Province of the
EASTERN CAPE
EDUCATION

EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
Home of Examinations and Assessment, Zone 6, Zwelitsha, 5600
REPUBLIC OF SOUTH AFRICA, Website: www.ecdoe.gov.za

2018 NSC CHIEF MARKER'S REPORT

SUBJECT:	ELECTRICAL TECHNOLOGY(ELECTRONICS)
PAPER:	1
DURATION OF PAPER:	3 HOURS
DATES OF MARKING:	30 NOVEMBER 2018 TO 12 DECEMBER 2018

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

83 Learners wrote the examinations. Only 13,3% achieved levels 2(30%-39%) – level 4(50% -59%)
The candidates who passed performed as follows:
Level 2 – 5
Level 3 – 4
Level 4 – 2

SECTION 2: Comment on candidates' performance in individual questions

(It is expected that a comment will be provided for _each question_).

QUESTION 1	
(a)	**General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?**
The question was not answered well.	
(b)	**Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.**
1.1.	Many learners did not explain the severity of the injury or damage but merely referred to it as an injury at work. Some learners defined accident instead of incident.
1.2.	Learners were not clear about what is asked.
1.3.	Learners knew the consequences of horseplay but could not explain why it was an unsafe act.
1.4.	Question was not read properly by learners which led to then answering incorrectly. Learners described how the victim should be assisted.
1.5.	Confusion between quantitative and qualitative risks when answering this question

(c)   **Provide suggestions for improvement in relation to Teaching and Learning**
Learners should be given more tasks such as class tests, homework and assignments.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
n/a

QUESTION 2
(a) General comment on performance of learners in specific question. Was the question well answered or poorly answered?
The question was fairly answered.
(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
2.1. Learners didn't give full explanation of impedance e.g. they failed to mention the opposition of current in an AC circuit.
2.2. Learners were unable to show leading and lagging by means of wave form diagrams. Learners drew any wave form.
2.3. Learners confused capacitance and inductance with capacitive reactance and inductive reactance. They calculated X_c and X_l instead of C and L, some wrote incorrect units.
2.4. This question was fairly answered although some of the learners were unable to validate their answers
2.5. Many learners could not associate reactance values with resonant frequency. Most learners answered this question with the resonant frequency's formula.
2.6.1. **a and b** – learners mixed up the two calculations. They calculated X_C instead of X_L and vice versa.
2.6.2. c – learners tried to use reactive power formula to calculate reactive current. No formula was given on the formula sheet.
2.7. Few learners were able to answer the question while others struggled with it.
(c) Provide suggestions for improvement in relation to Teaching and Learning
Worksheets should be given to learners and be penalized for incorrect units.
More informal assessments should be done on theory and calculations.
When doing calculations learners should follow the following steps: - Write down the full correct formula   - Substitute using the correct values and unit amount   - Write down the answer with the correct unit
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
n/a

QUESTION 3
(a) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
3.1. Many learners didn't give the correct answer for the question.
3.2. learners poorly answered this question.
3.3.1. Learners were unable to identify the type of MOSFET used.
3.3.2. Many learners struggled in answering this question.
3.3.3. Many learners were unable to answer the question correctly.
3.4. Few learners managed to correctly answer the question. They were unable to correctly explain what happens in the UJT between points C and D of the characteristic curve.
3.5. Few learners correctly answered the question.
3.6. Learners didn't correctly answer the question, some wrote non-inverting output while others wrote non-inverting only. Many learners did not know the type of package. Learners drew incorrect output signals, some didn't amplify the signals correctly.
3.7. Most learners didn't correctly answer the question, they were unable to differentiate between closed and open loop gain.
3.8. Learners used incorrect formulae, substitution and units.
3.9. Learners poorly answered this question. They displayed little knowledge in 555ICs.
(c) Provide suggestions for improvement in relation to Teaching and Learning
More emphasis should be placed on the operation and effects or functions of components in circuits.
More informal assessment tasks are also recommended.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Special worksheets should be developed by either educators or subject advisors with emphasis on drawing circuits and explaining the operation of these circuits.
QUESTION 4
General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
The question was poorly answered.
(a) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
4.1. Learners were unable to explain the purpose of astable multivibrator instead they defined an astable multivibrator.
4.2. Learners were unable to identify the type of multivibrator, they were unable to name

the type of feedback provided by R_2 and they were also unable to describe the change in the output signal.
4.3. Learners didn't understand the circuits and they were unable to draw the waveforms or which output waveform to expect.
4.4. Learners were unable to draw correct waveforms.
4.5. Learners were able to answer 4.5.1. but they were challenged by drawing the waveforms. They were unable to describe how a decrease in a value of R_1 will affect the trigger level of the Schmitt trigger.
4.6. Some learners were able to correctly answer the purpose of a comparator while some were able to explain its function.
4.7. Some learners chose incorrect formulae, some substituted incorrectly and wrote incorrect units at the end of the calculation. They were unable to explain how the circuit can be modified to prevent DC from being fed back to the input voltage sources. Most of the answer books issued were not utilized by some learners.
4.8. Learners were unable to draw the output waveforms from the given information.
4.9. Learners were unable to draw output waveforms and some were unable to describe what will happen to the output signal if the RC time constant is short.
(c) Provide suggestions for improvement in relation to Teaching and Learning
Teachers should prepare worksheets similar to answer sheets so that learners can practise drawing various output waveforms.
More practical demonstrations should be done when explaining the operations and modifications to circuits.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Ensure that the school workshops are equipped with proper consumables and equipment to perform various demonstrations.
Teachers should possess the necessary skills or be trained to perform the demonstrations and simulations.
QUESTION 5
(a) General comment on performance of learners in specific question. Was the question well answered or poorly answered?
The question was poorly answered.
(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. Learners were unable to correctly answer the question.
5.2. Learners were unable to correctly answer the questions.
5.3. Many learners were unable to correctly answer the questions.

5.4. Learners were unable to correctly answer the question.
5.5. Learners were incorrectly answering the question.
5.6. Learners displayed less knowledge in circuits resulting to poor answering of this question. Few learners managed to define oscillator, few learners were able to name the type of waveform generated by oscillator. Few learners were able to correctly differentiate between Hartley oscillator and the Colpitts oscillator.
5.7. Learners were unable to answer the question.
5.8. Learners incorrectly answered the question.
5.9. Learners incorrectly answered the question; many learners didn't draw the cycles of damped oscillation.
(c) Provide suggestions for improvement in relation to Teaching and Learning
Informal assessment tasks be done.
Worksheets be developed with different circuits for practice to learners.
(d) Describe any specific observations relating responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Teachers should be skilled enough to demonstrate these circuits practically. Learners should also build circuits practically.