

B $HO_2C–(CH_2)_4–CO_2H$ and $H_2N–(CH_2)_4–NH_2$

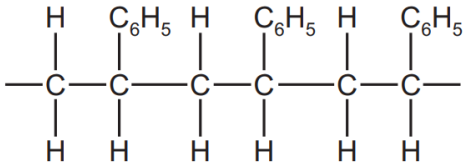
C $HO_2C–(CH_2)_4–CO_2H$ and $H_2N–(CH_2)_6–NH_2$

D $HO_2C–(CH_2)_6–CO_2H$ and $H_2N–(CH_2)_4–NH_2$

3. 5070/11/O/N/18 Q40

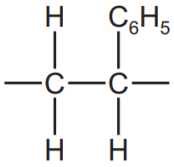
Poly(styrene) is an addition polymer.

The partial structure of poly(styrene) is shown.

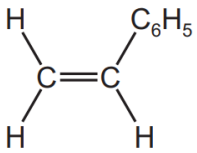


What is the formula of the monomer from which poly(styrene) is made?

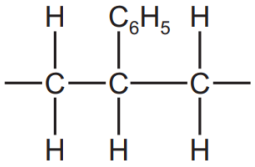
A



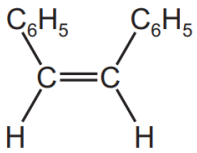
B



C



D



4. 5070/11/O/N/18 Q39

Which statement about the composition of polymers is correct?

A Nylon contains oxygen atoms but not nitrogen atoms.

B Proteins contain both nitrogen atoms and oxygen atoms.

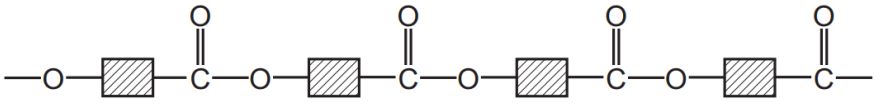
C *Terylene* contains nitrogen atoms.

D The polymer used to make clingfilm contains oxygen atoms.

5. 5070/12/O/N/18 Q39

Poly(lactic) acid is a polymer used to make biodegradable cups.

The partial structure of poly(lactic) acid is shown.



Which statements apply to poly(lactic) acid?

1 It is made by addition polymerisation.

2 It is made by condensation polymerisation.

3 It is a polyester.

4 The monomer used to make it is ethene.

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

6. 5070/12/O/N/18 Q40

Two large molecules, P and Q, both contain the same linkage.

P occurs naturally but Q does not.

Which row could be P and Q?

	P	Q
A	fat	nylon
B	fat	*Terylene*
C	nylon	protein
D	protein	*Terylene*

7. 5070/11/M/J/19 Q39

Which substance, on combustion, produces oxides of nitrogen?

A fat

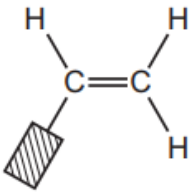
B protein

C starch

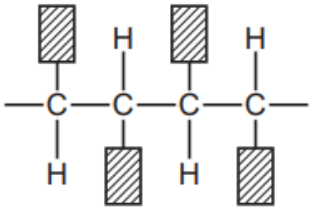
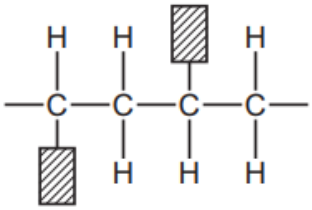
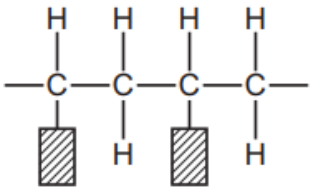
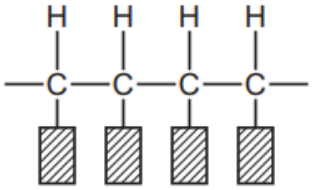
D *Terylene*

8. 5070/11/M/J/19 Q40

The monomer used to manufacture polystyrene is shown.

