O-Level Physics

Paper 1

Unsolved Topical

Past Papers With Marking Scheme

According to New Syllabus (2023-2025)

2014-2021

PREFACE

Excellence in learning cannot be claimed without application of concepts in a dexterous way. In this regard one of the logical approach is to start in chunks; like chapter wise learning and applying the concept on exam based questions.

This booklet provides an opportunity to candidates to practice topic wise questions from previous years to the latest. Extensive working of Team MS Books has tried to take this booklet to perfection by collaborating with top of the line teachers.

We have added answer key / marks scheme at the end of each topic for the candidate to compare the his/her answer to the best.

MS Books strives to maintain actual spacing between consecutive questions and within options as per CAIE format which gives students a more realistic feel of attempting question.

Review, feedback and contribution in this booklet by various competent teachers of a subject belonging to renowned school chains make it most valuable resource and tool for both teachers and students.
With all belief in strength of this resource material I can confidently claim that it is worth in achieving brilliance.

Our sincere thanks and gratification to **Mr.Mirza Irshad Baig** who took out special time to help compile and manage this booklet. We would also like to appreciate physics faculty for reviewing and indorsing it.

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PAPER 1

CONTENT TABLE

Physical Quantities and Measurement

Q1/11/M/J/14

1 A workman measures, as **accurately** as possible, the length and internal diameter of a straight copper pipe.
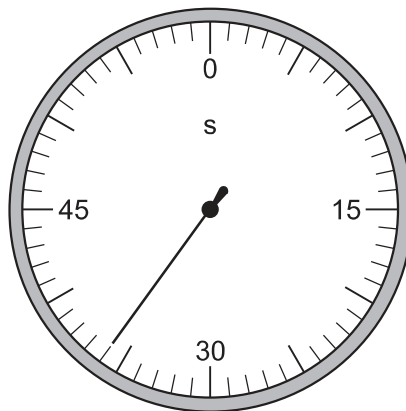
The length is approximately 600 cm and the internal diameter is approximately 2 cm.

What is the best combination of instruments for the workman to use?

	internal diameter	length
A	ruler	ruler
B	ruler	tape
C	vernier calipers	ruler
D	vernier calipers	tape

Q2/11/M/J/14

2 The diagram shows a stopwatch.

What is the reading on the stopwatch?

A 30.6 s **B** 33.0 s **C** 36.0 s **D** 36.6 s

Q1/12/M/J/14

3 Each row contains a vector and a scalar.

In which row is the size of the vector equal to the size of the scalar?

	vector	scalar
A	displacement of a car	speed of the car
B	velocity of a car	distance travelled by the car
C	velocity of a car	speed of the car
D	weight of a car	mass of the car
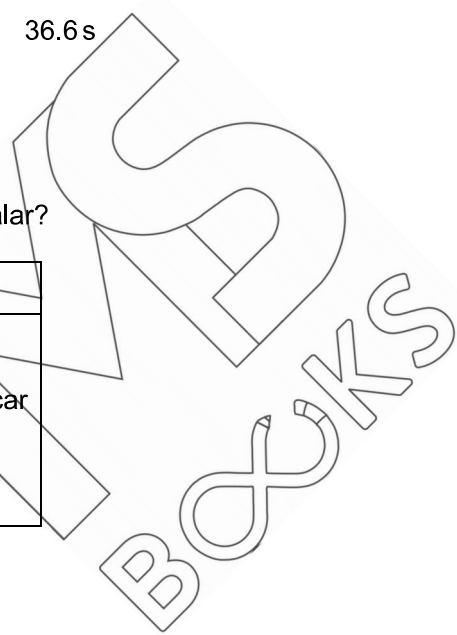
4 A student measures, as **accurately** as possible, the length and internal diameter of a straight glass tube.

The length is approximately 25 cm and the internal diameter is approximately 2 cm.

What is the best combination of instruments for the student to use?

	internal diameter	length
A	ruler	micrometer
B	ruler	ruler
C	vernier calipers	micrometer
D	vernier calipers	ruler

