

FOCUS A365

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FORM 3 TERM 1 PHYSICS PP3 EXAMINATIONS 2018

NAME: _____ ADM NO: _____ CLASS: _____

INSTRUCTIONS TO CANDIDATES

1. Write your name and admission number in the spaces provided.
2. Answer all questions in the spaces provided.
3. All working must be clearly shown where necessary.
4. Non-programmable silent electronic calculators may be used.
5. Candidates should check the question paper to ascertain that all pages are printed as indicated and that no question is missing.

Question	Candidate's score	Max. Score
1		20
2		20
Total		40

This paper consists of 5 printed pages

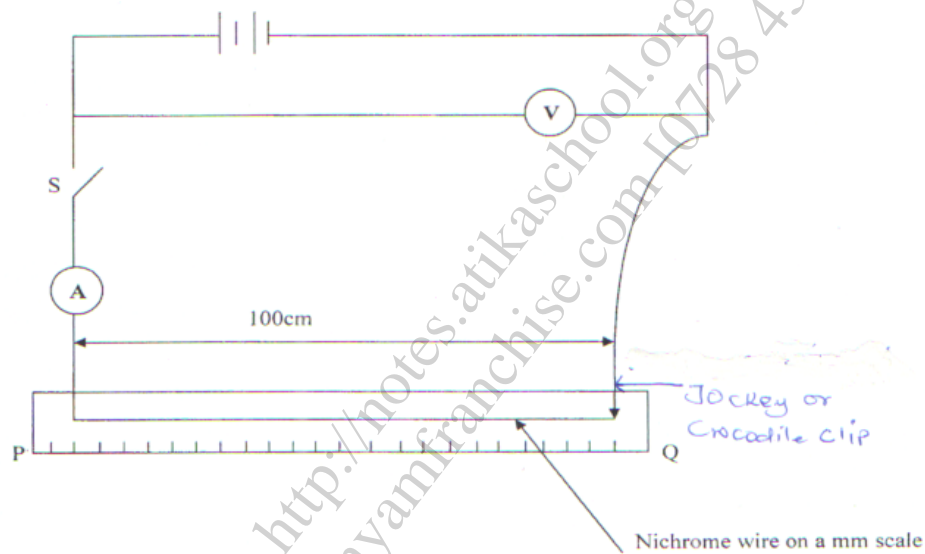
Question one

You are provided with the following:

- Two new dry cells (1.5V each-size D)
- A nichrome wire mounted on a mm scale labeled PQ (SWG 32)
- Ammeter (0-1.0A or 0-2.5A)
- Cell holders(s)
- A switch
- A voltmeter (0-5V or 0-3.0V)
- 8 connecting wires, with at least 4 with crocodile clips
- A jockey (a crocodile clip may be used)

Proceed as follows:

a) Connect the circuit as shown below



b) With the switch open, measure the e.m.f (E) of the two cells. (1mark)

E=.....V

c) With the length PQ being a 100cm, close the switch and record the ammeter and voltmeter reading.

current = _____ A (1 mark)
P.D = _____ V (1 mark)

d) Repeat with values of PQ of 70cm, 60cm, 50cm, 40cm, and 20cm. Complete the table below (6mks)

Length PQ (cm)	100	70	60	50	40	20
Ammeter reading I (A)						
Voltmeter reading V (V)						
(E-V)						

e) Plot the graph of (E-V) y-axis against Current I (5mks)

f) Determine the slope of the graph (3mks)

g) Given that the graph is governed by the equation $E = V + Ir$, determine the value of (r) and state its significance. (3mks)

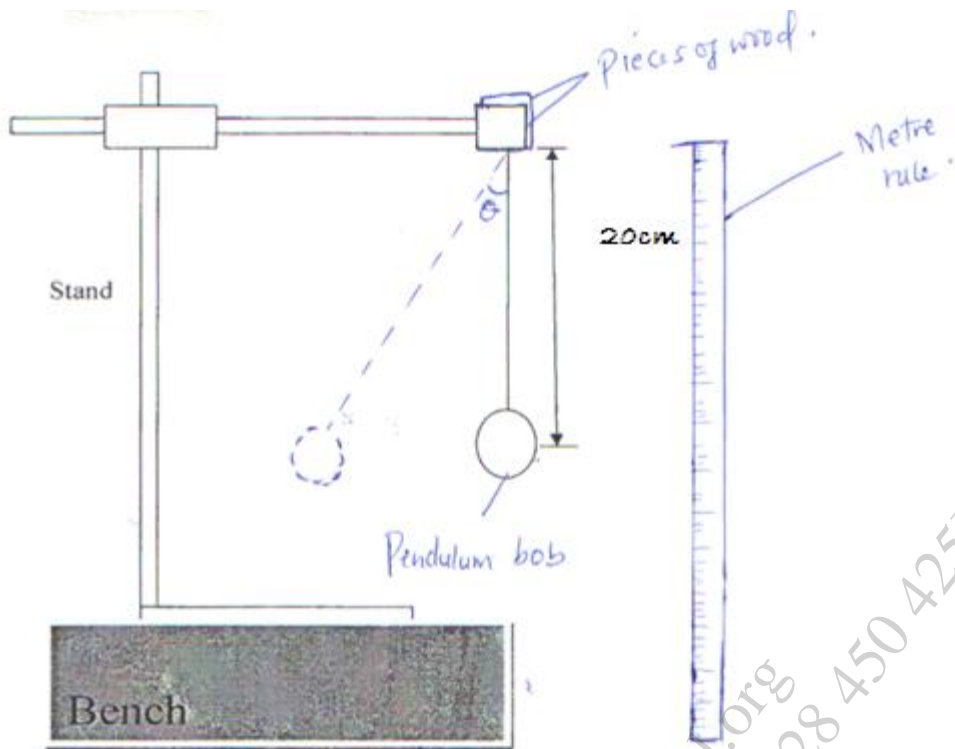
Question two

You are provided with the following:

- A stop watch
- A meter rule
- A 100cm long piece of thread
- A retort stand, clamp and boss
- Two small pieces of wood (wooden claps)
- A pendulum bob

Proceed as follows:

- a) Using the thread provided tie the pendulum bob.
- b) With the support of the two pieces of wood, clamp the thread so that the length of the pendulum to the center of the bob is 20cm or 0.2m i.e. as shown below.



c) Displace the pendulum bob slightly for it to swing through an angle of about 10° ($\theta \leq 10^\circ$) and record the time t for 20 oscillations.

• Time for 20 oscillations $t = \dots\dots\dots$ (s) (1mk)

• Periodic time T ($t/20$) = $\dots\dots\dots$ (s) (1mk)

d) Repeat the experiment with different values of (l) and complete the table below (7mks)

Length (l) of pendulum (m)	Time (t) for 20 Oscillations (s)	Period T (s)= t/20	Square of period. T^2 (s ²)
0.2			
0.3			
0.4			
0.5			
0.6			
0.7			
0.8			

f). Plot a graph of T^2 (s²) against length l (m) (5mks)

g). Determine the slope of the graph (3mks)

h). Given that the following relation is obeyed $T^2 = \frac{4\pi^2}{g} l$ where l is the length of the pendulum.

- Determine the value of g and state its significance (3mks)

This is the last printed page.