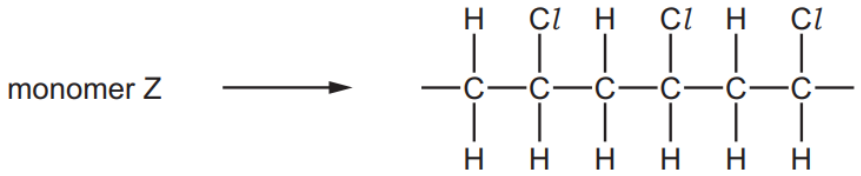


By which type of polymerisation is polystyrene formed and what is a possible partial structure of the polymer?

	type of polymerisation	possible partial structure of polymer
A	addition	
B	addition	
C	condensation	
D	condensation	

9. 5070/12/M/J/19 Q39

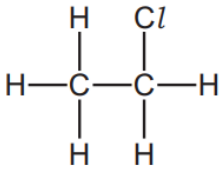
Monomer Z is used to make poly(chloroethene).



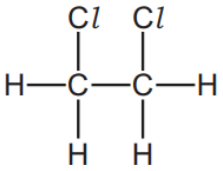
partial structure of poly(chloroethene)

What is monomer Z?

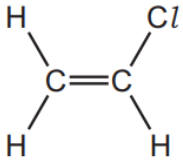
A



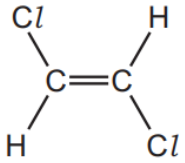
B



C



D



10. 5070/12/M/J/19 Q40

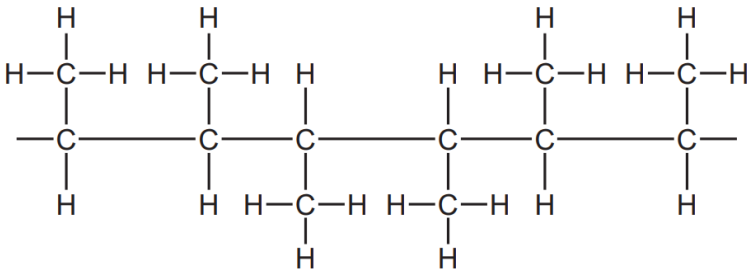
Terylene, a man-made fibre, is used to make clothing.

Which row correctly describes how *Terylene* is manufactured?

	starting materials	type of polymerisation
A	an acid and an alcohol	addition
B	an acid and an alcohol	condensation
C	an alkene	addition
D	an alkene	condensation

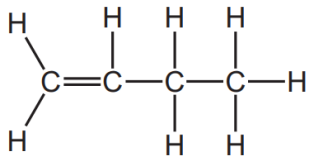
11. 5070/11/O/N/19 Q39

Part of a polymer chain is shown.

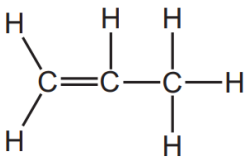


Which monomer was used to produce this polymer?

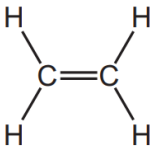
A



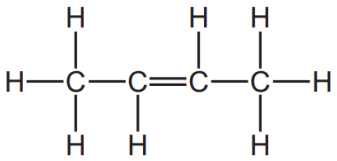
B



C

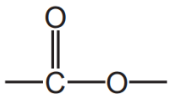


D



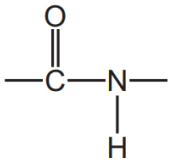
12. 5070/11/O/N/19 Q40

Which statement about polymers is correct?

A Fats and nylons all contain the  linkage.

B Monomers used in condensation polymerisation must contain both $–CO_2H$ and –OH groups.

C Poly(ethene) will decolourise bromine.

D Proteins with the  linkage are biodegradable as they can be hydrolysed.

13. 5070/12/O/N/19 Q36

Which term describes the structure of *Terylene*?

A polyalkene

B polyamide

C polyester

D protein

14. 5070/11/M/J/20 Q39

Insulin is a protein made in the human body.

Which statements about insulin are correct?

1 It is a condensation polymer.

2 It is a synthetic polymer.

3 When hydrolysed it produces only one monomer.

4 It contains amide linkages.

A 1, 2 and 3 **B** 1 and 3 only **C** 1 and 4 only **D** 2, 3 and 4

15. 5070/11/M/J/20 Q40

Which statement about polymers is correct?

A Nylon and *Terylene* are produced by addition polymerisation.

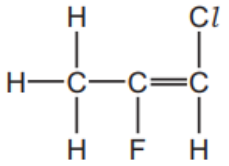
B Nylon and *Terylene* both contain the amide linkages.

C Simple sugars are produced by hydrolysing proteins.

D Starch contains the elements carbon, hydrogen and oxygen.

