



ASSESSMENT & EXAMINATIONS

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NSC 2011 CHIEF MARKER'S REPORT

SUBJECT	ELECTRICAL TECHNOLOGY
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PAPER	1
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DATE OF EXAMINATION:	01/11/2011	DURATION:	3 hours
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SECTION 1:

(General overview of Learner Performance in the question paper as a whole)

This question paper was of good quality. It covered all the learning outcomes and assessment standards for Grade 12. It covered all the cognitive levels e.g high order questions, middle order and low order questions per question. The time was properly allocated for this question paper. The marks were fairly distributed. No question were ambiguous. The language was not biased. The pages were numbered, the formula sheet with all the required formulae was attached

SECTION 2:

Comment on candidates' performance in individual questions

(It is expected that a comment will be provided for each question on a separate sheet).

QUESTION 1

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

- This question was answered poorly. Learners were expected to give the disadvantages of nuclear power station.
- Most of educators just neglect chapter 1 of the electrical technology textbook.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- 1.1 This question was answered poorly. Learners were expected to give the disadvantages of nuclear power station, they just wrote coal fired, global warming, nuclear. Instead of writing what bad about the nuclear power station like It causes radiation that is harmful to the environment, The area use to disposed nuclear waste needed to be secured. This question was not clear to the learners.
- 1.2 Most learner did not understand this question, They just wrote **air pollution, water pollution tidals Mpumalanga and cape town**. Instead of writing The **ENVIRONMENTAL FRIENDLY ALTERNATIVES** as we all know that coal is the one which is polluting the air. Those environmental friendly alternative are Solar power station, Wind power station, Wave power station, Hydro-electric power station, Geothermal power station
- 1.3 Learners did not attempt this question, those who answered they just write **transmissions of diseases in the workshop, How do you take for a person who is HIV in the workshop? Just wrote the causes of HIV/Aids**. When answering this question they were expected to write things that causes negative impact on the workforce of the country. Those are High rate of absenteeism, Low levels of production, loss of concentration.
- 1.4 Most learners answered this question correctly.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- Educators should not neglect the first chapter.
- Educator should start teaching this chapter as early as from grade 10.

(d) Describe any other specific observations relating to responses of learners

- It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level 3; 3Level 2 and 1Level 1) which means this level 1 might be this subject.

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

- Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows.
- Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis.
- Educators should make sure that learners are given MORE tasks all the time, to check the performance of a learner continuously.
- Teacher development should be done continuously.

QUESTION 2	
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?	
	<ul style="list-style-type: none"> • This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to transformers. • Learners showed that they did not have the knowledge in transformers from the previous grade.
(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.	
2.1.1-2.1.2	<p>Learners did not understand this question:</p> <ul style="list-style-type: none"> • They did not consider step-up transformer. • They did not relate the transformer working to explain process and output. • They did not show the ability to apply knowledge. <p>They just wrote MAKE, DESIGN, EVALUATE others wrote INPUT, PROCESS, OUTPUT others wrote AMPLIFIERS.</p> <p>Instead of Writing Process making that is put the winding with the fewer turns on the primary side and the winding with more turns on the secondary side.</p> <p>Output Test and Evaluate – Apply voltage to primary windings and measure the induced voltage on the secondary winding and confirm.</p>
2.2	<p>Most learners did not understand this question: They wrote Evaluate the design or artifact. Instead of writing It is important to evaluate the electrical product because the evaluation will determine whether you have met the original criteria of the product. That is the correct operation cost effective marketable.</p>
2.3	<p>Most of learners did well in the question. Very few learner answered wrongly in the question.</p>
(c) Provide suggestions for improvement in relation to Teaching and Learning	
	<ul style="list-style-type: none"> • The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops
(d) Describe any other specific observations relating to responses of learners	
	<ul style="list-style-type: none"> • Most learners were not exposed to the workshops. • It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Level 2 and1Level1) which means this level 1 might be this subject .

