

GRADE 11 PHYSICAL SCIENCES MARCH TEST

QUESTION 1

Various options are provided as possible answers to the following questions. Choose the correct answer and write **ONLY** the LETTER (A-D) next to the QUESTION NUMBER (1.1-1.6) on your folio paper. Example 1.7, D.

- 1.1 The graphs below show the relationship between the net force and the acceleration for two masses X and Y.



Which one of the following statements is true?

- A. Mass of X is greater than mass of Y.
B. Acceleration of X is greater than acceleration of Y.
C. Mass of Y is greater than mass of X.
D. The slope of X is greater than the slope of Y.
- 1.2 In which of the following cases would the resultant force acting on an object be equal to 0N?
- A. A car moving with a constant speed.
B. A car moving with a constant speed in a circular path.
C. A car moving with a constant speed in a straight line.
D. A car moving with a constant acceleration.
- 1.3 Which of the statements below best describes Weightlessness?
- A. An object moving in a circular path.
B. An object moving in a straight line with a constant speed.
C. An object moving in a straight line with a constant acceleration.
D. An object moving in a circular path with a constant speed.
- 1.4 The inertia of an object...
- A. is a measure of its mass.
B. is a measure of its speed.
C. is a measure of its acceleration.
D. is a measure of its momentum.
- 1.5 An astronaut has a weight F_g on Earth. What distance, in terms of the radius of the Earth (r), will the astronaut be if his weight is a 1/4 of his weight (F_g) on the

surface of the Earth?

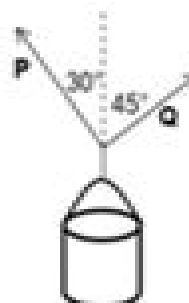
- A. r
B. $2r$
C. $1.5r$
D. $0.5r$
- 1.6 A box is pushed forward with a force of 100N but does not move. A possible reason for this is that:
- A. The box is too heavy.
B. The box is too light.
C. The box is too big.
D. The box is too small.

[14]

QUESTION 2

The grade 11 learners learn that there is more than one way to determine the resultant of two vectors. One way is the component method. They want to use this method to find the resultant of the forces acting on a bucket by the ropes from which the bucket is suspended. The bucket is stationary.

- 2.1 Draw the force diagram. (2)
- 2.2 The tension in rope P is 100N at an angle of 30° to the vertical and the tension in Q is 51,52N at 45° to the vertical.



Calculate the **MAGNITUDE** of the:

- 2.2.1 Horizontal components of P and Q respectively. (4)
2.2.2 Vertical components of P and Q respectively. (4)
2.2.3 Resultant of the horizontal components. (5)
2.2.4 Resultant of the vertical components. (5)
2.2.5 Resultant of the forces acting on the bucket. (5)
- 2.3 Calculate the mass of the bucket. (3)

[14]

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