

Question number	Answer	Notes	Marks
5 (a)	output voltage is less than input voltage; output current is greater than input current;	allow voltage decreases allow current increases	2
(b)	any attempt to calculate a power; correct calculation of either input or output power; indication that the input and output power are (approximately) equal;  e.g. input power = $230 \times 0.067$ input power = $15(.41)$ $15(.41) \approx 15(.5)$	allow either product of voltage and current  allow idea of calculating an efficiency (percentage) and showing it is (approximately) 100%  output power = $5.0 \times 3.1$ output power = $15(.5)$ $15(.5)/15(.41) = 1.0...$ or 100%	3
(c) (i)	$N_p/N_s = V_p/V_s$ ;	allow any correct rearrangement allow “i(nput) and o(utput)” or “1 and 2” for “p(rietary) and s(econdary)” allow correct word equation  ignore ‘P’ for ‘N’ condone ‘T’, ‘t’ or ‘n’ for ‘N’ condone ‘coils’ for ‘turns’	1
(ii)	substitution; rearrangement; evaluation to 2 s.f. or more;  e.g. $1500/N_s = 230/5.0$ $(N_s =) 1500 / (230 / 5.0)$ $(N_s =) 33$	32 scores 2 marks only  allow 32.6, 32.608...	3

Total for Question 5 = 9 marks