Province of the
EASTERN CAPE
EDUCATION

EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
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2018 NSC CHIEF MARKER'S REPORT

SUBJECT:	**ELECTRICAL TECHNOLOGY(DIGITAL SYSTEMS)**
PAPER:	**1**
DURATION OF PAPER:	**3 HOURS**
DATES OF MARKING:	**30 November - 12 December 2018**

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

Out of 51 students that wrote 43 achieved level 1 (0% - 29%).
Only 8 learners managed to pass the exams, indicating that they achieved between level 2 (30% - 39%) and level 5 (60% - 69%).
The candidates who passed performed as follows:
Level 2 – 6
Level 3 – 1
Level 4 – 0
Level 5 – 1
None of the candidates achieved level 6 and level 7

SECTION 2: Comment on candidates' performance in individual questions

(It is expected that a comment will be provided for <u>each question</u>).

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?
This question was poorly answered.
The average percentage for this question was 8%.
(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 were unable to explain the purpose of an astable multivibrator. Many learners gave a definition of an astable multivibrator.
2.2. Learners were unable to identify the type of multivibrator, learners were unable to name the type of feedback provided by R_2 and they were unable to describe the change in the output signal.
2.3. Learners did not understand the circuits and they were unable to draw the waveforms or which output waveforms to expect.
2.4. Learners were unable to draw the waveforms.
2.5. Learners were able to answer 2.5.1 but they were challenged by drawing the wave forms. They were unable to describe how a decrease in a value of R_1 will affect the trigger level of the Schmitt trigger.

2.6. Learners were able to answer to answer the purpose of comparator, and some were able to explain the function of the comparator.
2.7. Some learners didn't choose the correct formula for calculating the output voltage, learners didn't substitute correctly and didn't write the units at the end of the calculation while others were unable to explain how the circuit can be modified to prevent DC from being fed back to the input voltage sources. The answer books that were issued to the learners were not utilised by most of the learners.
2.8. Learners were unable to draw the output from given information.
2.9. Learners were unable to draw output wave forms 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 practice drawing various output wave forms.
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 workshops are equipped with proper consumables and the equipment to perform various demonstrations.
Teachers should possess the necessary skills or be trained to perform the demonstrations and simulations.
QUESTION 3
(a) General comment on performance of learners in specific question. Was the question well answered or poorly answered?
This 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.
3.1. Learners didn't answer the question correctly some wrote non-inverting output while others wrote non-inverting only. Many learners did not know the type of package. Learner drew incorrect output signals, some didn't amplify the signals correctly.
3.2. Some learners didn't write the minimum and the maximum voltages they only wrote one voltage either the minimum or the maximum.
3.3. Most of the learners were able to answer the question
3.4. Most learners didn't answer the question correctly, they were unable to differentiate between closed and opened loop gain.

3.5. Few learners answered this question correctly, some were unable to get it correct they wrote incorrect formula with incorrect units.
3.6. Learners displayed little knowledge in 555ICs.

(c) Provide suggestions for improvement in relation to Teaching and Learning
More emphasis should be placed on the operations and effects or functions of the components in the circuit.
More informal testing is also recommended.
Teachers should develop worksheets so that learners cam practice
QUESTION 4
(a) General comment on performance of learners in specific question. Was the question well answered or poorly answered?
The question was poorly answered
Why the question was poorly answered? Also provide specific examples, indicate common errors committed by learners in this question and any misconceptions.0
4.1. Learners only explained partially how the passing of light was controlled.
4.2. Many learners didn't illustrate as instructed and no learners included the arrow in the illustrations.
4.3. Learners did not know how to complete the truth table.
4.4 Most learners drew up incorrect circles with no labels
4.5. Leaners drew the wrong circuits and didn't label correctly, they were also unable to complete the truth table.
4.6. Learners confused when explaining asynchronous and synchronous counters.
4.7. Learners were unable to explain the operation of the counter.
4.8. Incorrect unlabelled circuits were drawn by most learners.
Provide suggestions for improvement in relation to Teaching and Learning
Special worksheets should be developed by subject advisors and educators with emphasis on drawing circuits and explaining the operation of circuits.
(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 5
(a) General comment on the performance of learners in the 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 able to list uses of microcontroller in commercial devices.
5.2. Learners were able to answer this question.
5.3. Learners were unable to explain the basic process that a microcontroller follows to fulfill its function.
5.4. Learners incorrectly labelled the diagram.
5.5. Many learners were unable to correctly answer the question.
5.6. Learners misinterpreted the term "register" they referred to it as a paper that one signs on. They were unable to explain the function of the memory data register,
5.7. Few learners managed to answer the question correctly.
5.8. Many learners drew up incorrect or incomplete block diagrams.
5.9. Learners didn't answer this question correctly.
5.10. Incorrect answers were given by learners.
5.11. Learners were unable to identify the flow diagram symbols.
5.12. Learners didn't know how to draw the flow diagrams from the given scenario.
(c) Provide suggestions for improvement in relation to Teaching and Learning
Informal assessment should be done and learners be exposed to practical tasks.
Worksheets with different scenarios should be given to practice drawing flow diagrams.