Kerala State Board
Class IX Physics
## Sample Paper – 2

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. Write the three equations of motion. [1]

2. Define the term 'Centre of Gravity'. [1]

3. Define (1) Work, and (2) Power. [1]

4. The frequency of a tuning fork is 256 Hz. What is its period? [1]

5. Define 'Critical Angle'. [1]

6. Define a 'Line of Force'. [1]

7. The Earth and the Sun, the Earth and the moon attract each other.
    (a) Define the law of attraction. [1]
    (b) 'The value of $G = 6.67 \times 10^{-11}$ Nm^2/kg^2 in the case of attraction between the Earth and the moon. What is the value of G in the case of the Earth and the Sun? Why? [1]

8. Explain, why is it difficult for a fireman to hold a hose, which ejects large amounts of water at a high velocity? [2]

9. What are factors on which the magnitude of magnetic field, produced by a current carrying conductor depends? [2]

10. A person finds it difficult to read a paper, by keeping it at a distance, with his naked eyes.
    (a) What is the defect of his eye? [1]
    (b) How can it be remedied? [1]

11. In the circuit diagram shown, the two resistance wires A and B are of same length and same material, but A is thicker than B. Which ammeter A_1 or A_2 will indicate higher reading for current? Give reasons for your answer. [2]
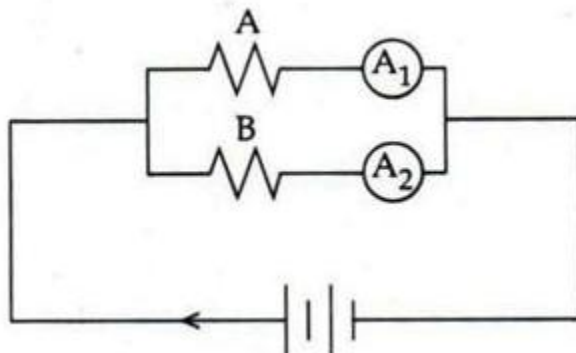
12.

(a) A motor boat starting from rest on a lake accelerates in a straight line at a constant rate of 6 m/s^2 for 6 s. How far does the boat travel during this time? [2]

(b) A ball is thrown vertically upward. What is its momentum at the highest point? [1]

13. Match the following. [3]

A	B
Resistor	
Galvanometer	
Cell	
Rheostat	
Bulb	
Battery	

14.

(a) Connect a solenoid through a switch to a battery. Place a soft iron core inside the solenoid. Keep one end of the core of the solenoid in contact with iron filings. Switch on the current. What do you observe? Then switch off the current. What is your observation? Explain the reasons for what you have observed. [2]

(b) When do you say that the resistance of a wire is 1 ohm? [1]

15. A sound source produces 27 waves in 3 seconds. The distance between a crest and an immediate trough is 12 cm. Find [3]
   (a) Frequency.
   (b) Wavelength.
   (c) Velocity of the wave.

16. The path of a ray of light through different media is given below.

Figure (a)   Figure (b)
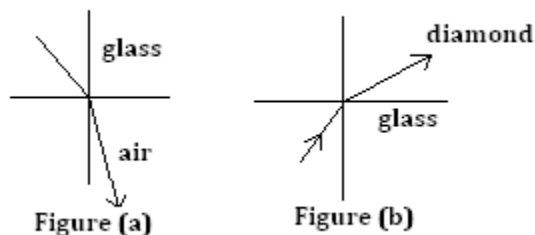
   (a) By observing the figures (a) and (b) check whether the path of the ray is correct. If not, why? [2]
   (b) If the figure is wrong, draw the correct figure. [2]

17. Two resistances of 3 Ω and 6 Ω are to be connected to a battery of 9 V so as to obtain
   i.   Minimum current,
   ii. Maximum current in the circuit.
   (a) How will you connect the resistances to the battery in each case? [2]
   (b) Calculate the total current flowing in the circuit in both cases. [2]

18. Answer 18 I or 18 II.
   I.
   (a) Explain with the help of a diagram, why a pencil partly immersed in water appears to be bent at the water surface. [2]
   (b) What are the conditions required for total internal reflection? [2]

OR

   II.
   (a) Is the motion of the Moon around the Earth uniform or accelerated? Why? [2]
   (b) A force produces an acceleration of 3m/s^2 in a body X and 6 m/s^2 in another body Y. What is the ratio of the mass of X to the mass of Y? [2]