

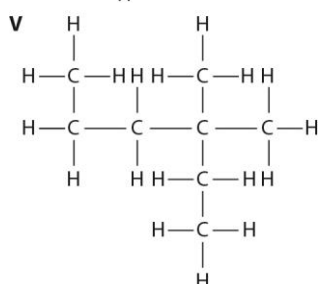
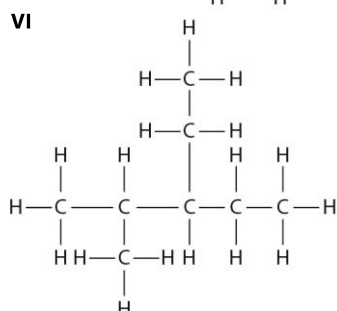
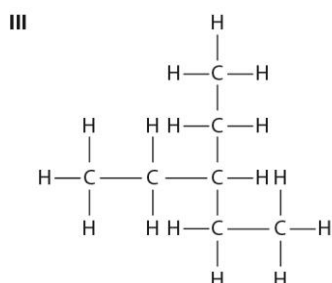
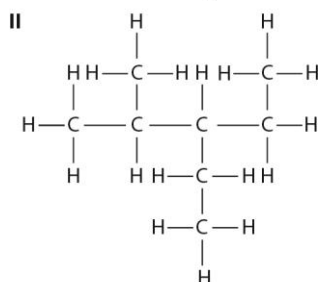
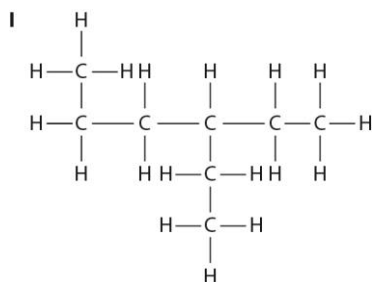
Name _____

Date _____

End of Chapter 11 test

This test and its sample answers have been written by the authors. IB may award marks differently.

1 Which of the molecules shown are identical?



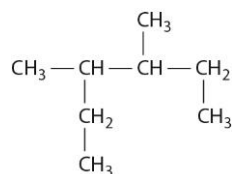
A I and IV

B II and V

C I and III

D II and IV

2 What is the IUPAC name for the following compound?



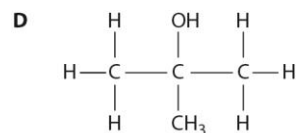
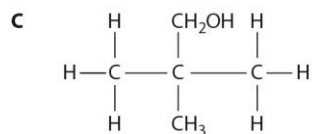
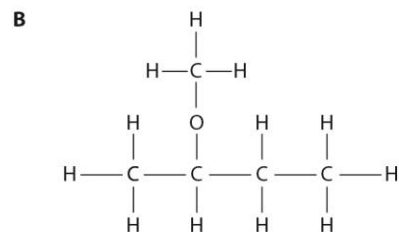
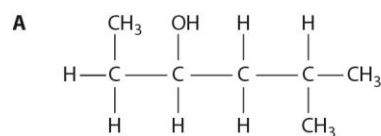
A 2-ethyl-3,4-dimethylbutane

B 3,4-dimethylhexane

C 2-ethyl-3-methylpentane

D 3-methyl-2-ethylpentane

3 Which of these compounds is a primary alcohol?



4 How many structural isomers are there for $\text{C}_4\text{H}_8\text{Br}_2$?

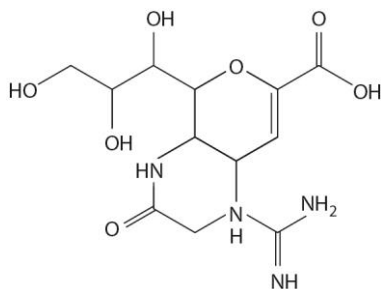
A 2

B 4

C 6

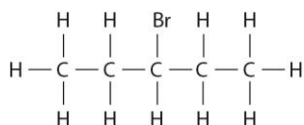
D 9

- 5 How many carbon chiral centres are there in this compound?

