

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

15 MAY 2017 (p.m.)



M1701238032

FILL IN ALL THE INFORMATION REQUESTED CLEARLY IN CAPITAL LETTERS.

TEST CODE

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SUBJECT PHYSICS – Paper 032

PROFICIENCY GENERAL

REGISTRATION NUMBER

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SCHOOL/CENTRE NUMBER

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NAME OF SCHOOL/CENTRE

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CANDIDATE'S FULL NAME (FIRST, MIDDLE, LAST)

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DATE OF BIRTH

D	D	M	M	Y	Y	Y	Y
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SIGNATURE _____



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CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

PHYSICS

Paper 032 – General Proficiency

Alternative to SBA

2 hours 10 minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of THREE questions. Answer ALL questions.
2. Write your answers in the spaces provided in this booklet.
3. Do NOT write in the margins.
4. Where appropriate, ALL WORKING MUST BE SHOWN in this booklet.
5. You may use a silent, non-programmable calculator to answer questions, but you should note that the use of an inappropriate number of figures in answers will be penalized.
6. Mathematical tables are provided.
7. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**
8. **If you use the extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.



Answer ALL questions.

1. You are required to set up and measure current and potential difference in a circuit.
- (a) Using the apparatus provided, set up the circuit as shown in Figure 1.

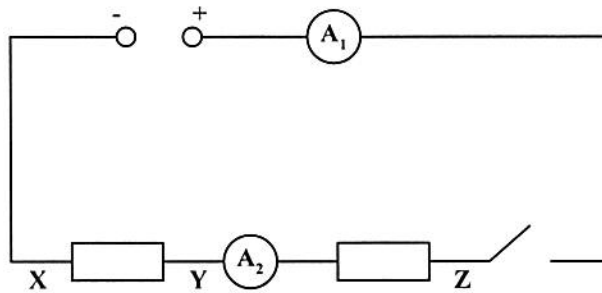


Figure 1

Close the switch and record the readings on the ammeters.

A_1 reads

A_2 reads (5 marks)

- (b) Connect a voltmeter in turn across XY, YZ and XZ. Record the readings.

V_{XY} reads

V_{YZ} reads

V_{XZ} reads (6 marks)

- (c) State THREE precautions that were taken.

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..... (3 marks)



- (d) What conclusions can be made concerning the current and voltage readings obtained in a series circuit?

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(2 marks)

- (e) Use the readings obtained to determine the **total** resistance in the circuit.

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(3 marks)



(f) A student proposed to add another resistor R, to the circuit as shown in Figure 2.

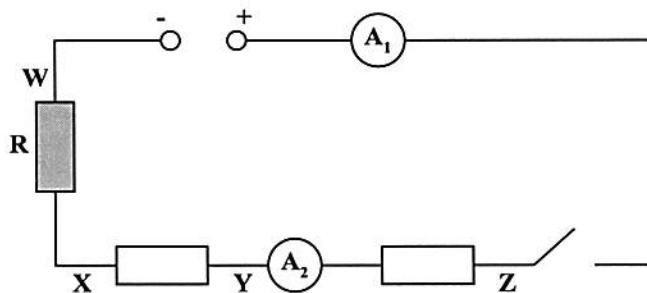


Figure 2

What would be the effect on

(i) the total current in the circuit

.....

(ii) the voltage across WZ, when compared to the value of V_{XZ} obtained in Part (b) on page 4?

.....

(2 marks)

Total 21 marks



NOTHING HAS BEEN OMITTED.



2. Students carrying out an experiment to demonstrate a random process, such as radioactive decay, used a large number of dice to represent unstable atoms. The dice were tossed repeatedly, with those showing six discarded after each throw.