(e) Any other comments useful to teachers, subject advisors, teacher development etc.
QUESTION 3
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to safety.
(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
3.1 Most learners did well in this question even though they did well there are those who did not do well in this question they wrote earth, overload, switch, no-volt . Instead of writing earth leakage system overload circuit breakers fuses 3.2 Most learners did not understand this question as they did not mentioned the fault finding in motor control panel. They only describe and others just wrote safety measures such as house keeping and general machinery regulator . 3.3 Some of the learner did well in this question and some poorly answered the question They just explain the intoxication instead of giving the reason why a person under the influence of drugs is not allowed in the workshop. 3.4 In this question learners just name the safety precautions; they did not describe the safety precautions. This means that learners did not get full marks for this question.
(c) Provide suggestions for improvement in relation to Teaching and Learning
<ul style="list-style-type: none"> The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops. Workshops should have safety charts.
(d) Describe any other specific observations relating to responses of learners
<ul style="list-style-type: none"> Schools don't have fully equipped workshops. It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level 3; 3 Level 2 and 1Level1) which means this level 1 might be this subject.
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
<p>Any other comments useful to teachers, subject advisors, teacher development etc.</p> <ul style="list-style-type: none"> Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows. Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis. Educators should make sure that learners are given MORE tasks all the time, to check the performance of a learner continuously. Teacher development should be done continuously.

QUESTION 4

(a) **General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?**

Some learners performed very well on this question because they manage to get the total mark in this question, but there were those who poorly answered the question as mentioned in (b) below.

(b) **Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.**

4.1 The learners were unable to give the reasons as to why electricity is generated in three – phase not in single phase.

4.2-4.3.1 – 4.3.2

- There learners who were unable to identify the formulas from the formula sheet,
- And there were those, who were able to identify the formula but could not change the subject of the formula.
- There were learners who do not understand the difference between the line values and the phase values. For example in question 4.3.1 they were requested to calculate line voltage of a star connected alternator with a phase current of 20 Amps lagging its phase voltage of 220 V by 30° . Then from the formula sheet: $V_L = \sqrt{3} V_{PH}$ and

$I_L = I_{PH}$ for star. This is what was expected from the learners:

$$\begin{aligned} V_L &= \sqrt{3} V_{PH} \\ &= \sqrt{3} \times 220 \\ &= 381,1V \end{aligned}$$

But most learners were able to identify the formula from the formula sheet; instead of just substituting V_{PH} by 220V what they did was to change the subject of the formula to V_{PH} .

- In 4.3.2 our learners were requested to calculate the power supplied the alternator at full load. From the formula sheet: $P = \sqrt{3} V_L I_L \cos\phi$ was given. This is what was expected from the learners:

$$\begin{aligned} P &= \sqrt{3} \times V_L \times I_L \times \cos\phi \\ &= \sqrt{3} \times 381,1 \times 20 \times 0,867 \\ &= 11,49 \text{ kW} \end{aligned}$$

The response from the majority of learners was as follows:

$$\begin{aligned} P &= \sqrt{3} \times V_L \times I_L \times \cos\phi \\ &= \sqrt{3} \times 381,1 \times 20 \times \text{Cos } 0,867 \\ &= 13200,18 \text{ V} \end{aligned}$$

Some were responding like this:

$$\begin{aligned} P &= \sqrt{3} \times V_L \times I_L \times \cos\phi \\ &= \sqrt{3} \times 381,1 \times 20 \times 30^\circ \\ &= 396050,74 \text{ V} \end{aligned}$$

- Some were able to identify the formula, change the subject of the formula and substitute properly calculate and get the answer but fail to put the **units** also there were those who would calculate and get wrong answers from the **calculators**.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops
- The schools should insist that all that are doing this subject are having scientific calculators and are use throughout the year

(d) Describe any other specific observations relating to responses of learners

- Most learners were not exposed to the workshops.
- It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Level 2 and1Level1) which means this level 1 might be this subject .

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

Any other comments useful to teachers, subject advisors, teacher development etc.

- Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows.
- Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis.
- Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously.
- Teacher development should be done continuously.

QUESTION 5

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

This question was answered well by other learners and poorly by other learners. The only thing that causes learners to answer poorly is that learners don't give themselves time to read the question and understand what is expected of them.

(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

5.1 Those who answered this question poorly, They did not understand the difference between Capacitive reactance and capacitance. Others did not understand the effect a frequency has on capacitive reactance.

5.2 Those who answered this question poorly, They did not understand the difference between inductive reactance and inductance. Others did not understand the effect a frequency has on inductive reactance.

5.3 Learners did not understand impedance as opposition a circuit offered to a flow of current in a RLC circuit when the circuit is connected across an alternating-voltage supply and is measured in Ohms.

Learners just say **impedance is the total resistance** as if they are referring to a resistive circuit.

