

## **GCSE Physics A (Gateway)**

**J249/01 Physics A P1-P4 and P9 (Foundation Tier)**

### **Question Set 5**

- 1 (a) Objects can interact in many ways. Pairs of forces arise when objects interact.  
Write down **one** type of force involved when objects interact. [1]
- (b) A book rests on a table.  
Draw a free body force diagram to show the forces acting on the book.  
Use arrows to represent the forces. [4]
- (c) A teacher uses an air-track for motion experiments. Using the air-track means that there is no friction between the glider and the air-track.  
The teacher places the glider on the horizontal air-track and gives it a small push to start it moving.  
Explain the motion of the glider. [2]
- (d) A presenter on a car TV programme says:  
“The car maker has reduced the mass of this car and it now has better acceleration.”
- (i) Explain why the presenter is correct. [2]
- (ii) A car accelerates from 5 m/s to 25 m/s in 4 seconds.  
Calculate the acceleration of the car.  
Use the equation: Acceleration = Change in speed ÷ Time taken  
Answer = ..... m/s<sup>2</sup> [3]

**Total Marks for Question Set 5: 12**

---

# OCR

Oxford Cambridge and RSA

## **Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge