Max Marks: 10

Name: _____
Date: _____

Class X

Physics

Question 1.

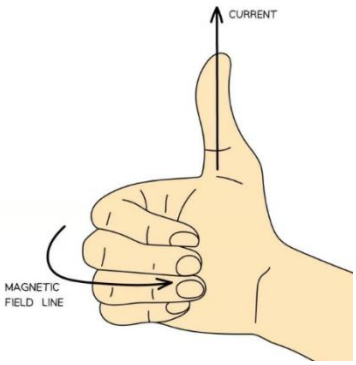
The correct answer is **B** because:

- The field pattern of a solenoid looks just like the field pattern of a bar magnet.
- Except it is perfectly uniform down the centre.

Question 2.

The correct answer is **B** because:

- The right hand grip rule should be used to determine the direction of the magnetic field around a current-carrying wire
- If you point your right thumb in the direction of the current (out of the page) the fingers of your right hand will curl in the direction of the field (anticlockwise).



Question 3

The correct answer is **A** because a DC motor uses a split ring commutator to reverse the direction of the current through the coil every half turn, and, therefore, to keep it spinning in the same direction.

AC Generators use slip rings, transformers have no moving parts, and relays use no rings at all.

Question 4

The correct answer is **D** because a DC motor can be made to turn more quickly by:

- Increasing the current in the coil
- Having more turns on the coil
- Increasing the magnetic field strength of the magnetic field.

Question 5

The correct answer is **B** because:

- A step-up transformer has more turns in the secondary coil than primary coil
- This means that $N_s > N_p$ (or $N_p < N_s$)
    - Therefore, **B** is correct

Question 6

The correct answer is **D** because heating permanent magnets will demagnetise them.

A is incorrect as	cooling magnets actually increases their magnetism.
B is incorrect as	this would increase magnetism.
C is incorrect as	this is a method of creating a permanent magnet.

Question 7

The correct answer is **B** because:

- As the voltage is stepped up, it causes the current to be stepped down.
- This is because the electrical power must be the same before and after transforming, otherwise you create or destroy energy, which you can't do, and $P = IV$
- The power lost during transmission is given by $P = I^2R$. The resistance of the power lines cannot be reduced, but the current at which the electricity is transmitted can.
- The lower the current, the less power is dissipated as heat in the power lines.
- If less power is wasted, the transmission is more efficient.

Question 8

The correct answer is **B** because:

- When a wire is moved through a magnetic field, the induced e.m.f. can be used to drive a current.
- The combination of current and voltage can deliver electrical power to devices ($P = IV$), which causes them to work.
- We just generated electricity, using a generator.

Question 9

The correct answer is **D** because:

- **γ**-rays have no charge. Therefore they would not experience a force when passing between two charged plates.
- **β**-particles have a negative charge. This causes them to be attracted towards the positively charged plate.

Question 10

The correct answer is **B** because:

- A simple AC generator rotates a magnet next to a coil (or vice versa).
- This causes the voltage to rise, then fall, then to rise in the opposite direction, then fall, and to repeat in this manner.
- Graph B shows this pattern.