

GCSE Physics B (Twenty First Century Science)
J259/01 Breadth in Physics (Foundation Tier)

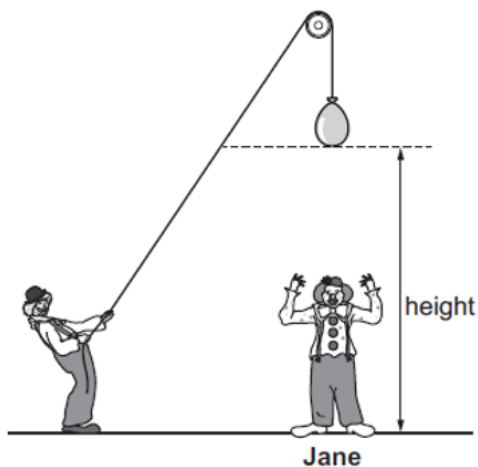
Question Set 24

Multiple Choice Questions

1

Jane is a clown in a circus. She is preparing a new show.

(a) In the show, water balloons will be dropped on her head from different heights.



(i) She needs the first water balloon to hit her at a speed of 10 m/s.

The first water balloon has a mass of 1.6 kg.

Calculate the kinetic energy of this water balloon moving at 10 m/s.

Kinetic energy =J [3]

(ii) The second water balloon has a mass of 2.4 kg. When it is released, it has gravitational potential energy of 120 J.

Calculate the height from which it is released.

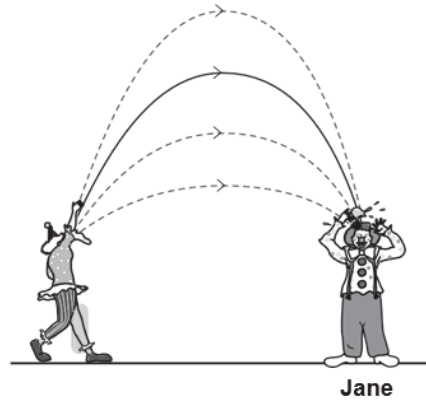
Use the equation:

gravitational potential energy = mass \times gravitational field strength \times height

Gravitational field strength = 10 N/kg

Height = m [3]

- (b) In the next part of the show, a second clown throws water balloons at Jane. The clown throws each water balloon at Jane to a different height.



- (i) What is the name of the energy store before the water balloon is thrown?
Tick (✓) **one** box.

Chemical store	<input type="checkbox"/>
Elastic store	<input type="checkbox"/>
Kinetic store	<input type="checkbox"/>
Nuclear store	<input type="checkbox"/>

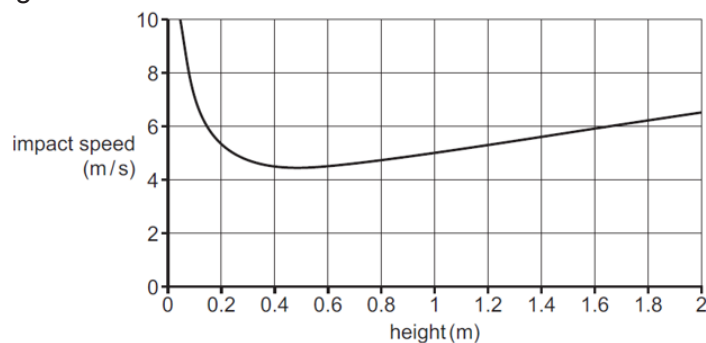
[1]

- (ii) Name the energy store while the water balloon is in the air.
Tick (✓) **one** box.

Chemical store	<input type="checkbox"/>
Elastic store	<input type="checkbox"/>
Kinetic store	<input type="checkbox"/>
Nuclear store	<input type="checkbox"/>

[1]

- (iii) The graph shows how the impact speed of the balloon depends on the height of the throw.



Describe the relationship between impact speed and height.

Use data from the graph in your answer.

[2]

Total Marks for Question Set 24: 10

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) 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