**Title**

# O-Leve Topical Physics

## (PAPER-1)

MCQ's

(2018-2025)

Updated Syllabus (2025-2026-2027)


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# PREFACE

**IN THE NAME OF ALLAH, MOST GRACIOUS AND MOST MERCIFUL.**

Excellence is not an art. It is the habit of practice. In this regard the concepts learnt can only be assessed when questions are answered. The perfect logical approach to this is to take one step at a time.

Chapter wise learning and its application on exam-based questions provides exclusive comprehension. This booklet is the perfect resource for the practice of complete Physics O'Level Updated syllabus (2025-2026-2027). This compilation has been refined by experts who have tried to make this book error free.

The book has been edited and checked to remove possible mistakes. However, constructive criticism is welcome. You may call us for your productive feedback and suggestions at this No. (0332-6682372) . This book is recommended by all renowned Physics teachers who contributed to make it effective and fruitful.

**This book provides:**

- This book contains 6 chapters and these 6 chapters are combination of 54 sub topics with reference selected from last 8 years past papers. The questions have been taken from all variants session.
- Knowledge with understanding.
- Handling information and solving problems or Experimental skills and investigation.
- Sorted/separated questions or parts of questions, placed in related classified topics.
- Questions in order from the early years to most recent years.
- Answering Key/ Mark Scheme at the end of each topic.
- Actual spacing between consecutive questions and within options as per CAIE format which gives students a genuine feel of attempting questions. In addition to all this; review, feedback and contribution in this booklet by various experienced teachers of the subject belonging to popular school chains makes it a treasured resource for both the teachers and the students.

**Team Coordinator**

in case of any suggestion for improvement Team Head can be contacted at

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# Quality Policy

- Customer satisfaction is our priority and achieve this goal we will always, work as a team.
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- Every employee will influence to contribute towards
- Quality improvement to sustain through ideas and innovation.

- گاہک کا اطمینان ہماری اولین ترجیح ہے۔
- اپنے مقصد کے حصول کیلئے ہم ہمیشہ بحیثیت ایک ٹیم کام کرتے ہیں۔
- گاہک کی ضروریات اور ماحولیاتی حالات اور احتیاطی تدابیر کہ مدنظر رکھتے ہوئے معیاری اشیاء فراہم کرتے ہیں۔
- ہر فرد اپنے خیالات اور تخلیقات کے ذریعے بہتر کوالٹی اور اس کو برقرار رکھنے کیلئے موثر کردار ادا کرتا ہے۔

CONTENTS



# 1. Motion, Force and Energy


| No. | Topics | Page # |
|---|---|---|
| 1.1 | **Physical Quantities & Measurement Techniques** | 01 |
| | Mark Scheme | 15 |
| 1.2 | **Motion** | 16 |
| | Mark Scheme | 40 |
| 1.3 | **Mass and Weight** | 41 |
| | Mark Scheme | 52 |
| 1.4 | **Density** | 53 |
| | Mark Scheme | 64 |
| 1.5 | **Forces** | 65 |
| | Mark Scheme | 79 |
| 1.5.1 | **Balance and Unbalanced Forces** | 80 |
| | Mark Scheme | 96 |
| 1.5.2 | **Friction** | 97 |
| | Mark Scheme | 101 |
| 1.5.3 | **Elastic Deformation** | 102 |
| | Mark Scheme | 113 |
| 1.5.4 | **Circular Motion** | 114 |
| | Mark Scheme | 119 |
| 1.5.5 | **Turning Effect of Force** | 120 |
| | Mark Scheme | 134 |
| 1.5.6 | **Center of Gravity** | 135 |
| | Mark Scheme | 141 |
| 1.6 | **Momentum** | 142 |
| | Mark Scheme | 149 |
| 1.7 | **Energy, Work and Power** | 150 |
| | Mark Scheme | 163 |
| 1.7.1 | **Energy** | 164 |
| | Mark Scheme | 170 |
| 1.7.2 | **Work** | 171 |
| | Mark Scheme | 175 |
| 1.7.3 | **Energy Resources** | 176 |
| | Mark Scheme | 179 |

| No. | Topics | Page # |
|---|---|---|
| 1.7.4 | **Efficiency** | 180 |
| | Mark Scheme | 184 |
| 1.7.5 | **Power** | 185 |
| | Mark Scheme | 188 |
| 1.8 | **Pressure** | 189 |
| | Mark Scheme | 211 |


