

The question paper contained some questions that were similar to those in the Higher Grade paper and so many candidates answered the paper with great difficulty. These questions needed some insight and abilities which many candidates lacked. We must take cognizance of this and make sure that our candidates acquire the appropriate understanding and skills. It is recommended that our school examinations for learners be set along these lines.

Many candidates lost marks unnecessarily by not doing the following when answering a question:

1. Starting the calculation with the correct equation
2. Supplying the correct SI unit in the final answer
3. Showing substitution of values into the correct equation

A question-by-question analysis follows.

### Question 1

Poorly answered. Candidates had difficulty interpreting the questions as many of them were similar to HG questions.

### Question 2

Poorly answered. Candidates had difficulty in extracting information from the sketch to draw the force diagram, which was needed to answer the question. Candidates lacked measuring and conversion skills.

### Question 3

Poorly answered. Many candidates could not analyze the data provided. Equations of motion were used at will. No reference points were used in their calculations.

### Question 4

Well answered

However, candidates confused the concept of inertia as a property of matter with Newton's First Law.

### Question 5

Poorly answered

1. Well answered
2. Poorly answered
3. Candidates were confused by total mass of system. Poorly answered

### Question 6

Generally well answered

1. Please note:  $W = \Delta E_k$  and not  $W = E_k$ .
2. Many candidates were able to interpret the "braking force" of 2016 N as -2016 N when used in the equation ( $F_{res} = ma$ ) to determine the acceleration.

## Question 7

Generally well answered

- 7.1 Candidates were penalized for drawing field lines that
- were touching each other.
  - were not touching the spheres.
  - did not indicate a uniform distribution of field lines between and around the charges.
- 7.2 If a charged object or particle is used in the definition of Coulomb's Law, the phrase "distance between their centres" has to be stated – point charges do not require the phrase "between their centres".
- 7.3 Candidates used the wrong proportionality constant and many had no proficiency in the use of the calculator.
- 7.4 Well answered

## Question 8

Generally well answered

- 8.1 Well answered. Most candidates knew the definition of Ohm's Law.
- 8.2 There were misconceptions about resistors in series as potential dividers. Many candidates confused total resistance of the circuit and effective resistance of parallel combination. The most common mistake was writing the equation as  $R = \frac{1}{r_1} + \frac{1}{r_2}$