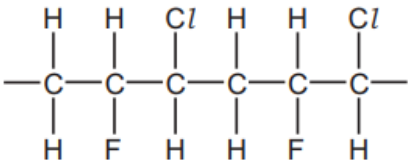
16. 5070/12/M/J/20 Q39

The diagram shows the structure of a monomer.

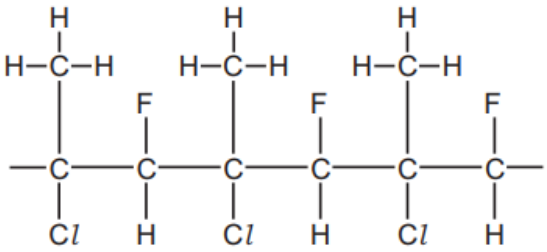


Which diagram shows the partial structure of its polymer?

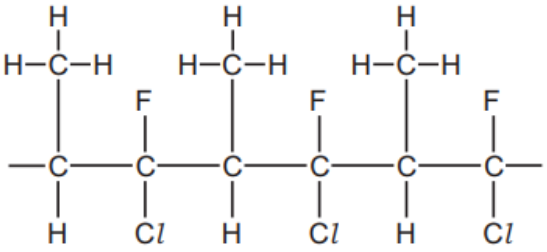
A



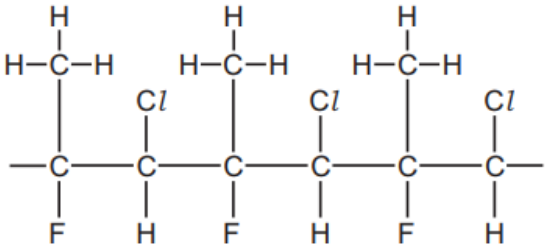
B



C



D



17. 5070/12/M/J/20 Q40

Which statement about polymers is correct?

A Nylon and *Terylene* are produced by addition polymerisation.

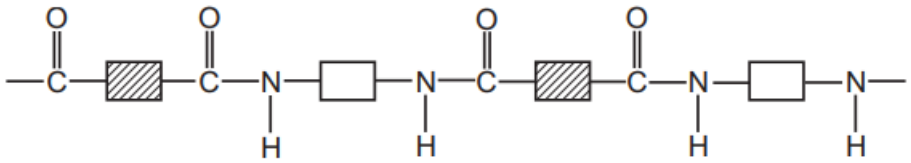
B Nylon and *Terylene* both contain amide linkages.

C Simple sugars are produced by hydrolysing proteins.

D Starch contains the elements carbon, hydrogen and oxygen.

18. 5070/11/O/N/20 Q39

The diagram shows the partial structure of a polymer.



Which type of polymer does it represent?

A polyamide

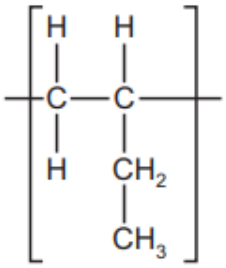
B polyester

C poly(ethene)

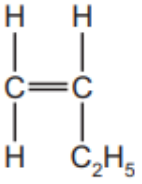
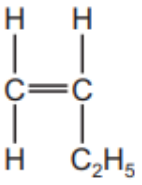
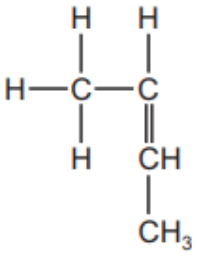
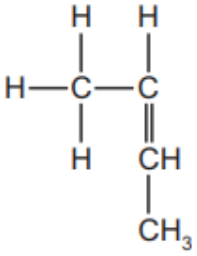
D polysaccharide

19. 5070/11/O/N/20 Q40

The diagram shows the repeat unit of a polymer.



Which row correctly identifies the monomer and type of polymerisation involved in making this polymer?

	monomer	type of polymerisation
A		addition
B		condensation
C		addition
D		condensation

20. 5070/12/O/N/20 Q39

Burning polymers can cause atmospheric pollution.

Which polymer, on burning, could produce nitrogen oxides?

