Question number	Answer	Notes	Marks
10 (a) (i)	26(.4) (N) ;		1
(ii)	(resultant) force = mass × acceleration;	allow acceptable symbols e.g. F, f, m, M, a, A allow any correct rearrangement;	1
(iii)	conversion of 160 g to 0.16 kg; rearrangement or substitution; correct evaluation; correct answer: 165 (m/s^2) e.g. acceleration = resultant force ÷ mass acceleration = 26.4 ÷ 0.16 acceleration = 165 (m/s^2)	 allow ECF for incorrect resultant force Condone rounding to 160 or 170.	3
(iv)	any THREE from: MP1. weight decreases; MP2. air resistance increases; MP3. consistent inference of changing resultant force; MP4. (therefore) changing acceleration;	ignore references to running out of fuel reducing thrust/eq ignore references to energy DOP consistent with MP3	3
(b)	any FOUR from: MP1. (observed) frequency decreases; MP2. speed of **waves** constant; MP3. wavefronts behind firework spread out/eq; MP4. causing an increased wavelength (at the observer); MP5. reference to f = speed ÷ wavelength;	ignore references to region in front of rocket or an approaching rocket allow any rearrangement	4

Total for Question 10 = 12 marks