

22.0 ELECTRICITY (448)

In the year 2011, Electricity was tested in two papers; 448/1 and 448/2). and Paper 1 was a theory paper which constituted 60% of the final mark while Paper 2 was a practical paper which constituted 40% of the final mark. Both papers followed the usual setting format as those of the previous years.

22.1 GENERAL CANDIDATES PERFORMANCE

The candidate's performance statistics in the KCSE electricity examination since the year 2008 when the syllabus was revised are as shown in the table below.

Table 33: candidates overall performance in the years 2008 to 2011

Year	Paper	Candidature	Maximum score	Mean score	Standard deviation
2008	1	48	60	26.67	10.78
	2		40	21.83	6.64
	overall		100	48.58	15.29
2009	1	219	60	35.47	9.65
	2		40	24.08	5.66
	overall		100	59.55	13.75
2010	1	161	60	32.96	9.53
	2		40	28.56	4.33
	overall		100	61.52	12.56
2011	1	183	60	35.21	10.57
	2		40	30.17	3.99
	overall		100	65.37	12.63

From the table it can be observed that:

20.1.1 The candidature increased to 183 in the year 2011 from 161 in the year 2010.

20.1.2 There was improved performance in paper 1 from 32.96 in 2010 to in 35.21 in 2011.

20.1.3 Paper 2 has continued to register improving mean in the past three years.

20.1.4 There overall performance of electricity improved from 61.52 to 65.38.

The following is a discussion of some of the questions that were poorly done in the two papers.

22.2 Paper 1 (448/1)

Paper 1 was generally well performed but weaknesses were observed in the following questions:

Question 10

- (a) Name the materials used to make the parts of each of the cells shown in the following table:

CELL	POSITIVE ELECTRODE	NEGATIVE ELECTRODE	ELECTROLYTE
Lead Acid			
Leclanche			

(3 marks)

- (b) Figure 1 shows a layout of an electrical installation in which lamps L_1 and L_2 are controlled by switches S_1 and S_2 . Draw the wiring diagram of the circuit.

(5 marks)

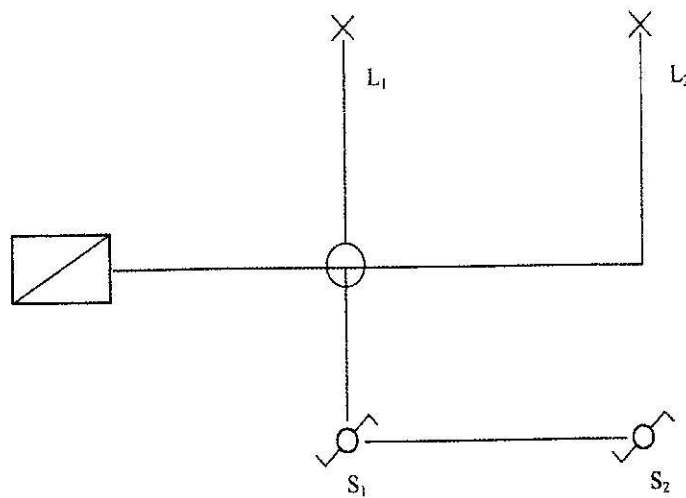


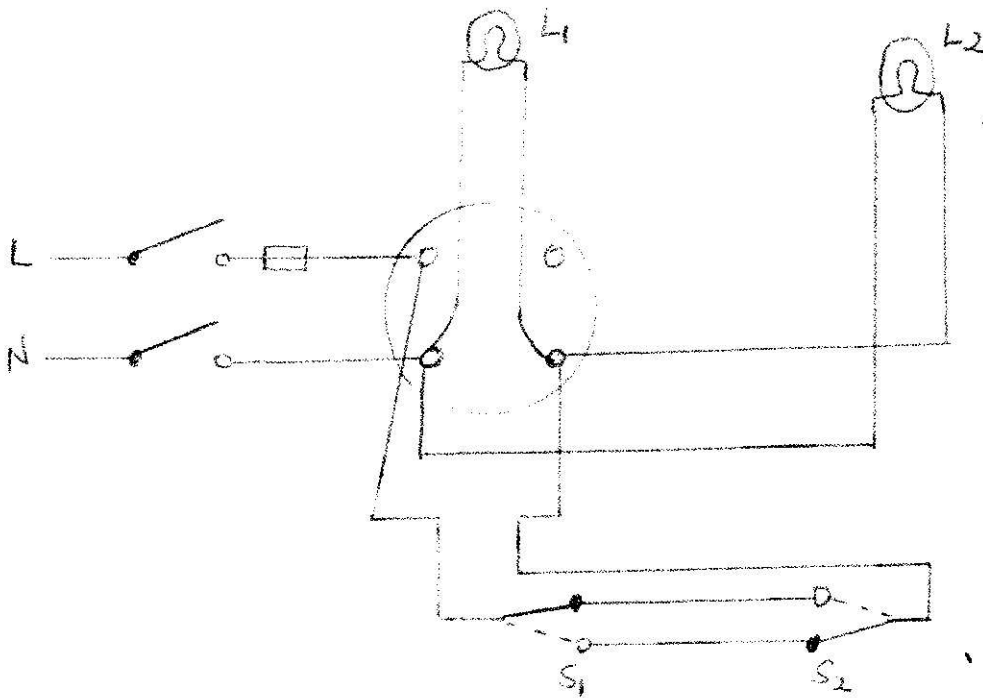
Figure 1

Expected Response

- (a) **Materials**

	Lead Acid	Leclanche	
+ electrode	lead dioxide	Carbon	
- electrode	lead	Zinc	
Electrolyte	dilute sulphuric acid	Potassium hydroxide	(6 x 1/2 = 3)

(b) **Wiring diagram**



Correct cable routing	1
Correct circuit	2
Correct symbols	2

The question was testing on electrical installation and required the candidates to draw the wiring diagram. They also failed to identify the Leclanche cell components.