A nylon

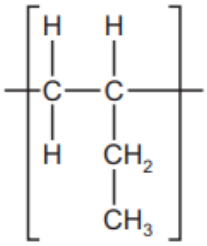
B poly(ethene)

C starch

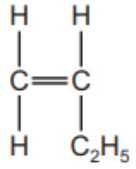
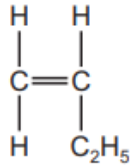
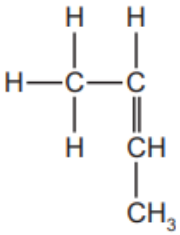
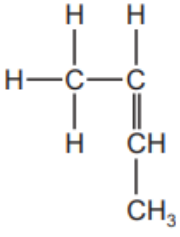
D *Terylene*

21. 5070/12/O/N/20 Q40

The diagram shows the repeat unit of a polymer.

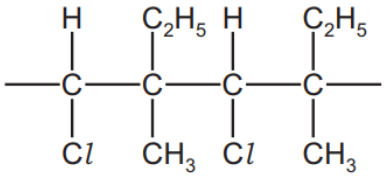


Which row correctly identifies the monomer and type of polymerisation involved in making this polymer?

	monomer	type of polymerisation
A		addition
B		condensation
C		addition
D		condensation

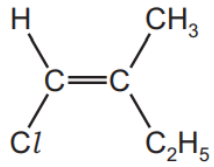
22. 3173/12/M/J/21 Q39

The partial structure of a polymer is shown.

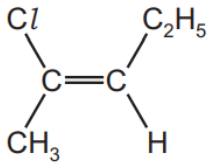


Which monomers could produce this polymer?

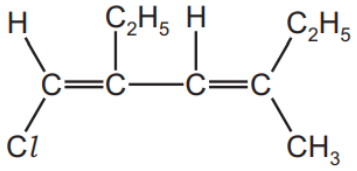
1



2



3



A 1 only **B** 1 and 2 **C** 2 and 3 **D** 3 only

23. 3173/12/M/J/21 Q40

X is a polymer formed by a condensation reaction. X contains nitrogen.

Which statements about X are correct?

1 X could also contain oxygen.

2 X could be starch.

3 X could have the same linkage as proteins.

4 X could be formed from one monomer or two different monomers.

A 1, 3 and 4 **B** 1 and 2 **C** 2 and 4 **D** 3 and 4 only

24. 5070/11/M/J/21 Q39

Which statement about polymers is correct?

A Nylon and *Terylene* are both polyesters.

B Proteins and nylon have the same monomer units.

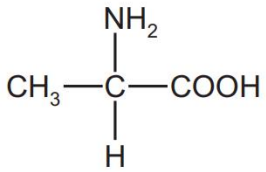
C Proteins have the same amide linkages as nylon.

D *Terylene* and fats are esters but with different linkages.

25. 5070/11/M/J/21 Q40

X is a polymer.

When X is hydrolysed one of the products is substance Y.



Y

Which type of polymer is X?

A a complex carbohydrate

B a fat

C a protein

D an addition polymer

26. 5070/12/M/J/21 Q39

Which statement about polymers is correct?

A Nylon and *Terylene* are both polyesters.

B Proteins and nylon have the same monomer units.

C Proteins have the same amide linkages as nylon.

D *Terylene* and fats are esters but with different linkages.

27. 5070/12/M/J/21 Q40

Some information about compound X is given.

X contains the elements carbon, hydrogen and oxygen only.

The product of the hydrolysis of X is the simple sugar, glucose.

What is X?

A a polyester

B a protein

C nylon

D starch

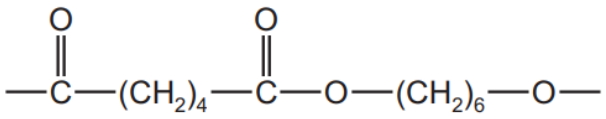
28. 5070/11/O/N/21 Q40

P is a polymer that:

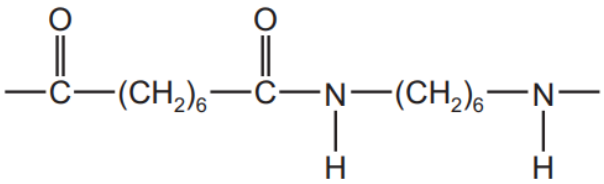
- has six carbon atoms in each of the monomers from which it is formed
- is **not** a polyester
- is formed using condensation polymerisation.

What is the partial structure of P?