## 2. Thermal Physics


| | | |
|---|---|---|
| 2.1 | **Kinetic Particle Model of Matter** | 212 |
| | Mark Scheme | 220 |
| 2.1.1 | **States of Matter** | 221 |
| | Mark Scheme | 230 |
| 2.1.2 | **Particle Model** | 231 |
| | Mark Scheme | 240 |
| 2.2 | **Thermal Properties and Temperature** | 241 |
| | Mark Scheme | 264 |
| 2.3 | **Transfer of Thermal Energy** | 265 |
| | Mark Scheme | 282 |


## 3. Waves


| | | |
|---|---|---|
| 3 | **Waves** | 283 |
| | Mark Scheme | 284 |
| 3.1 | **General Properties of Waves** | 285 |
| | Mark Scheme | 292 |
| 3.2 | **Light** | 293 |
| | Mark Scheme | 317 |
| 3.2.1 | **Reflection of Light** | 318 |
| | Mark Scheme | 326 |
| 3.2.2 | **Refraction of Light** | 327 |
| | Mark Scheme | 336 |
| 3.2.3 | **Thin Lenses** | 337 |
| | Mark Scheme | 347 |

| No. | Topics | Page # |
|---|---|---|
| 3.2.4 | **Dispersion of Light** | 348 |
| | Mark Scheme | 352 |
| 3.3 | **Electromagnetic Spectrum** | 353 |
| | Mark Scheme | 358 |
| 3.4 | **Sound** | 359 |
| | Mark Scheme | 375 |


## 4. Electricity and Magnetism


| | | |
|---|---|---|
| 4.1 | **Simple Magnetism and Magnetic Fields** | 376 |
| | Mark Scheme | 390 |
| 4.2 | **Electrical Quantities** | 391 |
| | Mark Scheme | 399 |
| 4.2.1 | **Electrical Charge** | 400 |
| | Mark Scheme | 406 |
| 4.2.3 | **Electromotive Force and Potential Difference** | 407 |
| | Mark Scheme | 413 |
| 4.3 | **Electric Circuits** | 414 |
| | Mark Scheme | 457 |
| 4.4 | **Practical Electricity** | 458 |
| | Mark Scheme | 468 |
| 4.5 | **Electromagnetic Effect** | 469 |
| | Mark Scheme | 492 |
| 4.5.1 | **Electromagnetic Induction** | 493 |
| | Mark Scheme | 498 |
| 4.5.2 | **The A.C Generator** | 499 |
| | Mark Scheme | 500 |
| 4.5.4 | **Force on a Current-Carrying Conductor** | 501 |
| | Mark Scheme | 504 |
| 4.5.5 | **The D.C Motor** | 505 |
| | Mark Scheme | 506 |
| 4.5.6 | **The Transformer** | 507 |
| | Mark Scheme | 518 |
| 4.6 | **Use of an Oscilloscope** | 519 |
| | Mark Scheme | 532 |

CONTENTS




| No. | Topics | Page # |
|---|---|---|
| **5. Nuclear Physics** | | |
| 5 | **The Nuclear Physics** | 533 |
| | Mark Scheme | 545 |
| 5.1 | **The Nuclear Model of the Atoms** | 546 |
| | Mark Scheme | 552 |
| 5.2 | **Radioactivity** | 553 |
| | Mark Scheme | 568 |
| **6. Space Physics** | | |
| 6 | **Space Physics** | 569 |
| | Mark Scheme | 572 |
| 6.1.1 | **The Earth** | 573 |
| | Mark Scheme | 575 |
| 6.2.1 | **The Sun as a Star** | 576 |
| | Mark Scheme | 577 |
| 6.2.2 | **Stars** | 578 |
| | Mark Scheme | 580 |
| 6.2.3 | **The Universe** | 581 |
| | Mark Scheme | 582 |

# 1 Motion, forces and energy

## 1.1 Physical quantities and measurement techniques

1 Describe how to measure a variety of lengths with appropriate precision using tapes, rulers and micrometers (including reading the scale on an analogue micrometer)

2 Describe how to use a measuring cylinder to measure the volume of a liquid and to determine the volume of a solid by displacement

3 Describe how to measure a variety of time intervals using clocks and digital timers

4 Determine an average value for a small distance and for a short interval of time by measuring multiples (including the period of oscillation of a pendulum)

5 Understand that a scalar quantity has magnitude (size) only and that a vector quantity has magnitude and direction

6 Know that the following quantities are scalars: distance, speed, time, mass, energy and temperature

7 Know that the following quantities are vectors: displacement, force, weight, velocity, acceleration, momentum, electric field strength and gravitational field strength

8 Determine, by calculation or graphically, the resultant of two vectors at right angles

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**Q2/11/M/J/18**

**1** A student wishes to measure directly the circumference of a football.

Which is the most suitable instrument to use?

