LSF KNOWLEDGEBASE

Name:…………………………………...……… **Index No**…………………………….

232/3   **Candidate's Signature**:………………
PHYSICS
PRACTICAL   **Date**:………………**Class** …………….
PAPER 3

LSF Knowledgebase SERIES

You are provided with
   - A marble with a piece of thread attached.
   - Two wooden blocks
   - A clamp, stand and boss
   - A metre rule
   - Half metre rule attached to a wooden block.
   - 2 pieces of cello-tape
   - A stop watch.

a) Fix the thread between the two wooden blocks and fasten in the clamp. Adjust the thread so that the length L shown in the figure is 50 cm.

b) Fix the metre rule horizontally to the bench using the cello-tape provided.

c) Adjust the clamp so that the marble is next to the end of the metre rule as shown.
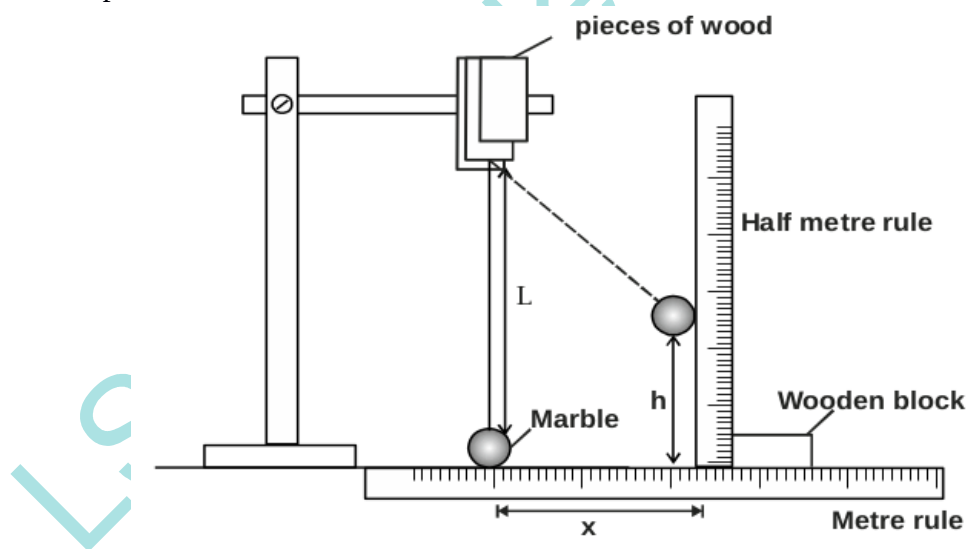
i) Displace the marble by a horizontal distance x = 20cm and measure the corresponding vertical displacement

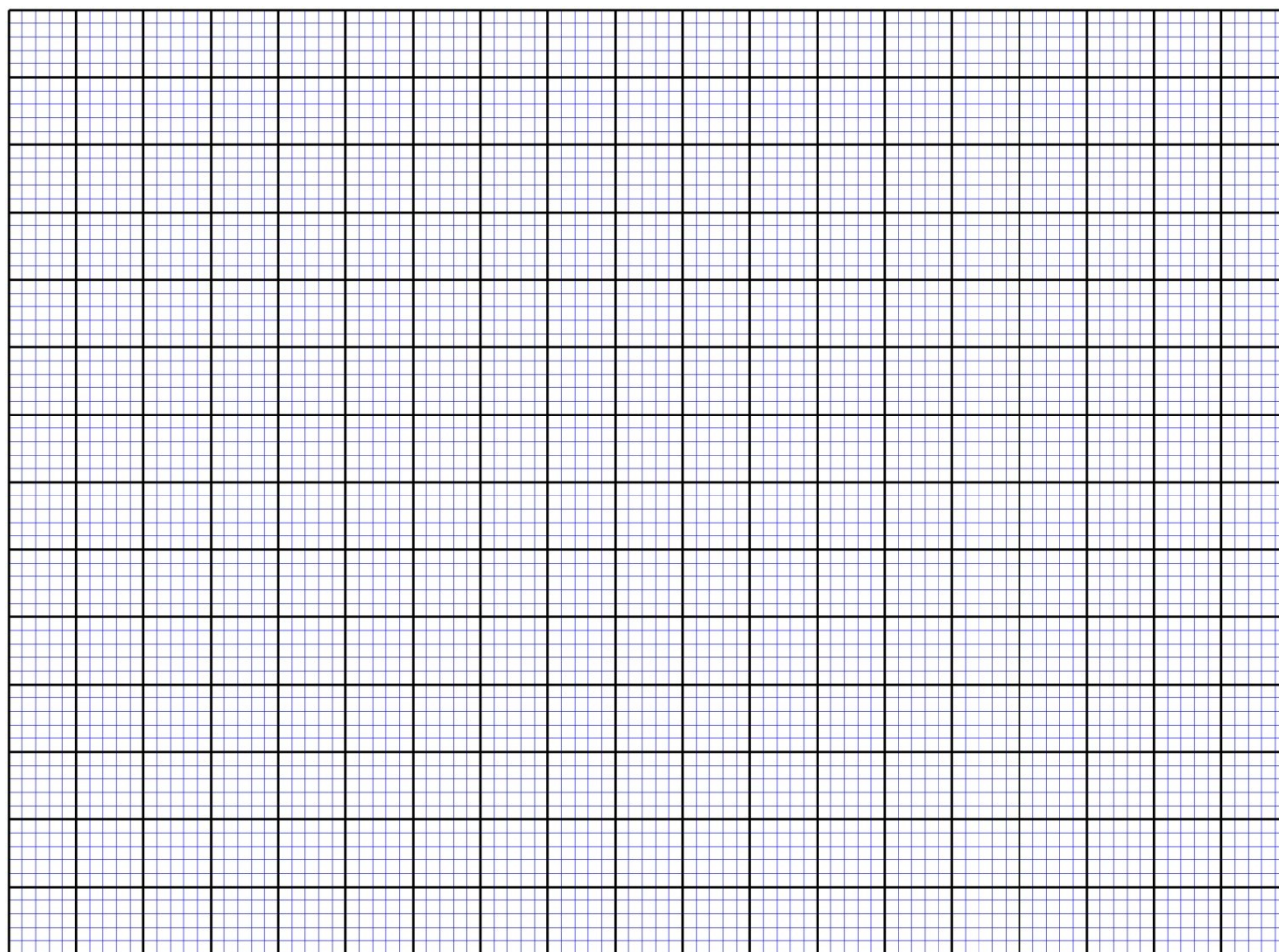   h = ... cm.   (1 mark)

ii) Repeat the experiment to find h for each of the following values of x and complete the table.

x (cm)	h (cm)	x^2 (cm²)	x^2/h (cm)
20			
25			
30			
35			
40			
45			

d) Plot a graph of x^2/h against h starting the x^2/h axis from 50 cm and h axis scale from zero.

Draw the line of best fit through the points. (5 marks)

e) Determine the slope of the graph. (3 marks)

f) From the graph find the value of x^2/h when $h = 0$ (1 mark)

g) Rinse the clamp slightly without changing the length L so that the marble is free to swing. Displace the marble through a horizontal distance of about 10 cm and set it free to swing.

h) Determine the period for one complete oscillation by timing 20 oscillations.

Time for 20 oscillations = ...…… (1 mark)

Period T = ... (1 mark)

i) Calculate the value of P from the following equation $T = 2\pi\sqrt{\dfrac{P}{g}}$ where $g = 10$ N/kg (3 marks)