Province of the
EASTERN CAPE
EDUCATION

ASSESSMENT AND EXAMINATIONS DIRECTORATE
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NSC 2015 CHIEF MARKER'S REPORT

SUBJECT	ELECTRICAL TECHNOLOGY ELTT

PAPER	**1**

DATE OF EXAMINATION:	12-11-2015	**DURATION:**	**3 HOURS**

This section of the instrument is aimed at providing valuable feedback to schools, subject advisors, teachers and learners about common errors committed by candidates in the answering of questions, to assist teachers and subject advisors to identify areas that need to be given special attention in the teaching and learning of the subject in 2016.

Your responses will be based on two parts:

Section 1: General overview of Learner performance in the question paper as a whole

Section 2: Comment on candidates' performance on individual questions (Detailed explanations must be provided **per question** as follows: (You may include sub questions where necessary)

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
(b) Why the question was poorly answered?
(c) Provide suggestion for improvement in relation to teaching and learning
(d) Describe any other specific observations relating to responses of learners
(e) Any other comments useful to teachers, subject advisors, teacher development

SECTION 1: (General overview of Learner Performance in the question paper as a whole)

Of the 708 candidates 408 obtained between 0% - 29% (level 1) for the question
paper. The averages obtained were 50/200 or 25%. 158 of the candidates who
passed the exam obtained level 2 (30% -39%). Only 42, 4% passed the written exam.
The candidates who passed performed as follows:
Level 2 – 158
Level 3 – 85
Level 4 – 40
Level 5 – 16
Level 6 – 1
None of the candidates obtained a level 7
Only 57 of the pupils who wrote obtained above 50% (level 4 to level 6)

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?
Average = 5,8/10 = 58%
In general this question was answered fairly well by most learners, however questions that required interpretation were not fully explained

(a) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
1.4. Pupils explained the term human rights but did not say how workers were affected
1.5. Pupils explained the definition but not the importance

(b) Provide suggestions for improvement in relation to Teaching and Learning
Educators should use real life scenarios and demonstrations when explaining or
defining terms and actions or conditions.

(d) Describe any other specific observations relating to responses of learners
Pupils still had trouble differentiating between unsafe conditions and unsafe acts

(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Pupils should be taught to read thoroughly and improve their comprehension in order
to answer these questions properly

QUESTION 2
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Average = 8,1/20 = 40,5%
This was a fair question so a higher average was expected. Only 10% of questions were
Level 3 questions
Question was poorly answered considering the fairness

(a) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
2.1. Pupils could not distinguish between the different types of power in a circuit.
2.2. direction of rotation was omitted and the phases were not labelled
2.3 The wrong formulae and units were used. Pupils did not use calculator
Correctly.

2.4. pupils knew what power factor correction was but did not give advantages
2.5. Wrong power was given or was said to measure current and voltage

(b) Provide suggestions for improvement in relation to Teaching and Learning
Pupils must have calculators and do examples in class while teacher is giving lesson
So they can be helped before attempting exercise or class test

(d) Describe any other specific observations relating to responses of learners
Learners tend to measure all types of power in watts or kW
They forget that power can also be used to calculate current not just the relationship
between line and phase values
(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?
Average = 6,2/20 = 31%
Question was answered poorly as it was a fair question

(a) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Pupils tend to mix up motors with transformers
3.1. pupils named motor protective devices
3.2. many pupils did not read that they had to give the impact and not the loss as an
Answer
3.4. pupils could not identify that the load was connected to the secondary side.
Also that the voltages remain constant so current has to change to incorporate change
In power output.
3.5.1. The wrong formulae and units cost pupils marks

(b) Provide suggestions for improvement in relation to Teaching and Learning
Educators should use a hands on approach and physically show individual pupils
How to identify the formula, use the calculator and remember the correct unit.
The differences between transformers and motors should be made clear

(d) Describe any other specific observations relating to responses of learners
More informal assessment should be done with calculations
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Use past papers when doing informal assessment so pupils can become accustomed
to language usage and interpretation.