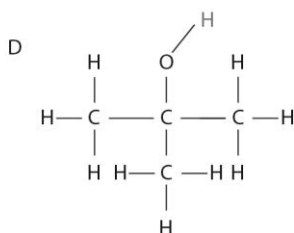
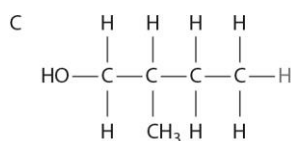
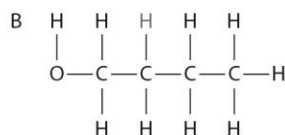
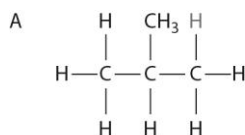


- A 1
B 3
C 5
D 7
- 6 All of the following compounds will exhibit *cis-trans* isomerism except:
- A 1,1-dichlorocyclopropane
B 1,2-dibromoethene
C 1-ethyl-2-methylcyclobutane
D pent-2-ene
- 7 Which of the following compounds can exist as optical isomers?
- A *cis*-1,2-dimethylcyclobutane
B *trans*-1,2-dimethylcyclobutane
C 2,3-dimethylbutane
D 2,3-dimethylbut-2-ene
- 8 Which of the following compounds is expected to have the highest boiling point at room pressure?
- A 2-fluoropropane
B propane
C propanoic acid
D propan-2-ol

- 9 How many signals are there in the low-resolution ^1H NMR spectrum of the following compound?



- A 3
B 4
C 5
D 11
- 10 In the high-resolution ^1H NMR spectrum, the signal due to which of the following hydrogen atoms highlighted in red would be a triplet?

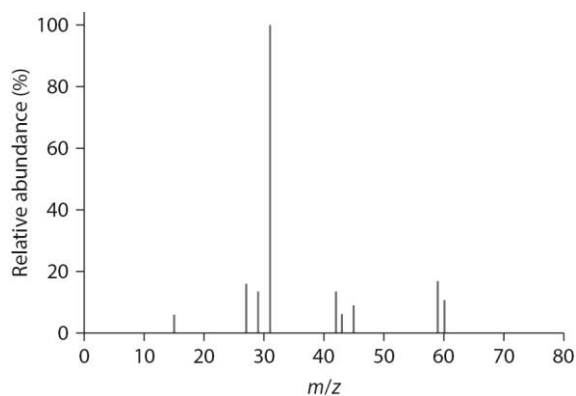


- 11 Which of the following techniques can you use to distinguish between the two structural isomers ethanoic acid and methyl methanoate?

- I ^1H NMR
II IR
III mass spectrometry

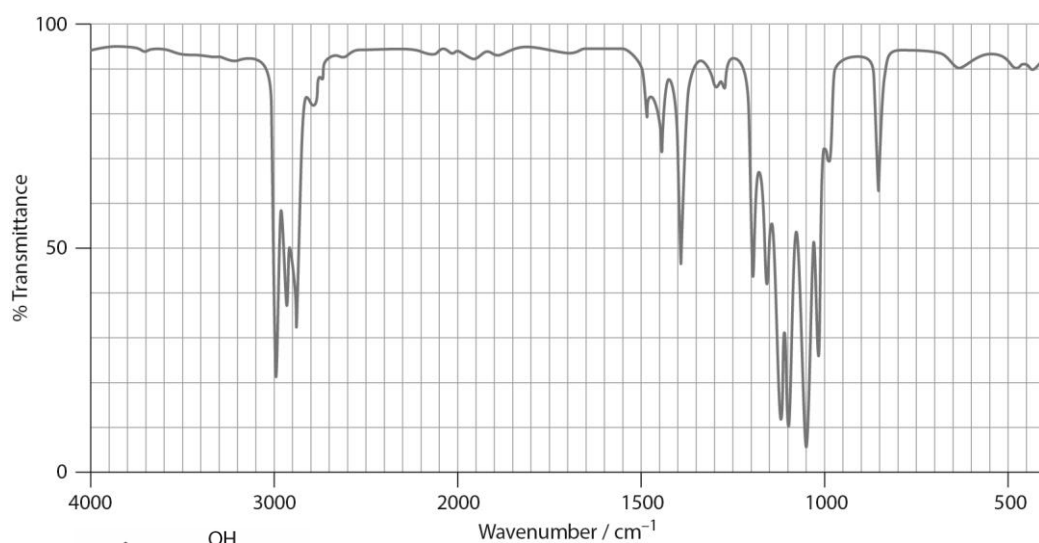
- A I only
B I and II only
C I and III only
D I, II and III
- 12 Which of the following compounds, when existing as a pure isomer, can rotate the plane of polarisation of plane-polarised light?
- A pentan-2-ol
B pentan-3-ol
C pent-2-ene
D pent-1-ene

