Question number	Answer	Notes	Marks
6 (a)	any FOUR from: MP1. idea of magnetic field around coil (when current flows); MP2. idea of interaction between fields of magnet and coil; MP3. idea of force on coil from magnet; MP4. idea of alternating force on cone; MP5. cone vibrates; MP6. idea that cone forces air to vibrate; MP7. longitudinal wave formed;	ignore references to induction allow 'tube' for 'cone' allow idea of series of compressions and rarefactions	4
(b) (i)	substitution; evaluation; correct answer = 0.11 (W) e.g. power = current × voltage = 0.15 × 0.75 power = 0.1125 W	-1 for POT error	2
(ii)	suitable linear scale chosen (>50% of grid used); axes labelled with quantities and units; all plotting correct to nearest half square;	ignore orientation	3
(iii)	attempt at fitting first two points and fitting rest of points separately; single curve with a peak within one large square of third point;	ecf candidate's plotting max 1 mark for straight line consistent with candidate's plotting	2
(c)	any FOUR from: MP1. for diagram 4, cell voltage no longer shared; MP2. means current through each loudspeaker is doubled; MP3. so current from supply is four times higher; MP4. correct use of 'R = V/I'; MP5. (so) total resistance is a quarter of that from the series case;	accept voltages in parallel are the same accept voltage is shared in diagram 3 accept idea of current from each branch adds to give total current in cell accept higher order answers in terms of series and parallel equations accept calculation of both circuit's total resistance	4

(Total for Question 6 = 15 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)