**A** calipers **B** a measuring tape

**C** a micrometer **D** a ruler

---

**Q1/12/M/J/18**

**2** Which is a vector quantity?

**A** a mass of 2.0 kg **B** a temperature of –10 °C

**C** a weight of 15 N **D** an average speed of 20 m / s

---

**Q3/12/M/J/18**

**3** What is the name and value of the unit of power written as mW?

| | name | value |
|---|---|---|
| **A** | megawatt | $10^{-3}$ W |
| **B** | megawatt | $10^{6}$ W |
| **C** | milliwatt | $10^{-3}$ W |
| **D** | milliwatt | $10^{6}$ W |

---

**Q4/12/M/J/18**

**4** Micrometers, metre rules, tapes and calipers are used for measuring lengths.

Which row identifies the most suitable device for accurately measuring the stated length?

| | length | measuring device |
|---|---|---|
| **A** | 0.15 mm | micrometer |
| **B** | 0.50 mm | metre rule |
| **C** | 0.15 m | tape |
| **D** | 0.50 m | calipers |

---

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**Q1/11/O/N/18**

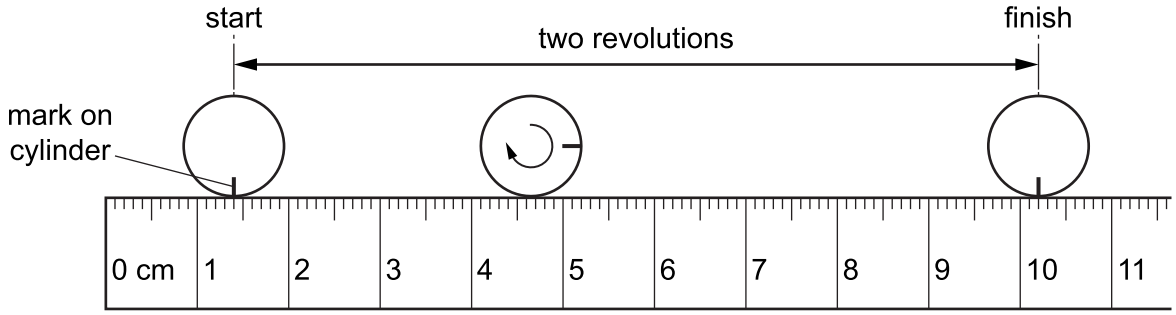
**5** What is a possible mass for a normal adult person?
a time of 4.0

**A** 7.5 kg **B** 75 kg **C** 750 kg **D** 7500 kg

---

**Q2/11/O/N/18**

**6** A small cylinder is rolled along a ruler and completes two revolutions.




The circumference is the distance around the outside of a circle.

What is the circumference of the cylinder?

**A** 4.4 cm **B** 5.2 cm **C** 8.8 cm **D** 10.2 cm

---

**Q1/11/M/J/19**

**7** Which quantities are both vectors?

**A** acceleration and length **B** distance and velocity
**C** length and distance **D** velocity and acceleration

---

**Q3/11/M/J/19**

**8** Which reading is given to one tenth of a millimetre?

**A** 3.3 cm **B** 3.31 cm **C** 3.310 cm **D** 3.312 cm

---

**Q4/11/M/J/19**

**9** The magnitudes of three different electric charges are given below.

What is the correct order of size, from largest to smallest?

**A** 1 mC → 1 MC → 1 kC **C** 1 MC → 1 kC → 1 mC

**B** 1 MC → 1 mC → 1 kC **D** 1 kC → 1 mC → 1 MC

---

RABBANI BROTHERS & SON's

Q1/12/M/J/19

**10** Which reading is given to one tenth of a millimetre?

**A** 3.3 cm **B** 3.31 cm **C** 3.310 cm **D** 3.312 cm

Q1/11/O/N/19

**11** Which word is the name of a scalar quantity?

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

Q3/11/O/N/19

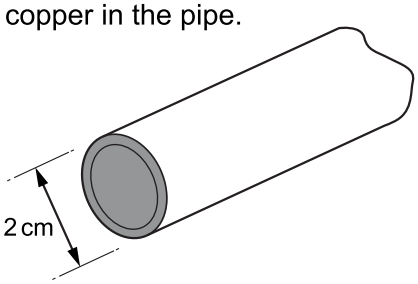
**12** A length of copper pipe, of uniform cross-section and several metres long, carries water to a tap.

Measurements are taken to determine accurately the volume of copper in the pipe.

Which instruments are used?

