

Question number	Answer	Notes	Marks
2 (a)	A – <u>visible</u> (light)	REJECT: rainbow REJECT: 'light' alone	1
	B – X-rays	ACCEPT: X / X - radiation	1
(b)	C		1
(c)	B		1
(d)	B		1

2 (e)	<p>For first chosen region of the spectrum corresponding hazard; corresponding risk reduction;</p> <p>For second chosen region of the spectrum corresponding hazard; corresponding risk reduction;</p> <p>NB No mark for naming the type of radiation</p>	<p>e.g. microwaves - heating of tissue / perceived risk of cancer close oven door / hands-free cell phone / monitor exposure</p> <p>e.g. infra red – risk of skin burning / cell damage avoid hot places / reflective clothing / avoid exposure (to sun)</p> <p>e.g. visible light eye damage sun glasses / avoid exposure (to sun)</p> <p>e.g. ultraviolet – risk of {skin / eye} damage / blindness IGNORE: sunburn skin cream / sunglasses / avoid exposure (to sun)</p> <p>e.g. x-rays – risk of cancer / cell damage (lead) shielding / monitor exposure e.g. film badge / avoid exposure</p> <p>e.g. gamma - risk of cancer / cell damage (lead) shielding / monitor exposure e.g. film badge / avoid exposure</p>	4
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Total 9 Marks

8	(b)	(i)	use of acceleration = change in velocity / time (taken) OR attempt at use of gradient ;	Or equivalent – Change in vel = accn x time Time = change in vel ÷ accn		1
			Substitution 30 / 100 ; Calculation 0.3 (m/s ²) ;	Bald answer gets 3 marks		1 1
		(ii)	Area under graph (clear evidence of attempt); (½ x 30 x 100) + (30 x 100) + (½ x 30 x 100); 6000 (m);	ACCEPT: trapezium method ½ x (300 + 100) x 30 ACCEPT: answers where the unit is consistent with the number. Bald answer gets all three marks		3

Total 12 marks

Question number	Answer	Notes	Marks
12	<p>M1 pressure greater in the full cup / less in the half-full cup ;</p> <p>M2 reference to equation / $p = W \div A$ / $p = h \times \rho \times g$</p> <p>M3 ;</p> <p>M4 {depth / mass / weight} of liquid / force different in each cup ;</p> <p>density / g / area the same for each cup ;</p>	<p>ACCEPT: F in place of W</p> <p>IGNORE: amount of coffee different</p>	4

Total 4 marks