WAKISSHA JOINT EXAMINATIONS
SCORE GUIDE
End of year Assessment
Senior Three
November 2023
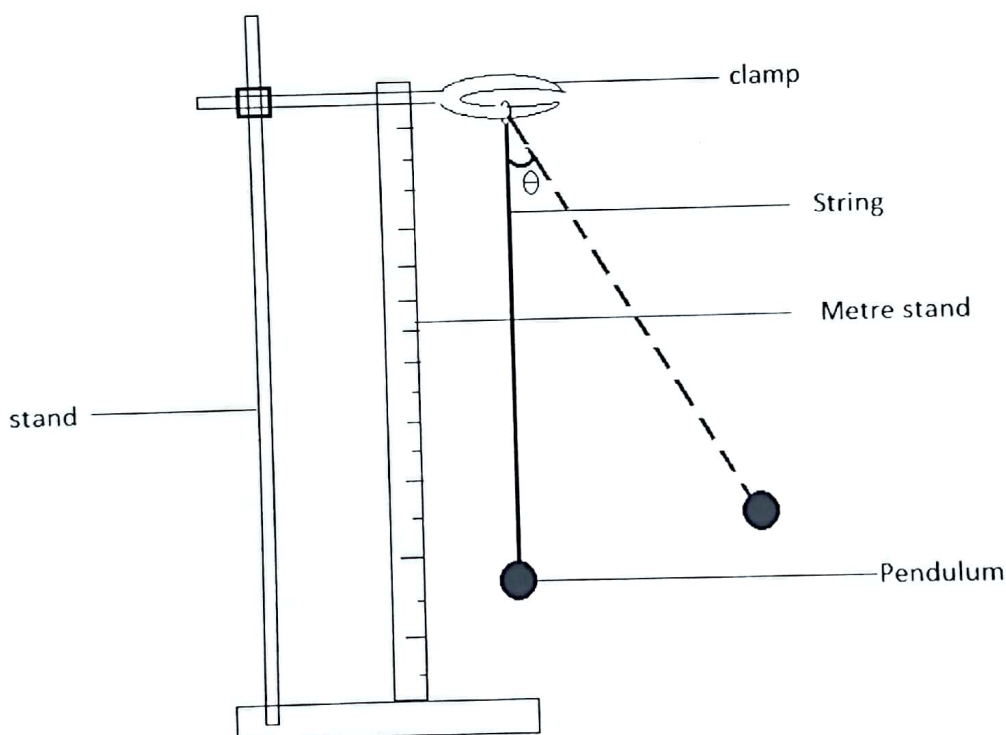### PHYSICS 2

What is needed (The set of apparatus to be used)

- ✓ 1 retort stand
- ✓ 1 piece of thread about 1.100m
- ✓ Pendulum bob
- ✓ Stop clock

> Any 4 correct items @ $\frac{1}{2}$ $mark$ = 2marks

What to do (The steps to be followed)

a. Arrange the apparatus as shown below

> ✓ Correct set up (01 marks)
> ✓ Correct procedure (04marks)
> ✓ Coherent procedure (01 mark)

Labels: clamp, String, Metre stand, stand, Pendulum

b. Attach the pendulum bob to one end of the string
c. Set the length, l, of the string to 1.00m
d. Displace the bob through a small angle as shown.
e. Release the bob and let it oscillate.
f. Determine the time, t, taken by the bob to complete 20 oscillations:
$$t = 38.5s$$

g. Determine the period, T (time for one oscillation).
$$T = \frac{t}{20} = \frac{38.5}{20} = 1.93s$$

h. Repeat procedures (c) to (g) for l= 0.900m, 0.800m, 0.700m. 0.600mand 0.500m.
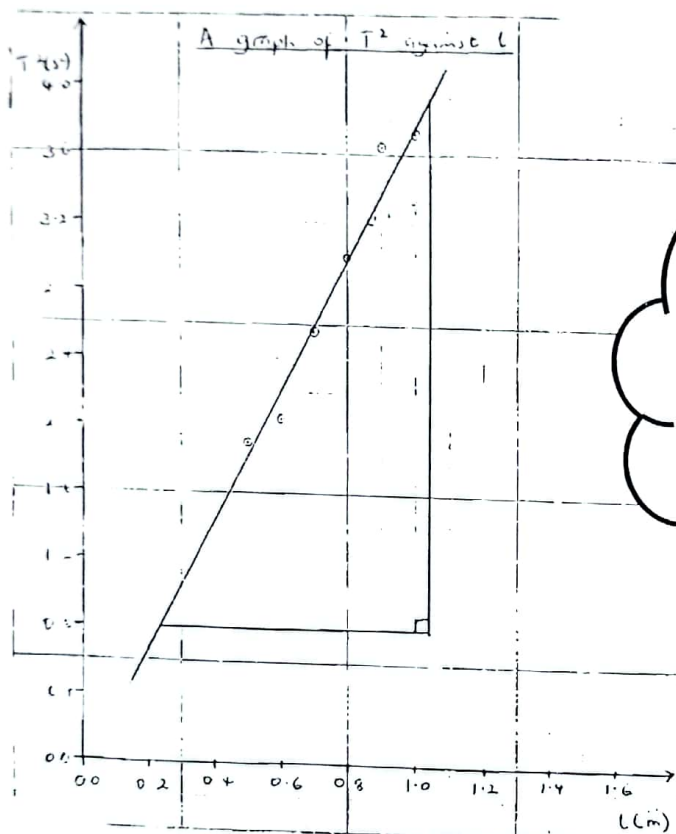
i. Tabulate your results including values of T².

l(m)	t(s)	T(s)	T²(s²)	
1.000	38.5	1.93	3.72	06 marks for values of t
0.900	38.0	1.90	3.61	03 marks for values of T
0.800	34.5	1.73	2.99	03 marks for values of T²
0.700	32.0	1.60	2.56	
0.600	28.5	1.43	2.04	
0.500	27.5	1.38	1.90	

j. Graph of T² against l.

Title ---01 mark

Axes ---01 mark

Plotting ---03 marks

Line of best fit----01 mark

Triangle of slope ----01

k. Determine the slope, s, of the graph.

Award 01 marks for the calculation for the value of g.

$$Slope, s = \frac{Change\ in\ T^2}{Change\ in\ l} = \frac{3.92-0.80}{1.04-0.24} = \frac{3.12}{0.82} = 3.8$$

l. The rate of increase of velocity can then be calculated from:

$$g = \frac{4\pi^2}{s} = \frac{4 \times 3.14}{3.8} = 10.4 ms^{-2}$$

TOTAL MARKS = 30MARKS

NB: Total score =20 (Convert from $\frac{x}{30}$ to a score of $\frac{x}{20}$)

END

Award 02 marks for the calculation of the slope.