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**EVALUATION OF THE QUESTION PAPERS (PER PAPER)
AND
QUALITATIVE ANALYSIS OF LEARNER RESPONSES**

NATIONAL SENIOR CERTIFICATE 2023

WESTERN CAPE EDUCATION DEPARTMENT

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REPORT 2: QUALITATIVE ANALYSIS OF LEARNER RESPONSES

SECTION 1: (GENERAL OVERVIEW OF LEARNER PERFORMANCE IN THE QUESTION PAPER AS A WHOLE)

As with previous examinations (2022 NSC), 2023 Civil Services candidates did not perform well in this examination paper and the 2023 NSC pass rate results will decreased from the 2022 NSC result. The paper had a few challenging questions, and the candidates did not know how to interpret certain questions and therefore only answered the questions in general. There are still too many candidates that lack the skills and knowledge required to answer even the lower order cognitive level questions. Difficulty of the paper is fair in general although the marks do not reveal it. Candidates do not always understand and interpret the questions correctly and if they do, they do not have the vocabulary to express themselves correctly. This results in responses from candidates that are very difficult to read and to understand. Some questions come across as being too difficult for them. Therefore, markers also need to be trained to be more diverse in their thinking. As mentioned, candidates are still performing better in the theory (analytical) component than in the drawing component. Teachers and candidates must realise that the drawings are just as an important component in the syllabus

and that it contributes the same weighting in the overall mark for Civil Services.

Candidates performed well below the expected level of performance. The average mark for the 56 scripts that was marked was **26,3 %**

The average mark for question 1 was 7 out of 20

The average mark for question 2 was 20 out of 40

The average mark for question 3 was 6 out of 30

The average mark for question 4 was 10 out of 40

The average mark for question 5 was 5 out of 30

The average mark for question 6 was 6 out of 40

Performance in the scripts that was marked was well below the marks that were expected. A possible reason for the poor performance may be that the candidates that wrote Civil Technology: Civil Services did not have sufficient time to prepare and they were extremely tired on the Thursday afternoon when they wrote Civil Technology: Civil Services paper.

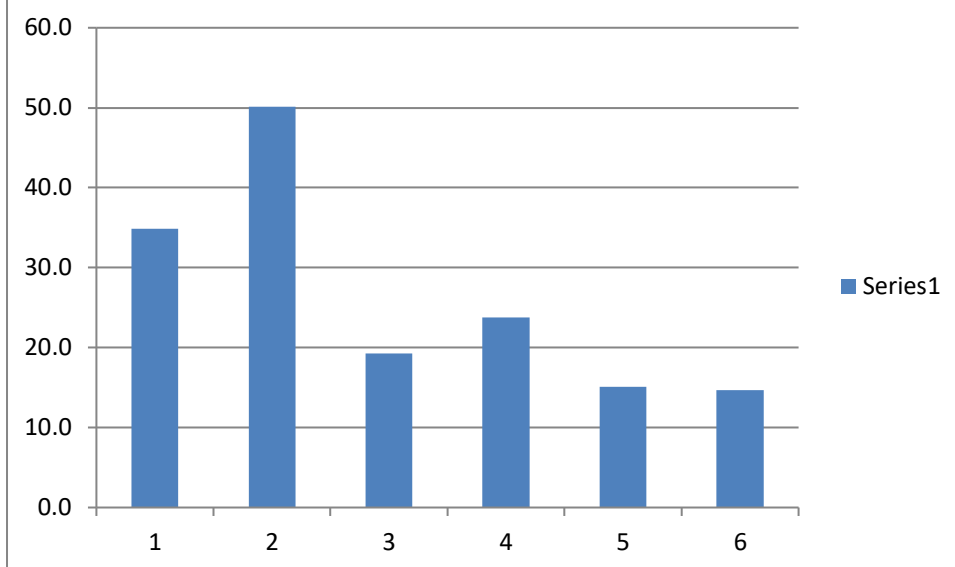
As required by policy all candidates that offer Civil Technology must have either Physical Science or Technical Science as well as EGD. All these candidates wrote Science P1 on Friday 10 Nov, and then they wrote Science P2 on Monday 13 Nov. The morning of 15 Nov they wrote Eng. P2 (Literature) that requires a lot of study time to be prepared and then wrote EGD P2 in the second session. On the 16th November they wrote Civil Technology.

The teachers also indicated that the candidates that they spoke to after the Civil papers were written said that they were very tired and did not have enough time to prepare for the Civil paper due to the demand of the previous 4 papers.

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This question paper was answered below average as indicated in the 100 scripts analysis.

		AVE MARK	AVE. %
QUESTION 1	390	7.0	34,8
QUESTION 2	1123	20.1	50.1
QUESTION 3	323	5.8	19,2
QUESTION 4	533	9.5	23,8
QUESTION 5	253	4.5	15.1
QUESTION 6	329	5.9	14,7
GRAND- TOTAL	2951	8,8	



Question 2 was a well-set question and well balanced. The Civil Services candidates answered this question best. The lack of interpretation from candidates is evident in their answers.