QUESTION 4
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Average = 9,3/40 = 23,3%
The question was poorly answered

(a) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
4.1. pupils were not familiar with different parts of a motor
4.3. Pupils knew what tests should be carried out, but not the reason for the tests.
4.4. although this starter is done practically, pupils did not know the functions of the
various components and the difference between interlocking and holding contacts
4.5. Knowledge of the different types of starters is poor
4.7. Pupils should be more specific when saying what should be swopped. They
Should not just say wires or connections
4.8. It seemed as though many learners had never seen the nameplate of a motor.
4.9. Pupils had problems determining pole pairs
4.11.To understand this question pupils had to understand the different components
of current and that the active current is influenced by a change in power factor.

(b) Provide suggestions for improvement in relation to Teaching and Learning
Educators must use real motors when explaining lessons.
Starters should be wired individually and pupils must be able to explain in writing the

sequence after the start button has been pressed.
Simulations must incorporate a theory test on the components and operation of
motors and starters.
Meters should be connected in circuits to see the effects of different connections.
Then calculations should be done to prove practical readings

(d) Describe any other specific observations relating to responses of learners
From learners answers it shows practical knowledge linked to theory is lacking
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Educators should be reskilled practically and be exposed to industrial situations
Maybe even shadow working in an industrial environment should be considered

QUESTION 5
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Average =5,7/20 = 28,5%
The question was poorly answered

(a) Why was the question poorly answered? Also provide specific examples.

indicate common errors committed by learners in this question, and any misconceptions.
5.1. Calculator used incorrectly and no unit in answer
5.2. Pupils could not relate factors that occur during resonance to current.
5.3.2. Pupils did not know correct formula, they used $X_L = 2\pi fL$
5.4. Pupils gave answer found in text book written by Trevor Adams and Steve
Mitchell.(pg. 124)

(b) Provide suggestions for improvement in relation to Teaching and Learning
More informal assessment should be done using past papers

(d) Describe any other specific observations relating to responses of learners
Pupils could do calculations but not answer questions where reasoning or application
of RLC circuits had to be known
(e) Any other comments useful to teachers, subject advisors, teacher development etc.

QUESTION 6

(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Average = 7,3/40 = 18,3%
Question was answered poorly

(a) 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. – 6.1.3. This is a level one knowledge repeating question. Pupils are not
employing proper study methods
6.2. Pupils failed to grasp that they had to give the advantages of PLC systems
6.3.1. pupils could not draw the table for the number of inputs. Basic Karnaugh
Map knowledge lacking
6.3.2. Pupils attempted to simplify algebraically and not by using Karnaugh map
6.4.2. Knowledge of sequence starting poor
Symbols of ladder diagrams as compared to circuit diagrams lacking
Knowing when a symbol is should be shown as normally open and normally closed is lacking,
especially stop and overload buttons

(b) Provide suggestions for improvement in relation to Teaching and Learning
Educators should drill the basic operations and skills into learners so that it becomes
second nature. Practice drawing tables for different amounts of inputs before
populating and simplifying Karnaugh maps

(d) Describe any other specific observations relating to responses of learners
Learners should be reminded that when drawing ladder diagrams or circuit diagrams,
Hat labels or appropriate letters are necessary and important
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Educators need more exposure to PLC systems.
QUESTION 7
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Average = 8/50 = 16%
Question was answered poorly

(a) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
7.1. Pupils did not study characteristics or use past papers to study. This is a commonly
asked question
7.2. and 7.5. Terminology knowledge is poor
7.3. - 7.4. Pupils thought feedback was something you got from a survey or questionnaire
7.6./7.7/7.9/7.10 Pupils cannot identify different types of applications and their circuits.
They cannot distinguish how components are connected in op amp circuits to obtain various applications.
7.8. Learners did not calculate total inductance(grade 10 knowledge)

7.11. pupils do not understand the function or meaning of dual supplies

(b) Provide suggestions for improvement in relation to Teaching and Learning
Teachers should do informal assessment worksheets where circuits are identified by components and configurations
Input and output waveforms should be practiced

(d) Describe any other specific observations relating to responses of learners
It seems that either educators are not covering this section of the work or that learners
Are not attending classes after the second term vacation
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Subject heads and HODs should ensure that lesson plans are followed and that
Pupils not attending classes should be dealt with

S.C. SAMUELS 09-12-2005

NAME OF THE CHIEF MARKER: **SIGNATURE** **DATE**