


13. An introduction to AS Level organic chemistry

13.3 Shapes of organic molecules; σ and π bonds

Paper 2

Marking Scheme

Q1.

(e)(i)		0	2	6	2
	3 correct answers = 2 marks 2 correct answers = 1 mark 0 or 1 correct answers = 0 marks				

(e)(ii)	M1 presence of a π bond	3
	M2 limited rotation of C=C bond	
	M3 EITHER two different groups on each / both double bonded carbon atoms	
	OR two different atoms on each / both double bonded carbon atom	
	OR one H / atom and one alkyl group on each / both double bonded carbon atom	

Q2.

(b)(iii)	type of hybridisation	sp^2	sp^3	2
	number of carbon atoms in V	3	1	

Q3.

(c)	type of bond in X	number of bonds in X	2
	sigma σ	8	
	pi π	2	

Q4.

(d)		sigma	pi	2
	type of orbitals involved in bond	$sp^2(-sp^2)$	$(2)p(-2)p$	
	how the orbitals overlap	direct	sideways	
Two correct for one mark, four correct for two marks.				