Question 3, 4, 5 and 6 are the most poorly answered questions. It is evident that candidates lack content knowledge in these questions.

Candidates still lack the interpretation of drawings and therefore struggle to draw the questions on drawings.

The drawing skill must be emphasised by advisers in the province and the correctness need to be addressed.

The question on quantities still proves to be problematic for most candidates. Identification and drawing of symbols must be focussed on in depth by teachers.

SECTION 2: COMMENT ON CANDIDATES' PERFORMANCE IN INDIVIDUAL QUESTIONS

(It is expected that a comment will be provided for each question)

<u>QUESTION 1</u>	
(a)	<i>General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?</i>
This question was answered poorly by most of the Woodworking candidates. Of the 100-script analysis, the average percentage obtained for this question is 32,9 %. Question 1.2.1 – 1.2.3 (joining fixtures to secure a gate). Learners did not understand the question and refer to hinges as the joining fixture. Therefore 1.2.2 and 1.2.3 were answered incorrectly as it is a follow-on question 1.2.1. Question 1.4 (To ensure the accuracy of the dumpy level) and seemed to be quite a challenge for most candidates. Candidates focus on the setting up of the dumpy level rather than the test itself.	
(b)	<i>Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.</i>
Candidates were not well prepared on the content on joining. 1.1 Candidates were not able to respond to the correct fixture to be used.	

1.1 Candidates were not able to respond to the correct steps to join the fixture.
1.2 A possible reason for the poor performance in this question may be that candidates were not exposed to the practical application of joining fixture.
(c) Provide suggestions for improvement in relation to Teaching and Learning.
It is advised that more focus should be placed on terminology and basic Woodworking joining fixtures. More emphasis should be place on understanding the question and articulating the response. It will be beneficial to candidates if teachers could teach them to analyse questions correctly to determine what is exactly required instead of responding to key words that triggers a general response. Practical demonstrations during teaching in practical periods will enable candidates to understand the concepts better.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
It was observed that many candidates were not able to write down the required answers using technically correct terminology, although they were able to demonstrate that they know what the required answer is. The fact that the marking guideline does not make provision for the interpretation of the learner's response by the marker caused many candidates to lose marks in some questions. The academic term "Chronological order" also seemed to pose challenges to the candidates. It is advised that teachers should focus on the use of the correct terminology for joining fixtures, tools, and different members of drawings by candidates during teaching as well as when candidates do class and homework.

QUESTION 2
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Question 2 was well answered in comparison to the other four questions. The average for question 2 was 50, 8% as indicated in the data analysis of the 100 scripts captured. This was a well-balanced question with a reasonable set of questions, testing a wide range of knowledge within the question. Question 2.26 - Most candidates struggle to calculate the area of the wall as it is a new question on area calculation. In question 2 numbers 1, 10, 14 and 20 many candidates were not able to extract answers from the context of the give questions.
(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Q2.1 – The marking guideline did not cater for the answer indicated in the title block. Q2.8 – 'Geutpyp' in Afrikaans marking guideline is accepted but not translated in the English side as 'gutter pipe'. Q2.10 & 2.18 – The marking guideline penalises candidates for not using units which is standard in Civil drawings (mm). Q2.14 - The marking guideline only caters restricted answers when there is no specificity in the

question. Answers should be deduced from the building notes and not the building plan. Many candidates were not able to identify the indicated aspects on building plans as expected. Number 26: Most candidates were not able to correctly calculate area of a wall. Poor mathematical skills and the possibility that candidates were not exposed to enough of this type of calculations during class and homework activities may be a reason for the poor performance in this question.	
(c)	<i>Provide suggestions for improvement in relation to Teaching and Learning.</i>
It is advised that more focus should be placed on work through past NSC exam papers and focus on identification of drawing of SANS 0143 drawing symbols. It is also advised that more emphasis is placed on calculations, identification and drawing of symbols. It will be beneficial to candidates if teachers use copies of real building plans when teaching this topic with specific reference to the different items and symbols used on building plans. It is also recommended that teachers develop several questions that is like the calculations in question 2 number 25 and 26 and give it to candidates to do during class and homework exercises.	
(d)	<i>Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.</i>
It will be to the advantage of candidates if they prepare themselves for the examinations using only the approved SANS symbols.	

<u>QUESTION 3</u>	
(a)	<i>General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?</i>
The response to Question 3 was notably deficient in comparison to the performance on the remaining five questions, with an average score of 19.2%, as evidenced by the data analysis of the only 56 scripts available. Question 3.1.1 – 3.1.2, candidates demonstrated an inability to accurately identify the harness clip and specify the component to which it should be affixed. Question 3.1.3, candidates displayed a lack of proficiency in identifying the appropriate safety attire required when handling raw sewage. Question 3.2, candidates encountered challenges in rectifying the faulty installation of a manhole. Question 3.3, candidates were unable to successfully calculate the gradient of the pipe. Question 3.4 revealed a deficiency in candidates' knowledge of backfilling procedures. Candidates faced difficulties in Question 3.5, struggling to identify sanitary fittings, materials, and the diameter of pipes and fittings necessary for the installation of a shower. Question 3.6, most candidates failed to accurately sketch the consecutive courses of the alternate courses of a one-brick wall in stretcher bond.	
(b)	<i>Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.</i>
Candidates displayed a lack of understanding of the content, as evidenced by their failure to attempt the question. There is a clear need for improvement in the candidates' reading and interpretation skills to enhance their overall performance.	

