

Candidates are still losing marks unnecessarily by not completing the following when answering the questions.

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

A detailed analysis of the questions follows.

Question 1

Very poorly answered

Question 2

- 2.1 Resultant velocity not correctly identified. The use of  $F_{res}$  instead of  $V_{res}$  was a problem.
- 2.2 Candidates did not indicate the angle on their diagram.
- 2.3 Labelling of vectors diagram was problematic.

Candidates' drawing skills were notably lacking.

Question 3

- 3.1 Poorly answered
- 3.2 Candidates did not know how to use gradient to calculate  $u$ .
- 3.3 Candidates did not follow instructions.
- 3.4 Candidates could not answer this if they had difficulty with 3.2.
- 3.5 Candidates do not supply correct labels for forces.
- 3.6 Well answered
- 3.7 Candidates could not identify that  $F_{res} = F_{water} - F_g$

Question 4

- 4.1 A negative acceleration of  $2,5 \text{ m}\cdot\text{s}^{-2}$  was required.
- 4.2 Well answered

Use of calculator and manipulation of formula were notably lacking.

Question 5

Very poorly answered

- 5.1 The graph associated skills need urgent attention.
- 5.2 Well answered. Candidates should be able to express relationships, viz. "directly proportional" and "inversely proportional". NOT "indirectly" proportional.

- 5.3 Many candidates could not determine the gradient of the graph.
- 5.4 Very poorly answered.  
The interpretation of the gradient of the graph has to be emphasized.
- 1.5 Well answered, although there were centres whose candidates were still using the term “unbalanced” instead of “resultant” force.

Question 6

- 1.1 “Conservation of energy” was given by many candidates, instead of “conservation of mechanical energy”.
- 6.2  $E_p(\text{top}) = E_k(\text{bottom})$  is not acceptable.
- 6.3 Work done = Energy(tot at B) - Energy(tot at D) was not given by many candidates.

Question 7

- 7.1 Candidates could not apply Newton's Third Law of Motion.
- 7.2 Well answered
- 7.3 Well answered

Question 8

- 8.1 Poorly answered.
- 8.2 The wrong formula was used by many candidates  $E \propto \frac{kQ}{r^2}$  instead of  $E = V/d$ .
- 8.3 Candidates could not supply correct labels.
- 8.4 Candidates did not realise that the two downward forces had to be added.
- 8.5 Candidates did not realise that the polarity of the plates changed.
- 8.6 Candidates did not realise that the resultant force is zero.
- 8.7 Well answered.

Question 9

- 9.1 Candidates are still writing the equation as  $R \propto \frac{1}{r_1} \propto \frac{1}{r_2} \propto \frac{1}{r_3}$
- 9.2 Poorly answered. Candidates did not mention that emf remains constant
- 9.3 Well answered.
- 9.4 Well answered.
- 9.5 Candidates did not realise that simultaneous equations must be used to solve for the internal resistance.
- 9.6 Well answered.