



CHIEF MARKER'S REPORT

SUBJECT:

ELECTRICAL TECHNOLOGY

1. ANALYSIS OF QUESTION BY QUESTION PERFORMANCE

QUESTION 1

1.1 **The** aim for the question was to check whether the learners can associate the subject with the society and environment.

1.2.1 The question was relevant to the syllabus, as questions were of the society and environment and the module that deals with Technology, Society and the Environment in the syllabus.

1.2 2 32% of learners were between (0 & 40)% , 14% of the learners obtained 50% ,28,8% are the learners who were from (60 to 70)% and 21% of the learners scored (80 to 100)%.

1.3 In question 1.2 candidates were requested to list **Competencies** of a successful entrepreneur, 32% of candidates listed the **Basic Principles** of the entrepreneur.

QUESTION 2

2.1 The aim for question was to test the learners on basic knowledge and skills needed to ensure competence in Technological problem solving and designing in real life.

2.2.1 The question was relevant to the syllabus hence learners were to show the knowledge in identifying problem the neighbours in this were encountering and offered electrical solutions to the problem.

2.2.2 In this question 42.2% of learners were between (0 & 40)%, 28,1% of learners scored (50 to60)% ,20,9% were from(70 to 80)% and 5,8% scored from (90 to 100) %.This 5,8% spreads only in 4 centres of the 53 centres that wrote.

2.3 42, 2% are the learners who were unable to identify the problem and offer an electrical solution to the problem as requested by the question.

QUESTION 3

- 3.1 The aims for this question were to test the learners on basic knowledge, values and attitude on occupational health and safety in the real life situation.
- 3.2.1 Occupational Health and Safety is part of the syllabus for Grade 12 as laid in Lo3 and Ass 1 therefore the question was relevant as it was addressing Lo3 and Ass1
- 3.2.2 16.69% of the learners obtained marks from (80 to 100)%, 12,98 of the learners were between (60 and 70)% and 55.1% obtained marks ranging from (0 to 39)%
- 3.3 In 3.1 the candidates were unable to give the negative impact HIV/Aids has on productivity instead the candidates mentioned how one gets infected in the workshop which means they did not understand the question properly. In 3.5 55% of the learners did not understand the safety in the workshop.

QUESTION 4

- 4.1 The objectives for this question were to test the learner's knowledge, skills and understanding the three-phase AC generation and calculations in the three-phase system.
- 4.2.1 According to Lo3 and Ass3 the three-phase AC generation is part of the syllabus, which means this question was relevant.
- 4.2.2. Only 8.6% of the learners obtained between (80 and 100) %, 9, 6% of the learners were ranging from (60 and 70) % and 61.4% of the learners obtained (0 and 39) %.
- 4.3.1 The learners were mentioning the function of the wattmeter instead of the Kilowatt-hour meter.
- 4.3.2 The candidates were having problem with changing the subject of the formula and substitution, also they could not differentiate between the angle and the $\cos \theta$ of the angle (θ and $\cos \theta$).
- 4.3.3 The learners were having a problem with the drawing of a voltage phasor diagram that represents a three-phase supply.

QUESTION 5

- 5.1. The objectives of this question were to test the learner's knowledge and understanding of the RL C Circuits.
- 5.2.1 According to Lo3 and Ass4 that deals with RLC circuits in the SAG this question relevant
- 5.2.2. It is only 15.3% the learners who obtained between (80 and 100)%, 22.09% of the learners were ranging between 60% and 70% then 28.3% of the learners were those who obtained marks from (0 to 39)% .
- 5.3.1 The learners were unable to select right formula from the formula sheet that was in the question paper.
- 5.3.2 Those learners who were able to select the right formula were having problem with changing the subject of the formula and substitution.
- 5.3.3 Most learners were having problem of changing mH to H although the substitution has been done correct.

QUESTION 6

6.1 The objectives of this question were to test learners on Switching And Control Circuits where they could show their knowledge and understanding.

