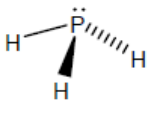
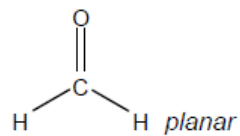
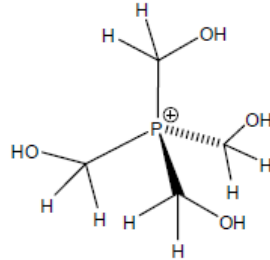
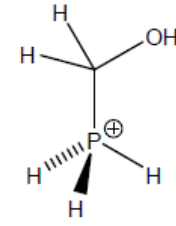


Question 4		Mark	
(a)	 <i>pyramidal not planar</i>	 <i>planar</i>	1 + 1
(b)	Number of environments of hydrogen: 2	Ratio: 1:2	1 + 1
(c)	Functional group: -OH (or alcohol, hydroxyl)		1
(d)	Number of hydrogen nuclei: 8		1
(e)	(i) Formula for fragment: CH ₂ O		1
	(ii) Formula for the X ⁺ ion: C ₄ H ₁₂ O ₄ P [⊕] (allow correct variants)		1
	(iii) m/z value: 159		1
(f)	(i) Structure for X ⁺ : 	(ii) Structure for ion at m/z = 65: 	1 + 1
			Marks = 11