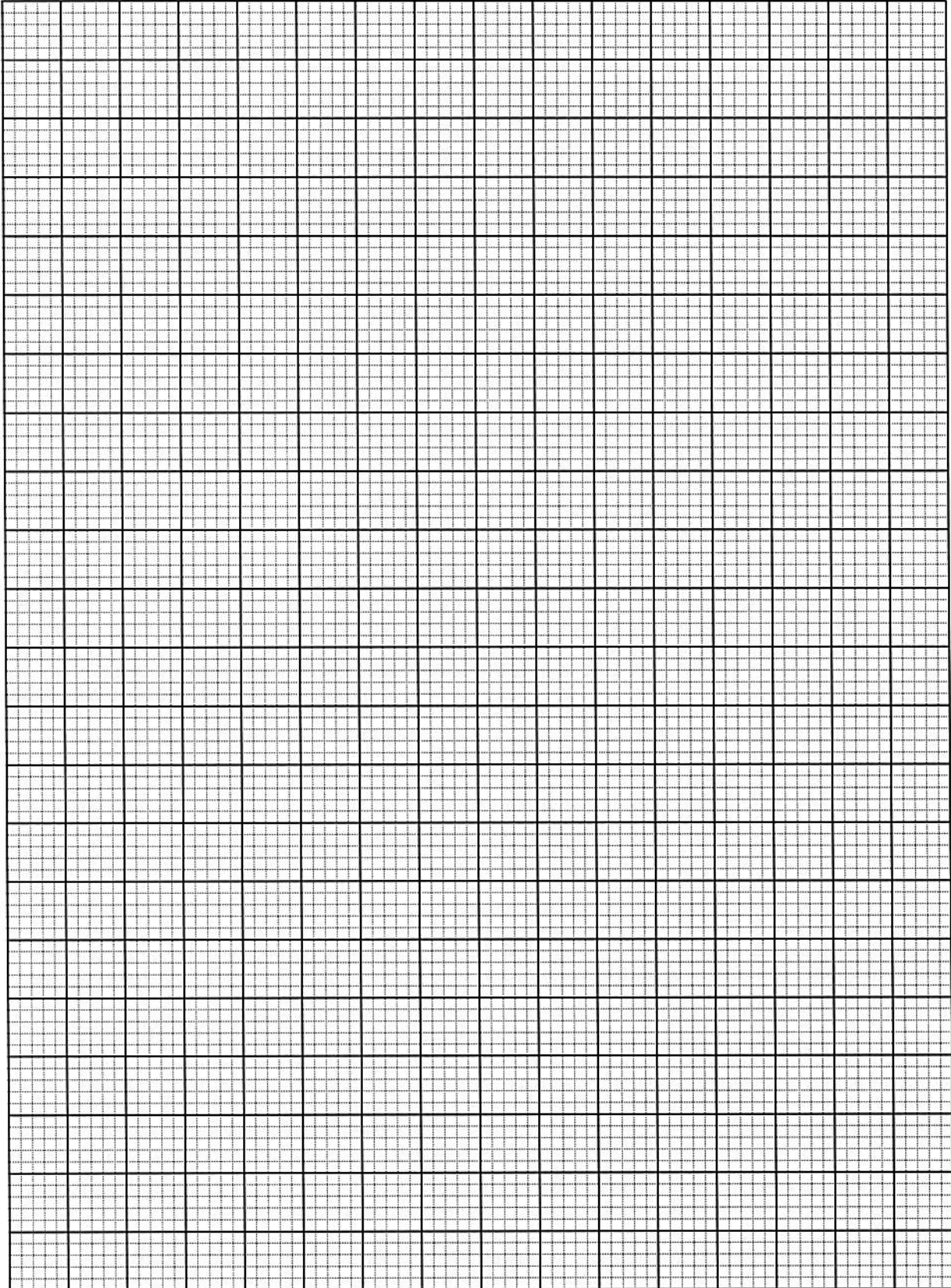
Their results are shown in Table 1.

TABLE 1

Throw	Dice Discarded	Dice Remaining
0	0	80
1	12	68
2	11	57
3	6	51
4		44
5		38
6		31
7		25
8		21
9		16
10		15
11		12
12		10
13		8
14	2	6

- (a) Complete Table 1 by inserting the number of dice discarded for throws 4 to 13. (2 marks)
- (b) Using the data in Table 1, plot a graph of ‘Dice remaining’ versus ‘Throw’ on the grid provided on page 9. (10 marks)





(c) Use the graph to determine an average value for the half-life of the process.

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(5 marks)

Total 17 marks



3. Plan and design an experiment to verify Archimedes' principle.

In your design include:

(a) Apparatus used

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(3 marks)

(b) An outline of the method

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(4 marks)



(c) An explanation of the manipulation of data

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(3 marks)

Total 10 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

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CANDIDATE'S RECEIPT

INSTRUCTIONS TO CANDIDATE:

- 1. Fill in all the information requested clearly in capital letters.**

TEST CODE:

0	1	2	3	8	0	3	2
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SUBJECT: PHYSICS – Paper 032

PROFICIENCY: GENERAL

REGISTRATION NUMBER:

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FULL NAME: _____
(BLOCK LETTERS)

Signature: _____

Date: _____

- 2. Ensure that this slip is detached by the Supervisor or Invigilator and given to you when you hand in this booklet.**
- 3. Keep it in a safe place until you have received your results.**

INSTRUCTION TO SUPERVISOR/INVIGILATOR:

Sign the declaration below, detach this slip and hand it to the candidate as his/her receipt for this booklet collected by you.

I hereby acknowledge receipt of the candidate's booklet for the examination stated above.

Signature: _____
Supervisor/Invigilator

Date: _____



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