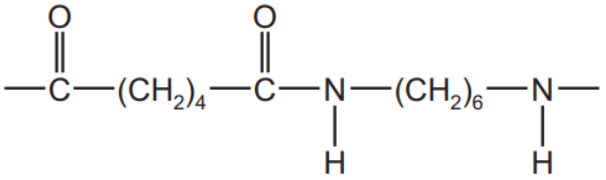
A



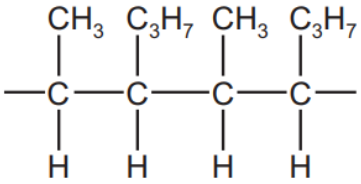
B



C



D



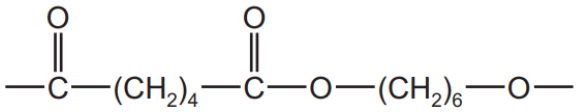
29. 5070/12/O/N/21 Q40

P is a polymer that:

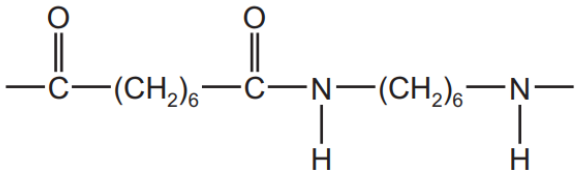
- has six carbon atoms in each of the monomers from which it is formed
- is **not** a polyester
- is formed using condensation polymerisation.

What is the partial structure of P?

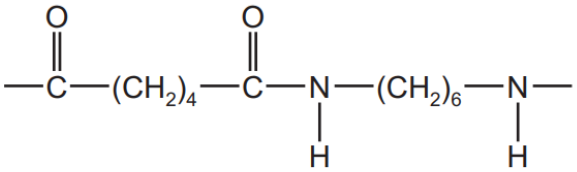
A



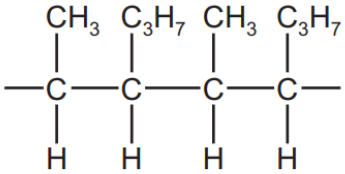
B



C



D



30. 5070/11/M/J/22 Q39

Poly(ethene) is formed by .....1..... polymerisation of ethene.

The formation of nylon and *Terylene* are examples of .....2..... polymerisation.

Proteins contain the same .....3..... linkage as nylon.

Fats contain the same .....4..... linkage as *Terylene*.

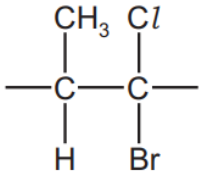
On hydrolysis, proteins form .....5..... .

Which words correctly complete gaps 1–5?

	1	2	3	4	5
A	addition	condensation	amide	ester	amino acids
B	addition	condensation	amide	ester	simple sugars
C	addition	condensation	ester	amide	amino acids
D	condensation	addition	ester	amide	simple sugars

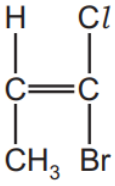
31. 5070/11/M/J/22 Q40

The repeat unit of a polymer is shown.

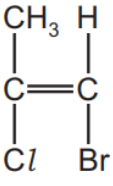


Which monomer would produce this polymer?

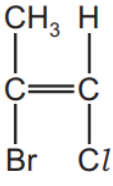
A



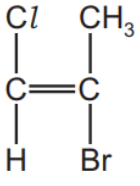
B



C



D



32. 5070/12/M/J/22 Q39

Which statement is correct?

A Complex carbohydrates, such as starch, are hydrolysed to give simple sugars.

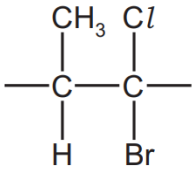
B Fats have the same amide linkages as *Terylene*.

C Proteins and nylon are polymers formed from the same monomers but with different linkages.

D Proteins are natural polymers and are also called polysaccharides.

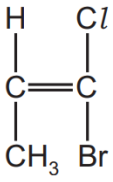
33. 5070/12/M/J/22 Q40

The repeat unit of a polymer is shown.

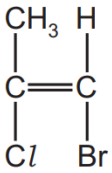


Which monomer would produce this polymer?

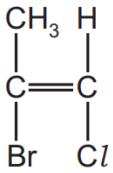
A



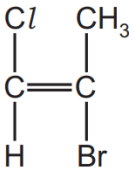
B



C



D



34. 5070/11/O/N/22 Q39

The monomer, $CH_3CH{=}CHCH_3$, can be used to make an addition polymer.

This addition polymer has a chain of carbon atoms joined to each other by C–C single bonds.

