Magnetic fields

Specification reference	Checklist questions	
6.3.1 a	Can you explain moving charges or permanent magnets as causes of magnetic fields?	☐
6.3.1 b	Can you demonstrate using magnetic field lines to map magnetic fields?	☐
6.3.1 c	Can you describe magnetic field patterns for a long straight current-carrying conductor, a flat coil, and a long solenoid?	☐
6.3.1 d	Can you define Fleming's left-hand rule?	☐
6.3.1 e i	Can you calculate the force on a current-carrying conductor, $F = BIL \sin\theta$?	☐
6.3.1 e ii	Can you describe the techniques and procedures used to determine the uniform magnetic flux density between the poles of a magnet using a current-carrying wire and digital balance?	☐
6.3.1 f	Can you define magnetic flux density and the unit tesla?	☐
6.3.2 a	Can you calculate the force on a charged particle travelling at right angles to a uniform magnetic field, $F = BQv$?	☐
6.3.2 b	Can you describe the movement of charged particles in a uniform magnetic field?	☐
6.3.2 c	Can you describe the movement of charged particles moving in a region occupied by both electric and magnetic fields?	☐
6.3.2 c	Can you define velocity selector?	☐
6.3.3 a	Can you explain magnetic flux ϕ, the unit weber and $\phi = BA\cos\theta$?	☐

Specification reference	Checklist questions	
6.3.3 b	Can you define magnetic flux linkage?	☐
6.3.3 c	Can you describe Faraday's law of electromagnetic induction?	☐
6.3.3 c	Can you define Lenz's law?	☐
6.3.3 d	Can you demonstrate that e.m.f. = − rate of change of magnetic flux linkage, $\varepsilon = -\dfrac{\Delta(N\phi)}{\Delta t}$, and explain techniques and procedures used to investigate magnetic flux using search coils?	☐
6.3.3 e	Can you describe a simple a.c. generator?	☐
6.3.3 f i	Can you describe a simple laminated, iron-cored transformer?	☐
6.3.3 f i	Can you explain $\dfrac{n_s}{n_p} = \dfrac{V_s}{V_p} = \dfrac{I_s}{I_p}$ for an ideal transformer?	☐
6.3.3 f ii	Can you explain the techniques and procedures used to investigate transformers?	☐