6.2.1 Lo3 and Ass6 deals with switching and control circuits therefore the question is relevant.

6.2.2 Only 0,5% of the learners obtained (80 to 100)% only 2.3% of learners that were ranging from (60 to79)%The majority of learners 86.6% were between(0 and 39)%.This question was poorly answered.

6.3.1 Most of the learners drew the symbol of the TRIAC instead of the SCR. The learners did not understand how the SCR is switch On or Off nor what happens to the SCR at the reverse breakdown voltage.

6.3.2. In 6.1.2 to 6.1.4 learners were only giving one reason instead of two as per marks for the question.

6.3.3 As the circuit diagram was given in question 6.3 most learners were unable to answer questions (6.3.1 to 6.3.4) according to the circuit diagram.

QUESTION 7

7.1 The objectives of this question were to test learners on Amplifiers where they could show their knowledge and understanding

7.2.1 The question was dealing amplifiers which are in Lo3 and Ass7and therefore is relevant.

7.2.2 Only 3.4% of learners were ranging between (40 and 50)% and 92.7% of the learners were ranging between (0 and36)%

7.2.3 This question was difficult for the learners because most learners have not attempted the following questions: Q 7.2, Q 7.3, Q 7.4 and Q 7.5. Those who have answered the whole question did not perform very well.

QUESTION 8

8.1 The objectives this question was to test the learner's knowledge on the principles of three-phase transformers.

8.2.1Lo3 and Ass8 deals with Three-phase Transformers and the question was in transformers so this question is relevant.

8.2.1 Only 1.18% obtained marks between (80and 100) % and 79.4% are learners who ranging from(0 to39)%

8.2.2 In question 8.5, even though the learners chose the right formula from the formula sheet, the problem they had was to change the subject of the formula and substitute.

8.2.3 Most learners could not differentiate between the line values and the phase values

QUESTION 9

9.1 The objectives of this question were to test learners on Logic Concept and PLCs where they could show their knowledge and understanding

9.2.1 Lo3 and Ass10 deals with logic concepts and PLCs and this question was with logic concepts and PLCs so it was relevant.

9.2.2 Only 1.6% of the learners could score from (80 to 100) % and 5.2% scored from (60 to 70) %. This question was poorly answered as 67.28 scored from (0 to 39) %.

9.2.3 The learners had a problem in drawing the relay circuit of the ladder diagram and as a result of that they could not write its truth table. The learners had problem with the operands used in the programming of programmable logic controllers. In question 9.6 the learners were given the Boolean expression, and were requested to draw its logic gate diagram they could not draw the logic gate.

QUESTION 10

10.1 The objectives of this question were to test learners on Three-phase Motors and Control where they could show their knowledge and understanding

10.2.1 Lo3 and Ass12 deal with the Three-phase motors and controls and hence the question was on Three-phase motors and controls it is relevant.

10.2.2 In this question only 2.6% of the learners scored from (60 to 70)% and 78.2% scored between (0 and 39)%

10.2.3 In question 10.1 our learners did not know the function of the star-delta starter. In 10.3 even those learners who have chosen the formula could not change the subject of the formula and substitute. Question 10.5 was a bit challenging to the learners more especially those who have not been exposed to practical in the workshop.

7. ANY ADVICE THAT YOU COULD GIVE TO EDUCATORS TO HELP LEARNERS TO REACH THE EXPECTED LEVELS

1. The schools that are offering electrical technology must ensure that the learners are exposed to practical.
2. The schools must also see to it that all learners have calculators all the year round not only when learners are writing.
3. From Grade 10 to Grade 12 there must be common tasks per term.

8. ANY OTHER COMMENTS

Learners must be assisted when given the past question papers. The educators must not stick to one text book. If there is an error/ misprint to the text book that has been approved the educators must rectify the error/misprint not give it to the learners.