Each of these carbon atoms is also bonded to at least one other atom or group of atoms. These are called side groups.

Which statement describes the carbon atoms in the polymer chain made from $CH_3CH{=}CHCH_3$?

A Every carbon atom in the chain has one $–CH_3$ and one hydrogen atom as side groups.

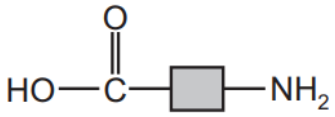
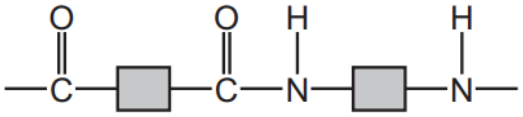
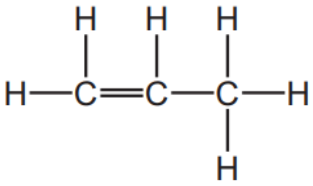
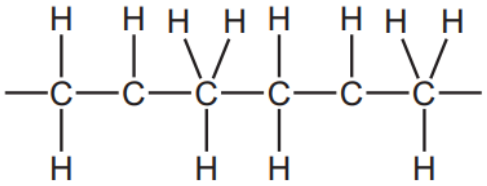
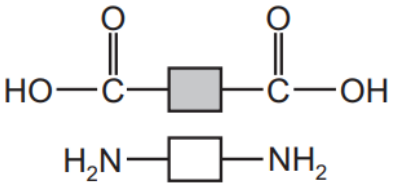
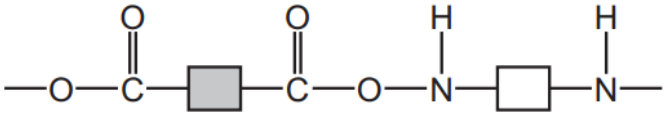
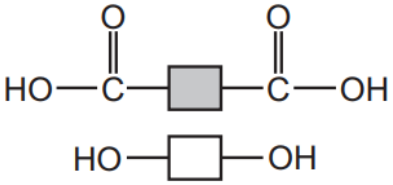
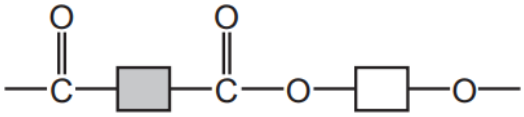
B Every carbon atom in the chain is joined to a $CH_3–CH–$ side group.

C Every carbon atom in the chain is joined to either two $–CH_3$ or to two hydrogen atoms as side groups.

D Every carbon atom in the chain is joined to hydrogen atoms only as side groups.

35. 5070/11/O/N/22 Q40

Which row correctly shows the structure of a polymer and the monomers from which it is made?

	monomers	polymer
A		
B		
C		
D		

36. 5070/12/O/N/22 Q39

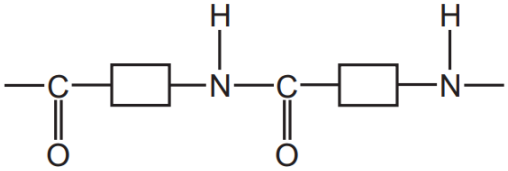
Which row shows all the elements present in the polymers listed?

- nylon
- poly(ethene)
- *Terylene*

	nylon	poly(ethene)	*Terylene*
A	C, H	C, H, O	C, H, N, O
B	C, H, N, O	C, H	C, H, N, O
C	C, H, O	C, H, N	C, H, O
D	C, H, N, O	C, H	C, H, O

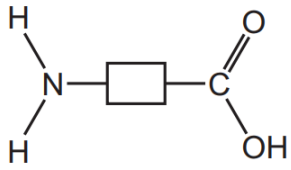
37. 5070/12/O/N/22 Q40

The partial structure of a polyamide is shown.

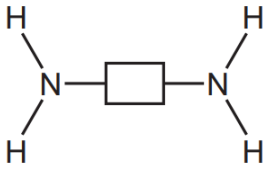


Which monomers would produce this polymer?

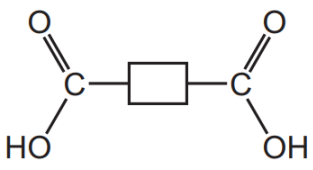
1



2



3



A 1 only **B** 1 and 2 **C** 1 and 3 **D** 2 and 3