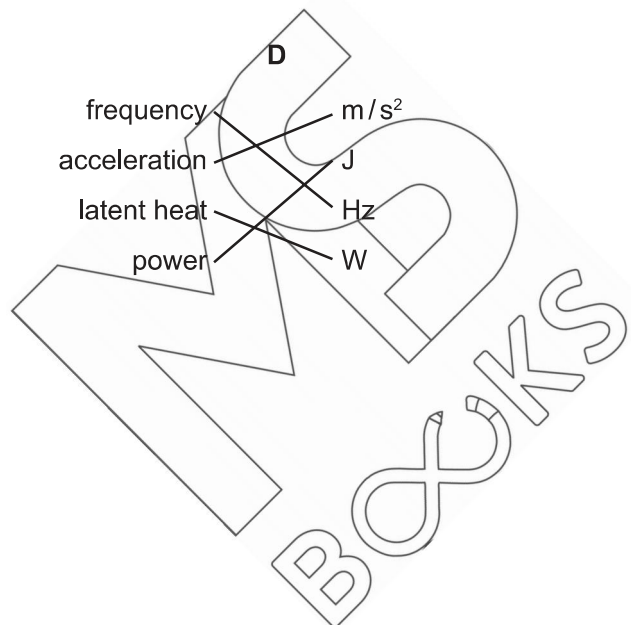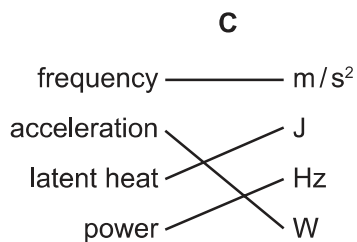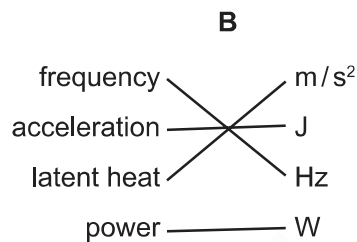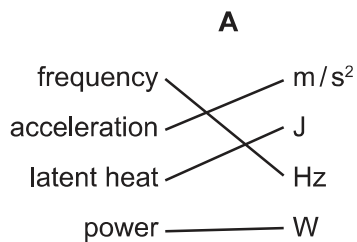**5** Which device can be used to measure the thickness of a single sheet of paper?

A a metre rule

B a micrometer
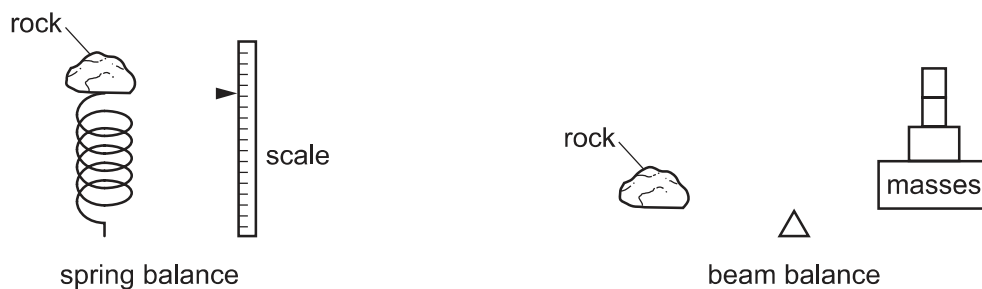
C a plastic ruler

D a measuring tape

6 In a test, four students linked the quantities on the left with their units on the right.

Which student matched them all correctly?

Q6/11/O/N/14

7   A scientist places a rock on a spring balance. She then places the same rock on a beam balance.

At the North Pole, the gravitational field strength is greater than at the Equator.

She performs the experiment at the North Pole and at the Equator.

How do the readings at the North Pole compare with those at the Equator?

	scale reading on spring balance	masses needed on beam balance
A	different at North Pole	different at North Pole
B	different at North Pole	same at North Pole
C	same at North Pole	different at North Pole
D	same at North Pole	same at North Pole

Q1/11/M/J/15

8   Is mass a scalar or a vector, and is acceleration a scalar or a vector?

	mass	acceleration
A	scalar	scalar
B	scalar	vector
C	vector	scalar
D	vector	vector

Q2/11/M/J/15

9   The diameter and the length of a thin wire, approximately 50 cm in length, are measured as precisely as possible.

What are the best instruments to use?

	diameter	length
A	micrometer	rule
B	micrometer	vernier calipers
C	rule	tape
D	vernier calipers	rule
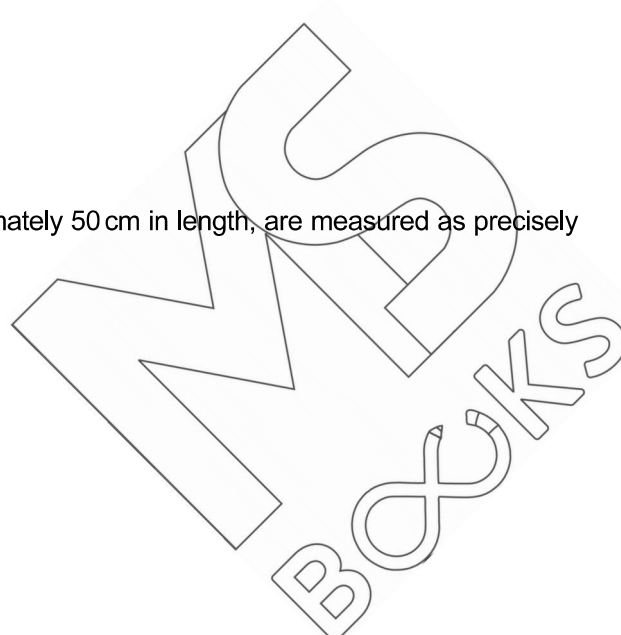
Q1/12/M/J/15

