Question Number	Answer		Mark
16(a)(i)	$v \propto \sqrt{\dfrac{M}{r}}$	(1)	
	Within the central region M changes a lot (so v increases) **Or** Outside the central region M is approximately constant (so v decreases)		
	As r increases v reaches a peak value as shown on the graph	(1)	
	[A bald description of the graph having a peak value can score MP3]	(1)	**3**
16(a)(ii)	There must be more mass (than we can observe) [Accept statement that there must be a greater gravitational force]	(1) (1)	**2**
	There is dark matter present (in the galaxy)		
16(b)	(For a closed universe) the density of the universe must be greater than the critical density	(1)	
	And the (average) density of the universe is uncertain **Or** the amount of dark matter is uncertain	(1)	**2**
	Total for question 16		**7**