5.4.1 – 5.4.3 In this question learner did not understand the difference in the reactances because they calculated inductive reactance instead of capacitive reactance. Those who understand the difference they select the right formula from the formula sheet, do the right substitution perform the right calculation but fail to write the right unit. Learners who were able to understand this question, they do not know how to use a calculators to get the right answer.

5.5.1 – 5.5.4 In this question learners were unable to calculate reanctances when they were given the value of current (I) and learners got confused when they were asked to calculate the total current(I_t) in a parallel RLC circuit.

5.6 Learners did not understand how to draw a phasor diagram of a parallel circuit, especially how to label the direction of rotation and other part like I_t , I_L , I_R and I_C .

<p>(c) Provide suggestions for improvement in relation to Teaching and Learning</p> <ul style="list-style-type: none"> • Learners should be trained to understand the effect of frequency on capacitive reactance and on inductive reactance. • Learners should be trained to understand the difference between inductive reactance and inductance, capacitive reactance and capacitance and resistance and impedance. • Learners should be given more work on parallel RLC circuits and trained to draw the phasor diagram for the parallel circuit. • Learners should be trained to understand formulas and the changing of the subject of the formula. • Learners should be trained to use their own scientific calculators during the academic year till they write examinations.
<p>(d) Describe any other specific observations relating to responses of learners</p> <p>5.1 Learners were not sure if the increase in frequency causes a decrease in capacitive reactance.</p> <p>5.2 Learners were not sure if the decrease in frequency causes an increase in inductive reactance.</p> <p>5.4.1 – 5.4.4 Learners did not understand that when the value of an inductive reactance is greater than the value of the capacitive reactance the formula should be:</p> $Z = \sqrt{R^2 + (XL - XC)^2}$ <p>5.5.4 Learners couldn't write the correct formula for the total current in a parallel RLC circuit when I_L is greater than I_C they wrote $\sqrt{IR^2 + (IC - IL)^2}$</p>
<p>(e) Any other comments useful to teachers, subject advisors, teacher development etc.</p> <ul style="list-style-type: none"> • Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows. • Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis. • Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously. • Teacher development should be done continuously.
<p>QUESTION 6</p>
<p>(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?</p> <p>This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to Switching and control</p>

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

6.1.1 In this question learners were asked Name the unit of the axes numbered 1 and 2 LEARNERS WROTE **x-axis** and **y-axis**.

6.1.2 Some learners were unable to draw the symbol of a DIAC they confuse it with SCR and TRIAC.

6.1.3 In this question learners were not sure about how to switch on the DIAC. They explain the **operation of a DIAC**.

6.2 Learners couldn't draw the symbol of a TRIAC they confuse it with SCR and others with DIAC.

6.3 In this question learners were not sure about how to switch on the DIAC. They explain the **operation of a DIAC**

6.4.1 – 6.4.3 Some learners couldn't understand this question; they just write **the voltage will increase**. Learners couldn't answer the operation of the circuit and the disadvantage of an SCR.

6.5 In this question learners did not do well and this tells that learners are not exposed to workshop situation; some schools do not have workshops.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops.

(d) Describe any other specific observations relating to responses of learners:

- 6.2 learners just draw the symbol that is applicable in this subject when drawing the symbol of a TRIAC.

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

- Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows.
- Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis.
- Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously.
- Teacher development should be done continuously.

