

Common mistakes and suggestions for improvement:

**QUESTION 1**

In general, this question was answered well. Candidates must distinguish between the principles of establishing a business and the characteristics of an entrepreneur.

To describe the negative impact means to name the type of impact, such as soil pollution, and to give an appropriate example.

**QUESTION 2**

Candidates provided general specifications when electrical specifications were required.

**QUESTION 3**

This question was answered well across all centres, but most centres seemed to have a problem with water only, and no other unsafe actions or practices.

**QUESTION 4**

Many centres did not understand power factor correction, and candidates confused the phase voltage with the line voltage.

**QUESTION 5**

The explanation required for Question 5.1 (the effect of frequency on an RLC circuit) was often poor. Candidates gave the wrong reasons, and answers were often guessed. Explanations did not make sense.

Question 5.2 (RLC-parallel circuit) This was either answered very well or very poorly. Most calculation errors arose from inexperience with the use of calculators. Phasor diagrams must contain current values and not impedances. Currents  $I_L$  and  $I_C$  were often confused.

**QUESTION 6**

With some exceptions, the operation of the SCR circuit was described poorly. Even candidates who described the purpose of each component instead of the circuit, could not provide good descriptions. The SCR was confused with the TRIAC.

## **QUESTION 7**

A number of candidates used the correct formula, but made the wrong substitutions. The biggest problem was rearranging the formula.

Few candidates could recognise the integrator or draw the correct input and output signals.

## **QUESTION 8**

Questions 8.1 and 8.2 (transformer couplings and losses) were answered well. Question 8.3 (transformer calculations) was answered either well or poorly. Too many candidates chose any formula from the formula sheet in the hope that it was the correct one.

## **QUESTION 9**

With a few exceptions, Question 9 (logic concepts and PLCs) was answered poorly. In many cases the question was left out.

## **QUESTION 10**

This question was either answered well or poorly. In cases where it was answered poorly, descriptions often consisted of incoherent and senseless strings of words.

Many candidates do not understand the purpose of a star-delta motor starter. With a few exceptions, the functioning of the induction motor was described poorly.

The inspection of the electrical motor was confused with the inspection of a motor vehicle.

## **General**

The following problems occurred in general:

- Incoherent use of language and meaningless descriptions
- Answers unrelated to context of question
- Formulas chosen at random from the formula sheet
- Calculators not used correctly, resulting in erroneous calculations
- Length of answer and number of calculations not corresponding with the mark allocation to the question
- Sections left out without any attempt at answering them

Thank you to all the candidates who were well prepared, making it a pleasure to mark their scripts.