

Question number	Answer	Notes	Marks
8 (a)	any four from: MP1. idea that step-down means secondary voltage is less than primary 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. the secondary coil experiences a changing magnetic field; MP7. which induces a voltage in the secondary coil;	allow RA  allow recognition that alternating current is used  allow 'secondary is cut by (changing) field lines' allow current for voltage	4
(b) (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;  e.g. $(160/45) = 12/V_s$ $V_s = 12 / (160/45)$ $(V_s =) 3.4 \text{ (V)}$	allow 3.375 (V)	3

**Total for Question 8 = 8 marks)**