13 Which compound shows the following mass spectrum?



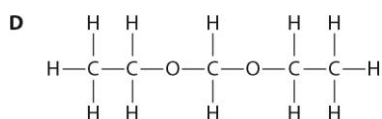
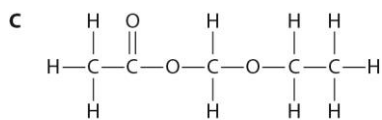
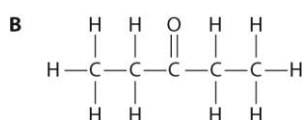
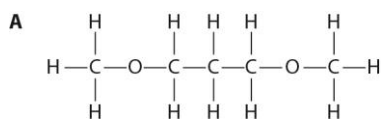
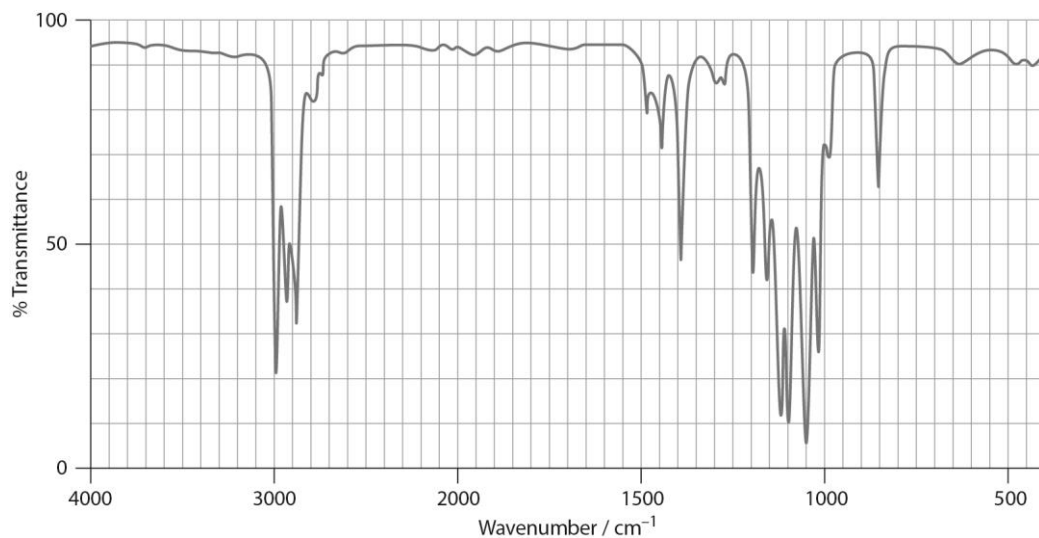
- A propane
- B propan-1-ol
- C ethanoic acid
- D propanone

14 Which compound shows the following IR spectrum?



- A Oc1ccccc1
- B Oc1ccccc1
- C O=C(O)c1ccccc1
- D Oc1ccccc1

- 15** The IR spectrum of compound P is shown. The high-resolution ^1H NMR spectrum shows a singlet at 4.7 ppm, a quartet at 3.6 ppm and a triplet at 1.2 ppm. What is the structure of P?



END OF TEST