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| **Syllabus changes** |
| The content identified by ~~strikethrough~~ has been deleted from the syllabus and the content identified in *italic*s has been revised in the syllabus for teaching from 2023**For teaching from 2023****Unit 3 – Science Understanding****Gravity and motion*** when an object experiences a net force at a distance from a pivot and at an angle to the lever arm, it will experience a torque or moment about that point

This includes applying the relationship: *where θ = angle between the force F and the lever arm***Electromagnetism*** magnets, magnetic materials, moving charges and current-carrying wires experience a force in a magnetic field when they cut flux lines; this force is utilised in DC electric motors and particle accelerators

This includes applying the relationships:*F = qvB* sin*θ* *where θ = angle between the field B and the velocity v* *where θ = angle between the field B and the conductor length* * the force due to a current in a magnetic field in a DC electric motor produces a torque on the coil in the motor

This includes applying the relationship:*τ = rF sinθ where θ = angle between the force F and the lever arm* * an induced emf is produced by the relative motion of a straight conductor in a magnetic field when the conductor cuts flux lines

This includes applying the relationship:*induced emf: where θ = angle between the field B and the conductor length*  ~~where~~ * magnetic flux is defined in terms of magnetic flux density and area

*This includes applying the relationship:**Φ = BA*⊥  *where A = area perpendicular to the field* *B** a changing magnetic flux induces a potential difference; this process of electromagnetic induction is used in step-up and step-down transformers, DC and AC generators

This includes applying the relationships: *where A = area perpendicular to the field* *B* **Examination design brief – Year 12**Instructions to the candidate state:When calculating numerical answers, show your working or reasoning clearly. *Unless otherwise instructed*, give final answers to three significant figures and include appropriate units where applicable. |