

SMJK YUHUA KAJANG
SPM PRACTICAL TRIAL 2014
Form 4

CANDIDATE
NAME

FORM

PHYSICS

4531/3

Paper 3 Practical Test

October 2014
1 Hour

Candidates answer on the question paper

READ THESE INSTRUCTIONS FIRST

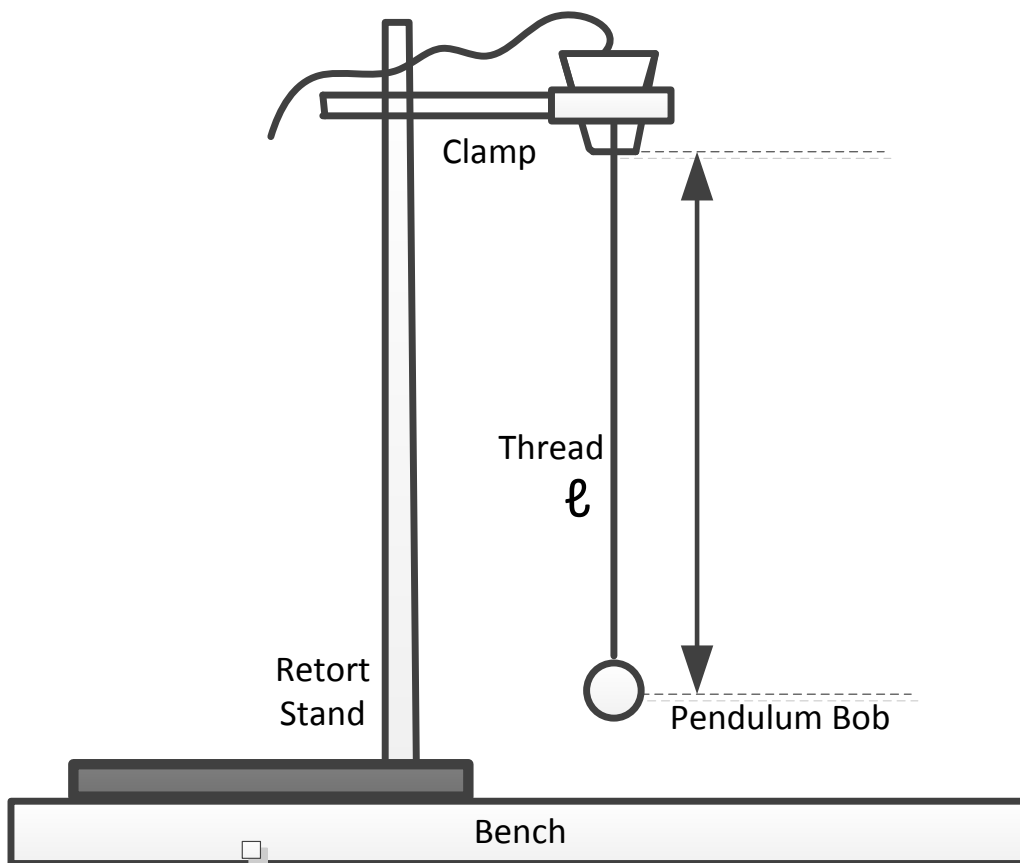
Write your name and form in the space provided at the top of the box
Write in dark blue or black pen
You may use a pencil for any diagrams, graphs or rough working
Do not use staples, paper clips, highlighter, glue or correction fluid
Vernier caliper will be shared.

Answer all the question

1. In this experiment, you will investigate a pendulum

Carry out the following instructions, referring to Fig 1.1. The apparatus has been prepared for you. Check that you have

- a. A retort stand with clamps
- b. A cork
- c. String
- d. Meter Ruler
- e. Stop watch
- f. Pendulum Bob with a hook
- g. Vernier caliper (to share)



(a) Measure exactly $l = 45.0$ cm.

Measure the diameter of pendulum bob using a Vernier caliper or other means

Diameter =

[2]

- (b) Place the meter rule on the bench so that the 50.0 cm marker is vertically below the centre of the pendulum bob. Describe how you judge that the 50.0 cm mark is vertically below the centre of the pendulum bob. You may draw a diagram to justify your answer

.....

[2]

- (c) (i) Pull the pendulum bob to one side until it is vertically above the 52.0 cm mark on the rule. Release the pendulum bob, then measure and record in Table 1.1 the time t taken for 10 complete swings of the pendulum. The distance d that the pendulum bob was moved is recorded in the first column of the table.
- (ii) Calculate the period T of the pendulum. The period T is the time taken for one complete swing of the pendulum.

Table 1.1

d /	t /	T /
2.0		
3.0		
4.0		
5.0		
6.0		

- (iii) Repeat steps c (i) and (ii) using d values of 3.0 cm, 4.0 cm, 5.0 cm and 6.0 cm.
 (iv) Complete the column headings in the table with suitable units. [10]

- (d) Using the evidence in the table, describe the effect on the period T of increasing the distance d . Justify your answer by reference to your results

Description

.....

 [2]

Justification:

.....

 [2]

(e) Explain briefly why it is sensible to measure the time taken for ten swings of the pendulum rather than one.

.....

 [2]

(f) Now perform the last part of the experiment with $d=15$ cm and $d = 20$ cm. Measure and record the values in table 1.2

Table 1.2

$d / \dots\dots\dots$	$t / \dots\dots\dots$	$T / \dots\dots\dots$
15.0		
20.0		

[6]

(g) Compare the results in table 1.1 and 1.2. Explain what is the effect of displacing the pendulum too far away to measure the period of the pendulum?

.....
.....
.....[3]

(h) What additional observation can you make regarding the motion of the pendulum when the amplitude of oscillation is very large?

.....
.....
..... [3]

[Total = 32]

THE END