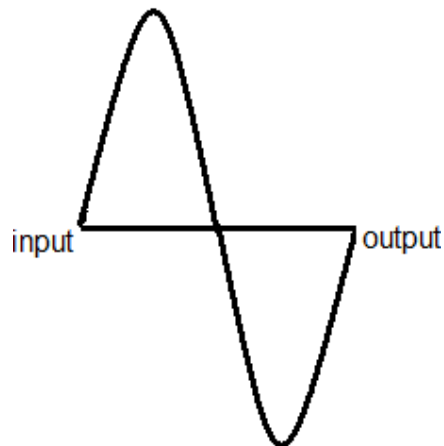
QUESTION 7

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

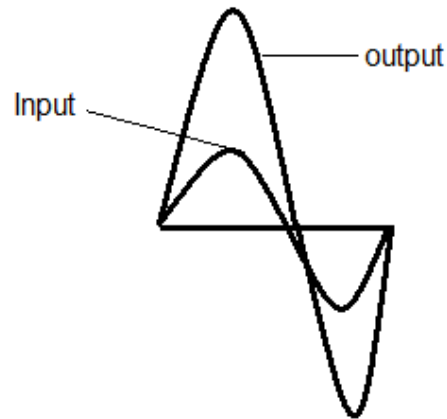
This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to operational amplifiers.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- 7.1 This question was answered poorly because when learners were asked to name TWO application of operational amplifiers and the expected answers were Non-inverting, inverting, Linear, Pulse, Buffer, integrating, Differentiating and summing while some learners gave answers like audio or radio.
- 7.2 In this question learners incorrectly answered the relevant answers were Current gain is very small, it must be connected to a dual supply with $-15V$ to $+15V$, integrated circuit is complex.
- 7.3 Learners made mistake in this question by not indicating which impedance or voltage they are referring to its input or output impedance, others writing nothing about infinity that made them to lose marks.
- 7.4 Most learners got this question.
- 7.5 Learners correctly answered this question.
- 7.6 Learners were instructed to refer to the diagram when answering this question.
- 7.6.1 Learners gave relevant or correct answer referring to the diagram
- 7.6.2 Some learners drew only one AC signal like this



Of which learners were expected to draw the one below.



Seemingly learners were not having enough information about drawing the signal in the same axis.

7.6.3 Some learners refer to R_f as **Frequency Resistance**

7.6.4 Most learners were unable to answer the question even those who answer this question they gave little information. They wrote something about **decrease of gain** and nothing about the voltage. The expected answer was If the resistance of R_f is increased V_{RF} will increase this feedback on the inverting input of the op-amp reducing the the overall gain of the circuit

7.6.5 Most learners did not answer this question correctly they just wrote R_{in} **limits the current** while they were expected to write R_{in} allows further control of the op-amp circuit gain. Setting R_{in} at a high value compared to R_f creates a voltage follower circuit R_{in} sets a reference point for for the inverting input few learner correctly answer the question.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops

(d) Describe any other specific observations relating to responses of learners

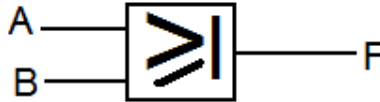
- Most learners were not exposed to the workshops.
- It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Level 2 and1Level1) which means this level 1 might be this subject .

<p>(e) Any other comments useful to teachers, subject advisors, teacher development etc.</p> <p>Any other comments useful to teachers, subject advisors, teacher development etc.</p> <ul style="list-style-type: none"> • Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows. • Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis. • Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously. • Teacher development should be done continuously.
<p>QUESTION 8</p>
<p>(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?</p> <p>This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to transformers.</p>
<p>(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.</p> <p>This question was poorly answered because:</p> <ul style="list-style-type: none"> • In 8.1 learners were unable to give the function of a transformer nor losses that occur in three-phase transformers as it was requested. • In 8.3 the learners were requested to calculate the secondary phase voltage, secondary line voltage, primary phase current and the primary line current. The learners were unable to select and use the transformer ratio from the formula sheet as it was given. • Those who were able to select the correct formula and manipulate it were having problem with line values, phase values.
<p>(c) Provide suggestions for improvement in relation to Teaching and Learning</p> <ul style="list-style-type: none"> • The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops • The schools should insist that all learners that are doing this subject are having scientific calculators and are use throughout the year

<p>(d) Describe any other specific observations relating to responses of learners</p>
<ul style="list-style-type: none"> • Most learners were not exposed to the workshops. • It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Level 2 and1Level1) which means this level 1 might be this subject .
<p>(e) Any other comments useful to teachers, subject advisors, teacher development etc. Any other comments useful to teachers, subject advisors, teacher development etc.</p> <ul style="list-style-type: none"> • Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows. • Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis. • Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously. • Teacher development should be done continuously.
<p>QUESTION 9</p>
<p>(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered? This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to PLCs.</p>
<p>(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.</p>
<p>9.1 Learners did not answer this question correctly they just wrote Programmable Logic Circuit or Programmable Logic Concept instead of writing Programmable Logic Controller.</p> <p>9.2 In this question learners didn't answer this question incorrectly as they gave answers for QUESTION 9.5 instead of answering as follows Input terminal, Output terminal, Memory, CPU, Screen, PSU.</p> <p>9.3 Some learners just defined the PROGRAMMABLE LOGIC CONTROLLER as digital computer used for automation. While they were expected to define the programme as the series of instructions written in a language that PLC recognise and interpret into an output or that is a language used to programme PLCs.</p> <p>9.4.1 – 9.4.3 Some learners did not even attempt this question other answered this question correctly</p> <p>9.5 Some learners answered this question correctly while the other did not even attempt it.</p> <p>9.6 This question was poorly answered by learners; they did not understand the question at all, they just wrote answers of QUESTION 9.7 instead of writing User interface, Computer or Laptop, hand held programming device.</p>

9.7 Majority learners gave incorrect answer for this question they wrote **XHOSA, ENGLISH, AFRKAANS** instead of Ladder logic, Instruction List, Logic Block Diagram.

