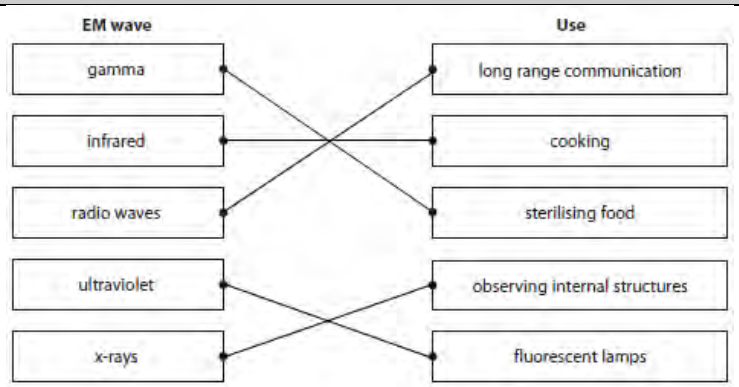
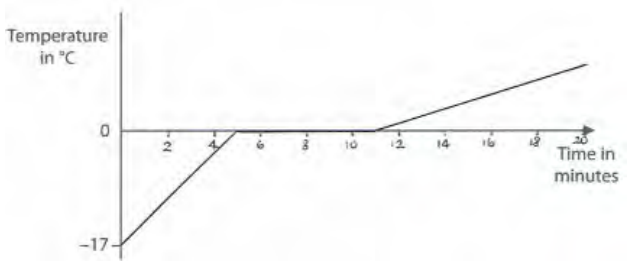
Question number	Answer	Notes	Marks
1 (a)	 all four correct;;;	gamma use is given so only judge other four EM waves for marks three or two correct scores 2 marks one correct scores 1 mark	3
(b)	C (internal heating of tissue); A is incorrect because this is a hazard of visible and ultraviolet radiation B is incorrect because this is a hazard of x-ray and gamma radiation D is incorrect because this is a hazard if infrared radiation		1
(c)	radio (waves);		1

Total for Question 1 = 5 marks

Question number	Answer	Notes	Marks
5 (a) (i)	line starts at (0,-17) and rises to steady temperature of 0 °C (after 5 minutes); 6 minutes along time axis at temperature of 0 °C; line drawn showing increase in temperature from 0 °C until 20 minutes on time axis;  	allow candidate's time axis scale or clearly marked times line can be curved or straight ignore start and end times as long as duration is 6 minutes line can be curved or straight and can end at any temperature	3
(ii)	any one from: • keep heater submerged; • (check) voltage remains constant; • idea of not removing lid; • stirring (once some ice has melted); • repeat and average;	ignore using more insulation, digital thermometer allow idea that lid is well sealed allow repeat and remove anomalies	1
(b)	dimensionally correct substitution into $\Delta Q = m \times c \times \Delta T$; rearrangement; evaluation; e.g. $2500 = 0.048 \times 880 \times \Delta T$ $\Delta T = 2500 / (0.048 \times 880)$ (ΔT =) 59 (°C)	allow mass in kg or g for this mark seen or implied from working -1 for POT error final answer of 42 = 2 marks allow 59.2, 59.18… (°C) condone 59.1 (°C)	3

Total for Question 5 = 7 marks