Weaknesses

Candidates were not kin on circuit symbols some were not able to come up with the diagram showing how lamp L1 and L2 are controlled by both switches.

Question 11

Figure 2 shows two views of a block drawn in first angle projection. On the grid paper provided, draw an isometric view of the block taking point **X** as the lowest point. (12 marks)

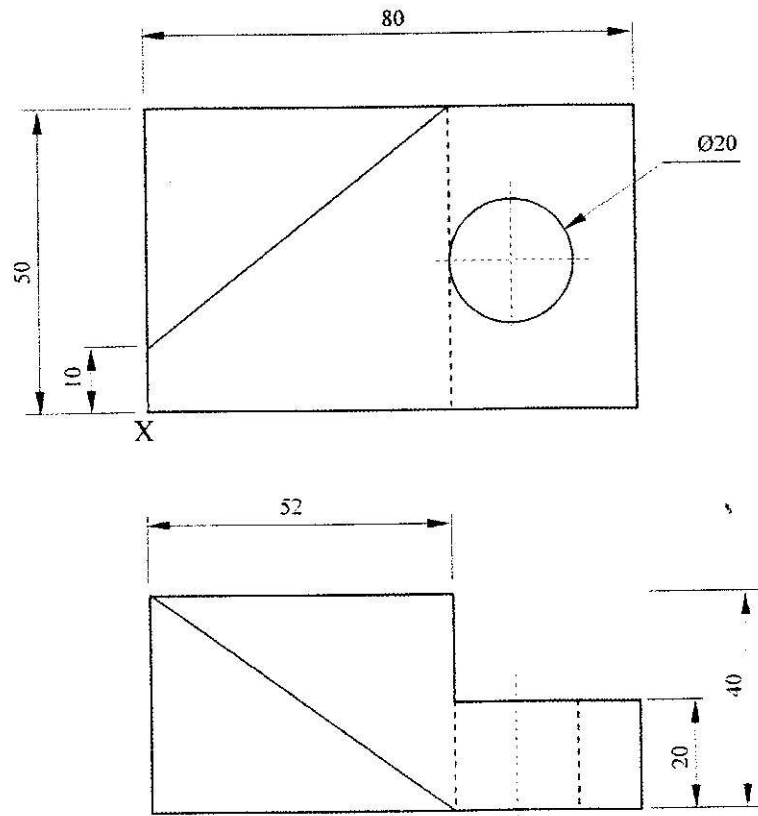
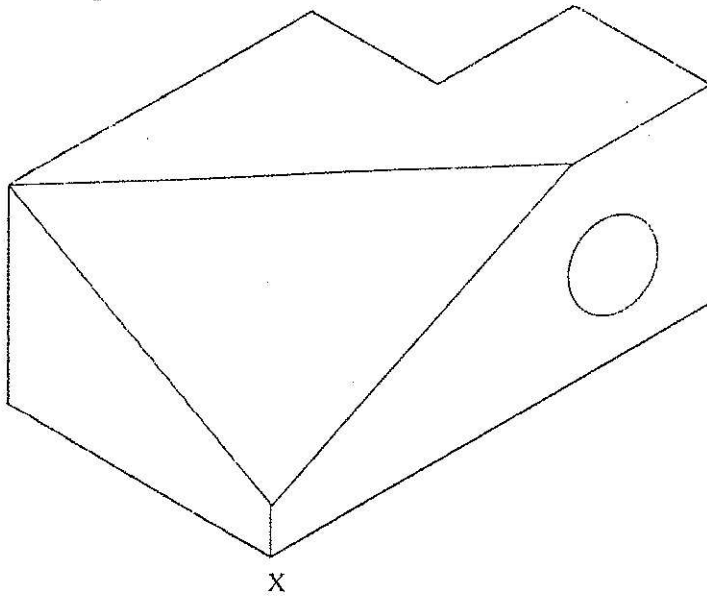


Figure 2

Expected Response



The question called for the interpretation of the elevations presented in 1st angle projection to be able to produce the isometric drawing.

Weaknesses

A few candidates attempted the question which is an implication of poor mastery of content with some omitting the required details. There is need to balance the teaching of the topics in the syllabus.

22.3 Paper 2 (448/2)

The 2011 Electricity Paper 2 tested candidates in the following skills:

- Connecting an electric circuit from the diagram in the question and setting meter ranges to measure and record the values.
- Sheet metal fabrication.
- Trouble shooting and repair.
- Circuit study by taking measurements of current and voltage then using them to plot a graph then interpreting the graph.
- Domestic installation of an electric bell.

Weaknesses

- The candidates had challenges completing the tasks in time, they were too slow.
- Teachers should let learners develop speed in their practical work.
- The use of unfamiliar tools and equipment during examinations should be avoided. Learners should be exposed to the tools in during their training to avoid the issue of them seeing them for the first time in the exam.
- Teachers should teach holistically by ensuring that they cover all the details as they appear in the syllabus.