**A** micrometer and rule **B** micrometer and calipers

**C** rule and tape **D** tape and calipers




Q4/11/O/N/19

**13** What is the correct unit for the quantity shown?

| | quantity | unit |
|---|---|---|
| **A** | electromotive force (e.m.f.) | N |
| **B** | latent heat | J |
| **C** | pressure | $kg/m^3$ |
| **D** | weight | kg |

Q1/12/O/N/19

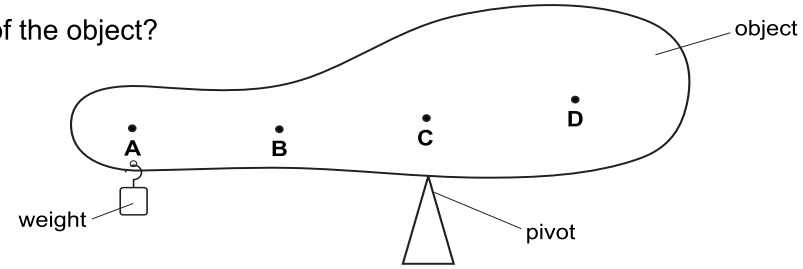
**14** Which word is the name of a vector quantity?

**A** density **B** displacement **C** energy **D** speed

Q10/12/O/N/19

**15** A student balances a non-uniform object on a pivot. To do this, a weight is suspended near the left-hand end of the object, as shown.

Where is the centre of mass of the object?

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Q2/11/M/J/20 Q3/12/M/J/20

**16** What is measured using a micrometer?

**A** area **B** current **C** length **D** mass

Q1/12/M/J/20

**17** Which quantity is a vector?

**A** acceleration **B** distance **C** speed **D** time

Q4/12/M/J/20

**18** Stop-watches are used to time the runners in a race.

The stop-watches show the times recorded for the winner and another runner.




winner




other runner

What is the difference in time between the winner and the other runner?

**A** 0.4608 s **B** 6.08 s **C** 46.08 s **D** 608 s

Q1/11/M/J/21

**19** A list of various quantities is shown.

acceleration
displacement
force
length
mass
velocity

How many of these quantities are vectors?

**A** 2 **B** 3 **C** 4 **D** 5

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Q2/11/M/J/21 Q1/12/M/J/21

**20** A student determines the circumference of a football.

Which instrument gives a reading that is the circumference of the football?

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

---

Q1/11/O/N/21

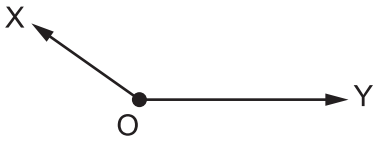
**21** Which quantity is a vector?

**A** speed **B** force **C** mass **D** distance

---

Q2/11/O/N/21

**22** Two forces, X and Y, act upon an object O. The arrows represent the magnitudes and directions of the forces.




Which arrow shows the direction of the resultant force?

**A**



**B**



**C**



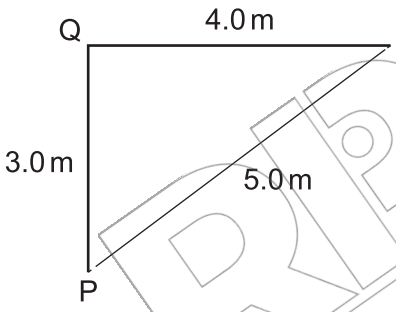
**D**



---

Q1/12/O/N/21

**23** A boy starts at P and walks 3.0 m due north from P to Q and then 4.0 m due east from Q to R.




What is the shortest distance that he must now walk to have an overall displacement of zero?

**A** 3.0 m **B** 4.0 m **C** 5.0 m **D** 7.0 m

---

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Q2/12/O/N/21

**24** A student investigates the motion of a ball falling through the air.

Which quantity is a vector?

**A** the diameter of the ball

**B** the gravitational force on the ball

**C** the distance from which the ball is dropped

**D** the speed at which the ball hits the ground

---

Q2/12/M/J/22

**25** A length of copper wire is labelled: length 0.50 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** | metre rule | metre rule |
| **B** | metre rule | micrometer |
| **C** | calipers | metre rule |
| **D** | calipers | micrometer |

---

Q2/11/O/N/22

**26** Velocity is given by the change in displacement divided by the change in time.

How many vector quantities appear in this statement?

**A** 0 **B** 1 **C** 2 **D** 3

---

Q2/12/O/N/22

**27** A teacher measures the length of her classroom.

What is the most appropriate instrument to use?

**A** a 30 cm ruler **B** a caliper **C** a micrometer **D** a tape

---

Q3/12/O/N/22

**28** Which value is one-thousandth of a metre?

**A** 0.0001 cm **B** 0.001 cm **C** 0.01 cm **D** 0.1 cm

---

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