



TEST PAPER: PHYSICS

Time: 70 Minutes

Class: C.B.S.E. 10

Max. Marks: 50 Marks

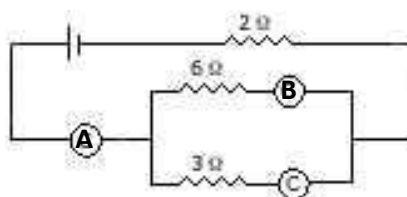
Date: 27th July 2018

Marking Scheme: All questions carry 10 marks each. Subparts (A) and (B) carry 3 marks each and subpart (C) carries 4 marks. **Attempt any 5 out of 6 questions.**

Question 1

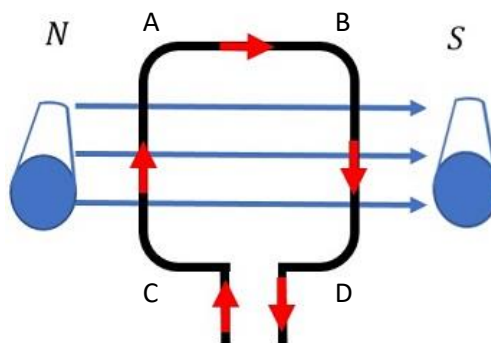
- A. State the three factors on which heat energy produced in a current carrying wire depend.
B. State any three ways of increasing the speed of rotation of the coil used in DC motors.
C. In the figure given alongside, A, B and C are three ammeters.
The ammeter B reads 0.5 A. (All the ammeters have negligible resistance.)
Calculate:

- i) The total resistance of the circuit.
ii) voltage of the cell used
iii) The readings in the ammeters A and C

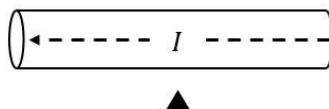


Question 2

- A. In the diagram, we are looking down on the setup. The current is moving clockwise around the coil.
Answer the following questions:
i) Which rule will you use to determine the direction of movement of coil
ii) What is the magnitude of force acting on side AB
iii) You are viewing the coil from side CD. In which direction does the coil move (clockwise/anticlockwise).



- B. An electric current is moving from right to left in the wire.



- i) Which rule will you use to determine the direction of magnetic field
ii) State the direction of current in the wire (left to right or right to left)
iii) State the direction of magnetic field point at the location of the triangle?
- C. An object 5cm in length is held 25 cm away from a converging lens of focal length 10cm.
Find:
i) The position of image (v)
ii) Size of image (I)
iii) Magnification (m)
iii) Nature of the image (Real/Apparent, Magnified/Diminished, Inverted/Erect)

Question 3

- A. Calculate the total electrical energy in SI units consumed by a 100 W bulb and a 60 W fan connected in parallel in 5 minutes.
- B. Answer the following questions:
 - i) When is the force experienced by a current-carrying conductor placed in a magnetic field largest?
 - ii) What is the function of a split ring in an electric motor?
 - iii) How can you convert a solenoid to an electromagnet.
- C. i. A current of 0.5 A is drawn by a filament of an electric bulb for 10 minutes. Find the amount of electric charge that flows through the circuit.
ii. How much work is done in moving a charge of 2 C across two points having a potential difference 12 V?

Question 4

- A. An object is placed at a distance of 10 cm from a convex mirror of focal length 15 cm. Find the position of the image.
- B. Draw a neatly labelled ray diagram of a concave lens when the object is placed at center of curvature
- C. i. Find the heat energy produced in a coil of resistance 80Ω if 3A current is passed through it for 4 seconds.
ii. Four resistance of 2.0Ω each are joined end to end to form a square ABCD. Calculate the equivalent resistance of the combination between any two adjacent corners.

Question 5

- A. You have just paid the electricity bill for your house
 - (i) what was it that your family consumed, for which you had to pay?
 - (ii) In what unit was it measured?
 - (iii) State its S.I. unit
- B. State the Joule's law of heating. State any two applications of Joule's law of heating.
- C. Two resistors of 2Ω and 3Ω in parallel are connected to a cell of 1.5 V. Draw a labelled circuit diagram showing the above arrangement and calculate the current drawn from the cell.

Question 6

- A. Mention any three factors on which the resistance of a wire depends.
- B. An electric kettle is rated 2.5 kW, 250 V. Find the cost of running the kettle for 2 hours at 50 paisa per unit.
- C. Draw a representative diagram of a dc motor. Label the following in your diagram
 - (i) the field magnet
 - (ii) the armature
 - (iii) commutator and
 - (iv) brushes.