10 Which quantity is a scalar?

A acceleration   **B** force   **C** temperature   **D** velocity

Q2/12/M/J/15

11 The diameter and the length of a thin wire, approximately 50 cm in length, are measured as precisely as possible.

What are the best instruments to use?

	diameter	length
A	micrometer	rule
B	micrometer	vernier calipers
C	rule	tape
D	vernier calipers	rule

Q1/11/O/N/15

12 During an experiment to find the density of a stone, the stone is lowered into a measuring cylinder partly filled with water.
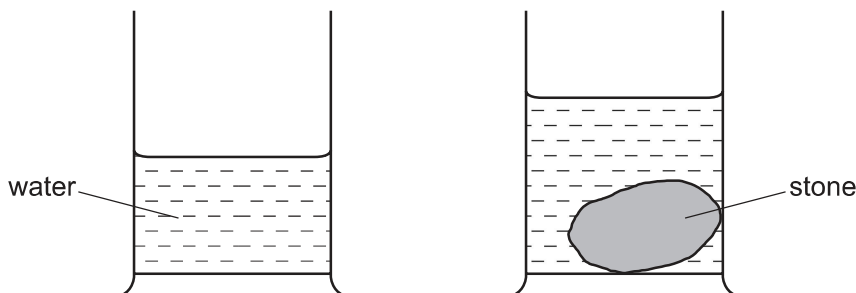
Which statement is correct?

A The difference between the readings gives the density of the stone.

B The difference between the readings gives the volume of the stone.

C The final reading gives the density of the stone.

D The final reading gives the volume of the stone.

Q2/11/O/N/15

13 The diagram shows a micrometer scale.
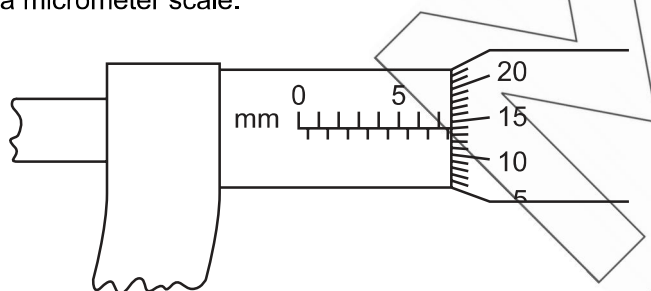
Which reading is shown?

A 5.64 mm   **B** 7.14 mm   **C** 7.16 mm   **D** 7.64 mm

Q1/12/O/N/15

14 Which is a scalar quantity?

A mass   **B** force   **C** velocity   **D** weight

Q2/11/M/J/16

15 Which set of quantities are all vectors?

A acceleration, displacement, velocity
B chemical energy, mass, power
C extension, force, gravitational potential energy
D weight, kinetic energy, work

Q3/11/M/J/16

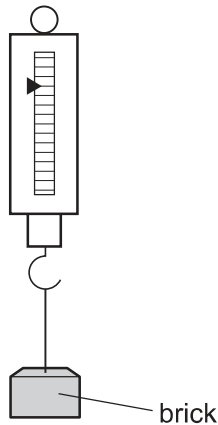**16** A student determines the circumference of a golf ball.

Which instrument gives a reading that is the circumference of the golf ball?

