Question Number	Answer	Mark
16(a)	(Wires) cut lines of magnetic flux **Or** flux <u>linkage</u> (with coil) changing **(1)** <u>Induces</u> <u>emf</u> **(1)**	**2**
16(b)	Use of $A = \pi(d/2)^2$ **(1)** Applies knowledge of flux = flux density × area **(1)** Flux = 8.8×10^{-5} (Wb) (at least 2 s.f) **(1)** <u>Example of calculation</u> $A = \pi \times (0.025 \text{ m} / 2)^2$ $= 4.9 \times 10^{-4} \text{ m}^2$ $\varphi = 0.18 \text{ T} \times 4.9 \times 10^{-4} \text{ m}^2$ $= 8.84 \times 10^{-5} \text{ Wb}$	**3**
16(c)	Determine maximum gradient of graph **(1)** Use of flux linkage = $N\varphi$ **(1)** Use of $\varepsilon = \mathrm{d}N\varphi / \mathrm{d}t$ **(1)** $V = 2.3$ V (range rounds – 2.2 V to 2.6 V) **(1)** <u>Example of calculation</u> max gradient = 4.62×10^{-4} Wb s^{-1} max $V = 5000 \times 4.62 \times 10^{-4}$ Wb $s^{-1} = 2.3$ V	**4**
16(d)	By Lenz's law, current/e.m.f./field/force produced is so as to oppose the cause of the current/e.m.f. **(1)** Force on wire due to interaction of induced current and field **(1)** Force to left, so, by (Fleming) LHR… **(1)** … current into page and student is correct (dependent on MP3) **(1)**	**4**
	Total for question 16	**13**