9.8.1 Most learners incorrectly answered the question, they drew \geq or a box only instead of the symbol of an OR-gate



9.8.2 Most learners who answered this question Drew the right diagram except that they did not indicate the supply voltage.

9.8.3 Some learners failed to draw the ladder logic diagram even though they were able to draw the OR-gate circuit diagram.

9.9 Some learners incorrectly answered the question as they drew star delta starter while others redrew the direct-on-line starter as it was on the question paper, whilst the expected answer was the ladder logic of the direct-on-line starter.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops

(d) Describe any other specific observations relating to responses of learners

- Most learners were not exposed to the workshops.
- It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Leve2 and1Level1) which means this level 1 might be this subject .

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

Any other comments useful to teachers, subject advisors, teacher development etc.

- Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows.
- Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis.
- Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously.
- Teacher development should be done continuously.

QUESTION 10

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

This question has been poorly answered by the majority of the centers and this proves that most learners were not exposed to the workshop hence they were having problems in answering the questions with reference to insulation resistance tests on the stator of three-phase induction motor let alone not knowing the very instrument used not to mention the expected readings when conducting the tests.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

This question also has been poorly answered.

- In 10.1.1 learners did not know the type of instrument used to test insulation resistance. They were giving multi-meter, ohm-meter and Wattmeter instead of Insulation resistance tester or Megger.
- 10.1.2 They also did not know the importance of testing the insulation resistance between windings and the frame of the motor.
- 10.1.4 Instead of drawing windings connected in star as per given lay-out they just draw the star winding not following the instruction given.
- From 10.2.1 to 10.2.3 the learners were having the same problem as in question 4.3.2 hence the question was on three-phase induction motors also here they were not sure when to use $\cos \phi$; 0.9 because some were using 0.9 as follows:

$$P = \sqrt{3} \times V_L \times I_L \times \cos \phi$$
$$15000 = \sqrt{3} \times 380 \times I_L \times \cos 0,9$$
$$I_L = \frac{15000}{\sqrt{3} \times 380 \times \cos 0,9}$$
$$= 22,79 \text{ A}$$

Some were responding like this:

$$P = \sqrt{3} \times V_L \times I_L \times \cos \phi$$
$$15000 = \sqrt{3} \times 380 \times I_L \times 0,9$$
$$I_L = \frac{15000}{\sqrt{3} \times 380 \times 0,9}$$

$$= 25.32 \text{ V OR } 25.32 \text{ W OR } 25.32 \text{ with no units}$$

<p>(c) Provide suggestions for improvement in relation to Teaching and Learning</p> <ul style="list-style-type: none"> • The schools must make it a point that the learners are exposed to the workshops and learners are given chances to use the tools and equipment in the workshops • The schools should insist that all that are doing this subject are having scientific calculators and are use throughout the year
<p>(d) Describe any other specific observations relating to responses of learners</p> <ul style="list-style-type: none"> • Most learners were not exposed to the workshops. • It seems some of the learners were promoted in this subject not meeting the requirements because of the promotional requirements (3Level3;3Leve2 and1Level1) which means this level 1 might be this subject .
<p>(e) Any other comments useful to teachers, subject advisors, teacher development etc.</p> <p>Any other comments useful to teachers, subject advisors, teacher development etc.</p> <ul style="list-style-type: none"> • Subject advisor should be a person who has a know how in the subject (electrical technology) so that he/she can advise what he/she knows. • Subject advisors should make sure that they do continuous monitoring of learners SBA like in monthly basis. • Educators should make sure that learners are given tasks all the time, to check the performance of a learner continuously. • Teacher development should be done continuously.

SIGNATURE OF CHIEF MARKER: _____

SIYASEBENZISANA/ WORKING TOGETHER/ SAMEWERKING

Quest for Excellence through high powered performance