A calipers   **B** micrometer   **C** rule   **D** tape

Q7/11/M/J/16

17 A brick is placed on a newton meter and then on a beam balance.

newton meter   beam balance

brick   brick
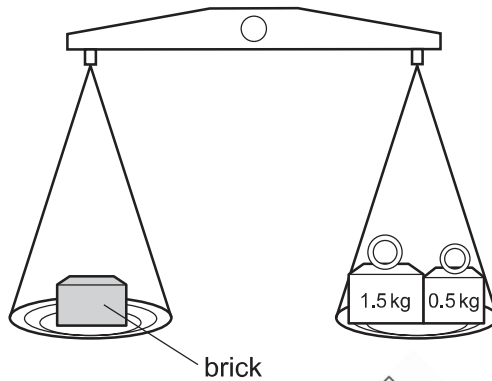
What is measured by each instrument?

	newton meter	beam balance
A	mass	mass
B	mass	weight
C	weight	mass
D	weight	weight

Q7/12/M/J/16

18 Which quantity is a vector?

A energy   **B** force   **C** speed   **D** time
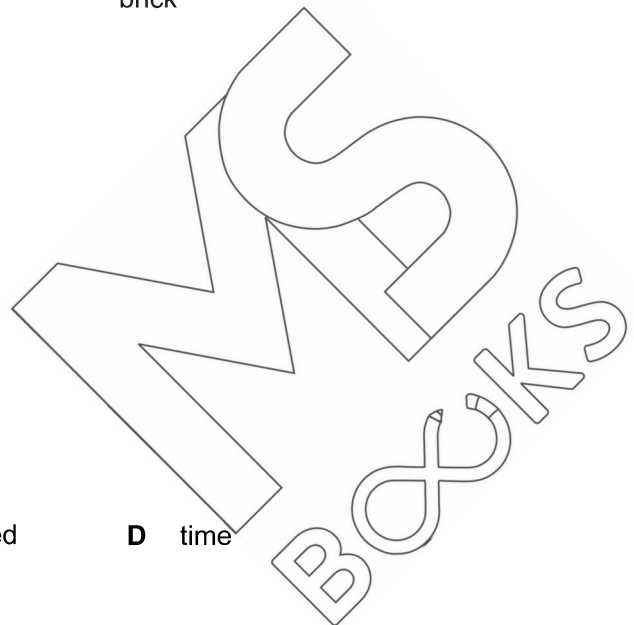
Q1/11/O/N/16

19 A length of copper wire is labelled 'length 30 m' and 'diameter 0.50 mm'.

Which instruments are most suitable to measure accurately the length and the diameter of the wire?

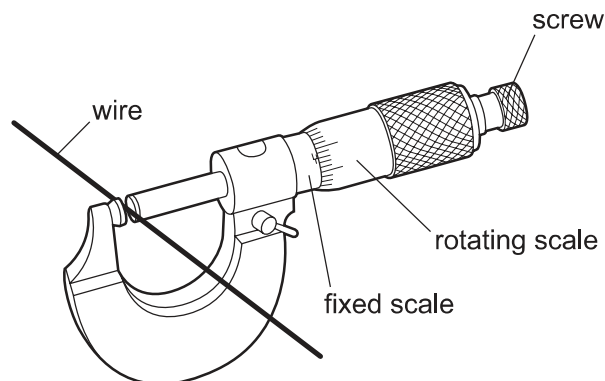|	length	diameter
A	rule	calipers
B	rule	micrometer
C	tape	calipers
D	tape	micrometer

Q1/11/M/J/17 ,Q3/12/M/J/17

20

What is done to obtain an accurate answer?

A Make the micrometer horizontal and then use the scales to find the reading.

B Subtract the fixed-scale reading from the rotating-scale reading.

C Subtract the rotating-scale reading from the fixed-scale reading.

D Use the scales to find the reading and add or subtract any zero error.

Q2/11/M/J/17

21 A car's <u>acceleration</u> and maximum <u>speed</u> are improved by using an engine of smaller <u>mass</u> and greater driving <u>force</u>.

How many of the underlined quantities are vectors?

A 1   **B** 2   **C** 3   **D** 4

Q1/12/M/J/17

22 A car accelerates at $5.0 \, m/s^2$ along a straight, horizontal road and reaches a velocity of 20 m/s in a time of 4.0 s.

During this time, its total displacement is 40 m.

Which quantity is a scalar?

A a displacement of 40 m   **C** a velocity of 20 m/s

B a time of 4.0 s   **D** an acceleration of $5.0 \, m/s^2$

ANSWER KEYS

Qs #	Key	Qs #	Key	Qs #	Key
1	D	21	B	41	A
2	C	22	B	42	B
3	C	23	B	43	A
4	D	24	C	44	C
5	B	25	C	45	D
6	A	26	A	46	D
7	B	27	B	47	B
8	B	28	A		
9	A	29	D		
10	C	30	C		
11	A	3 1	B		
12	B	32	C		
13	D	33	B		
14	A	34	C		
15	A	35	D		
16	D	36	B		
17	C	37	B		
18	B	38	D		
19	D	39	A		
20	D	40	C		