Kerala State Board
Class IX Physics
Sample Paper – 1

Time: 1½ hrs **Total Marks: 40**

Instructions:

1) First 15 minutes are allowed as cool off time. During this period, read and comprehend the questions well.
2) Answer all questions.
3) Write all the sub sections of the choice you selected.
4) Score of each question is given against them.

---

1. Define the S.I. unit of work. [1]

2. Complete the following: [1]
Transverse waves: Light waves
Longitudinal waves: _____

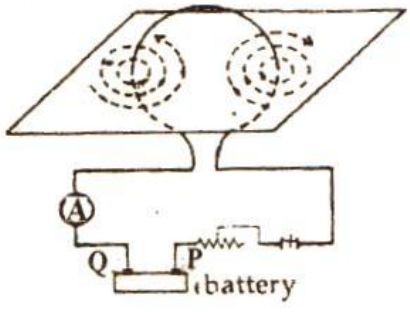
3. What happens when rays are incident parallel to a convex lens? [1]

4. Define the term 'Uniform acceleration'. [1]

5. Does the Earth exert greater/equal force on an orange or/and a watermelon? [1]

6. A magnetic needle is placed near one end of a solenoid. What happens when the number of windings of the wire is increased? [1]

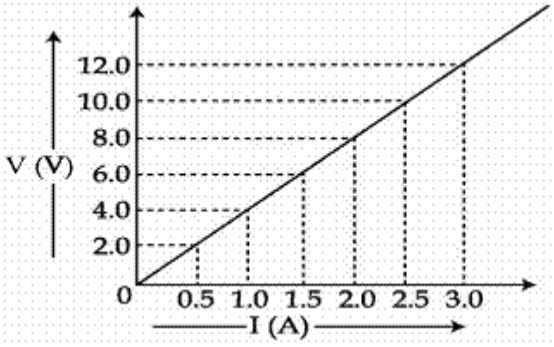
7. The magnetic field around a current carrying coil is depicted.



(a) Which is the positive terminal of the battery? [1]
(b) State the fundamental law regarding the direction of magnetic field depicted. [1]

8. What is Hypermetropia? How can it be corrected? [2]

9. A graph between potential difference (V) and current (I) is given in the figure below.



(a) What is the relation between V and I? [1]

(b) Find the resistance of the conductor using the graph. [1]

10. What is the value of acceleration due to gravity on the Sun, if its mass is 1.99×10^{30} kg and radius is 6.96×10^{8} m. [2]

11. An object of mass 6 kg falls freely from a height. What is the amount of work done within a second of its fall? [2]

12. The Earth and an airplane flying in the sky will attract each other.

(a) If the force of attraction from the Earth on the airplane is compared to that on the Earth from the airplane, which of the following is true? [1]

i. The force of attraction on the airplane by the Earth is higher.

ii. The force of attraction on the Earth by the airplane is higher.

iii. Both are equal.

iv. The force of attraction on the earth by the airplane is lower.

(b) If the airplane stops functioning, it will fall on the Earth. Why does this happen? [2]

13. Two resistors of 50 ohms are connected in parallel across a 100 V source. Find the total circuit resistance and current through each resistor. [3]

14.

(a) Draw a schematic diagram of a circuit consisting of a cell of 1.5V, 10 Ω resistor and 15 Ω resistors and a plug key all connected in series. [1]

(b) Aluminum wire has radius 0.25 mm and length of 75 m. If the resistance of the wire is 10 Ω, calculate the resistivity of aluminum. [2]

15. Match the items in column A, B and C suitably. [3]

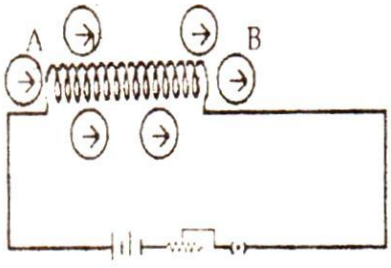
A	B	C
	Voltmeter	To change the current.
	Cell	Device to measure voltage.
	Rheostat	To maintain the potential difference.

16. A concave lens has a focal length of 15 cm.

(a) At what distance from the lens should an object be placed so that it forms an image at 10 cm from the lens? [2]

(b) Find the magnification of the lens. [2]

17. The figure shows the arrangement of magnetic compasses placed around a solenoid.



(a) What do you see at the instant the circuit is switched on? [1]

(b) What change do you observe in the deflection of needle when it is switched on after inserting a soft iron core into the solenoid? Explain the reason. [2]

(c) What will be the polarity at the end A of the solenoid, if current flows through it? [1]

18. Answer 18 I or 18 II.

I.

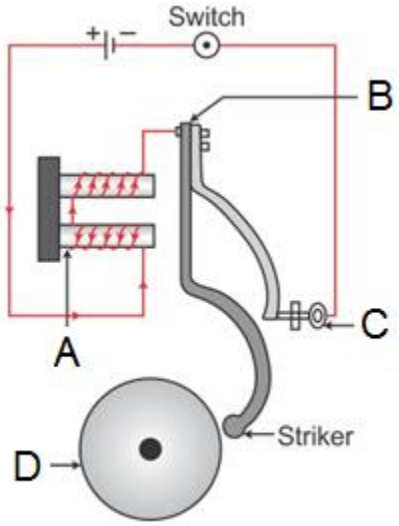
(a) You are given a convex lens of focal length 30 cm. Where would you place an object to get a real, inverted and highly enlarged image of the object? Draw a ray diagram showing the image formation. [2]

(b) A concave lens has a focal length of 20 cm. At what distance from the lens should an object be placed so that if forms an image 15 cm away from the lens? [2]

OR

18.

II. The diagram of an electric bell is given.



(a) Which is the electromagnet in it? [1]

(b) What arrangement allows the bell to work continuously? [1]

(c) Can you use steel instead of soft iron core? Why? [2]