Question number	Answer	Notes	Marks
5 (a) i	Step down (transformer);		1
ii	$(V_P/V_S) = (N_P/N_S)$; $\frac{\text{input (primary) voltage}}{\text{output (secondary) voltage}} = \frac{\text{primary turns}}{\text{secondary turns}}$ $\frac{V_P}{V_S} = \frac{n_P}{n_S}$	Allow • equation in words • standard abbreviations :- s, p, in, out, 1, 2 • N, n or T for number of turns • Rearrangements e.g. $(V_S/V_P) = (N_S/N_P)$ $V_S = (V_P)(N_S/N_P)$ $V_P = (V_S)(N_P/N_S)$	1
iii	Substitution; (rearrangement and) evaluation; e.g. $\frac{230}{25} = \frac{\text{primary turns}}{100}$ 920 (Turns)	Do not credit the equation in words or symbols bald answer gains full marks	2

Question number	Answer	Notes	Marks
(b)	Any 5 from MP1. it steps up or steps down the **voltage**; MP2. current in (primary) coil **produces** magnetic field; MP3. the current is changing /has frequency of 50 Hz; MP4. causing a (changing) magnetic field in the core; MP5. the core strengthens the magnetic field; MP6. field lines interact with (secondary) coil; MP7. which **induces** a voltage in the secondary coils; MP8. transformer won't work with (steady) d.c.	allow flux for magnetic field Allow increases or decreases voltage Allow concentrates for strengthens Allow flux changes in secondary coil Allow induces a current/eq NB do not credit repeat of stem	5

(Total for Question 5= 9 marks)