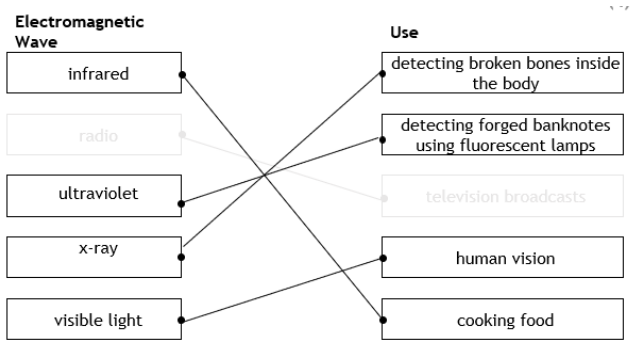
Question number	Answer	Notes	Marks
2 (a)	;;;;  		4
(b)	skin burns;	apply 'list' principle allow 'damage to skin cells'	1
(c)	reduce time of exposure/ increase distance from source/ introduce more material between source and person; e.g. suncream, clothing, sunglasses, staying indoors, stay behind glass windows, only stay outside for 20 minutes without sun protection	apply 'list' principle	1

(Total for Question 2 = 6 marks)

Question number	Answer	Notes	Marks
4 (a)	zero/0 (N);		1
(b) (i)	pressure = depth × density × gravitational field strength;	allow use of standard symbols e.g. $p = h \times \rho \times g$ allow 'd' for 'h' reject 'gravity' for 'g' in formula	1
(ii)	substitution; evaluation; e.g. pressure = depth × density × gravitational field strength pressure = 0.041 × 1000 × 10 pressure = 410 (Pa)	-1 POT error allow use of 9.8(1) for 'g' giving 401.8…	2
(iii)	pressure = force ÷ area;	allow use of standard symbols e.g.P = F ÷ A	1
(iv)	substitution or re-arrangement; evaluation; e.g. pressure = force ÷ area 400 = force ÷ 0.0017 force = 400 × 0.0017 = 0.68 (N)	substitution and rearrangement in either order allow correctly rounded values e.g. 0.697 allow use of candidate's unrounded value even if not approx 400	2
(v)	upwards force greater than weight of cube; **resultant** force upwards;	allow idea of ice being less dense than water for 1 mark.	2

(Total for Question 4 = 9 marks)

Question number	Answer	Notes	Marks
10 (a) (i)	any THREE from: trolley changes direction; induction depends on direction of relative motion; idea that voltage has changed directon (as sign of voltmeter reading depends on direction of voltage); idea that at ends of motion, voltage is zero;	condone current for voltage ignore idea induction depending on speed	3
(ii)	speed may change/ magnetic field may not be uniform;	accept idea that magnetic field may change allow idea of entering or leaving field	1
(b) (i)	substitution; re-arrangement; evaluation; correct answer: 1.8×10^{-4} (A) e.g. charge = current × time 1.4×10^{-4} = current × 0.78 current = $(1.4 \times 10^{-4}) \div 0.78 = 1.79 \times 10^{-4}$ (A)	substitution and rearrangement in either order -1 POT error	3
(ii)	substitution; re-arrangement; evaluation; correct answer: 1.6×10^{-2} (V) e.g. energy = charge × voltage $2.3 \times 10^{-6} = 1.4 \times 10^{-4}$ × voltage voltage = $(2.3 \times 10^{-6}) \div (1.4 \times 10^{-4}) = 1.64 \times 10^{-2}$ (V)	allow use of standard symbols e.g. E = Q × V allow v,V for voltage reject C,c for charge substitution and rearrangement in either order -1 POT error	3

(Total for Question 10 = 10 marks)