In question 3.2, it was observed that a majority of candidates were unfamiliar with the correct terminology and equipment applicable to working in a closed manhole containing gases. Some mistakenly mentioned "face mask" instead of the appropriate term, such as "breathing apparatus." Question 3.4, candidates demonstrated a deficiency in their content knowledge related to backfilling. Question 3.5, candidates encountered difficulties in calculating quantities related to sanitary fittings, materials, and the diameter of pipes. Question 3.6, a significant number of candidates were unable to accurately describe the consecutive courses of the alternate courses of a one-brick wall in stretcher bond.
(c) Provide suggestions for improvement in relation to Teaching and Learning.
Educators must focus on verbs and nouns in the question in order to guide learners to answer the questions. The implementation of English across the curriculum should be implemented throughout the entire education curriculum. It will be beneficial for learners if they can be exposed to the practical installation of manholes. If a physical demonstration is not possible, video clips and pictures can be used very effectively to demonstrate this procedure. It is recommended that teachers first explain the concept of the specific items that the quantities should be calculated for, before explaining the actual calculation (Calculation sanitary fitting for the installation of a shower. It will be beneficial to learners if they are given more exercises on the calculation of quantities of each item than the one example in the textbook. These additional exercises should form part of the teacher's lesson preparation.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
• Educators should use application of practical knowledge and skills to equip learners to be able answering questions in question one. • Working through past NSC exam papers. • To familiarized learners with the format and layout of certain questions and the responses to the questions. • Candidates need to do informal tests and set themselves benchmarks in order to perform better. • Candidates do not know how to structure a sentence to give a logical answer to the question. It was observed that many candidates could not demonstrate that they understand the content in the correct context. It was observed that most candidates could not relate to the reality of the content as they probably were mostly exposed to theoretical teaching.

QUESTION 4
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
In Question 4.1, candidates faced challenges in replacing the underlined word to render the

statements accurate, particularly in the context of a "Hot water high pressure geyser." Question 4.2, candidates successfully identified the tap in Figure 4.2, but struggled to articulate the working principles, particularly in reference to a "Demand pillar tap." Question 4.3, candidates were unable to explain the process of fixing a leaking pipe using a Johnson coupling. Question 4.7, candidates showed a lack of knowledge concerning SANS symbols abbreviations. Question 4.9, candidates encountered difficulty in matching the correct descriptions from the matching column question to the items listed in the opposite column. This necessitates a deeper understanding of the parts and working principles of sewer fittings and valves. Questions 4-10 revealed that candidates were unable to differentiate between dezincification and galvanic corrosion. A more in-depth level of understanding is required in this area.
(b) Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
In Question 4.1, candidates demonstrated a lack of content knowledge concerning the components of a high-pressure geyser. Question 4.2, candidates were unable to articulate the working principle of a demand pillar tap or metered tap, particularly when presented with a drawing of an electronic tap. In Question 4.3, candidates struggled to explain the process of fixing a leaking pipe using a Johnson coupling. Question 4.7, a majority of candidates were unable to identify the abbreviation for the Hot Water SANS symbols. Question 4.9, candidates faced challenges in matching the correct descriptions from the matching column question to the items listed in the opposite column, specifically pertaining to valves and sanitary PVC fittings. In Question 4.10, candidates could not differentiate between dezincification and galvanic corrosion, highlighting a need for a more comprehensive understanding of these concepts.
(c) Provide suggestions for improvement in relation to Teaching and Learning.
Practical models must be displayed in the classroom for learners to engage with the different parts and fittings of a hot water geyser installation. More emphasis should be placed on the practical disassembly, reassembly, and installation of valves to enable learners to see the different parts of the valves and the purpose of each part. The challenge with terminology can be addressed by ensuring that correct subject terminology is used by the teacher while teaching and by learners when doing class and homework activities. Teaching in the language of teaching and learning "English" is a critical factor in the ability of the learners to comprehend and correctly respond to questions. It will be beneficial to learners if they can be showed the outcomes of electrolytic reaction. It is advised that teachers use small sections of different types of pipes to physically explain the concepts of <i>similar</i> and <i>dissimilar</i> pipes as used in the reference material.
(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
• Educators should use application of practical knowledge and skills to equip learners to be able answer questions in question one.

- Working through past NSC exam papers.
- To familiarized learners with the format and layout of certain questions and the responses to the questions.
- Candidates need to do informal tests and set themselves benchmarks in order to perform better.
- Candidates do not know how to structure a sentence to give a logical answer to the question.
- Examples of modules for practical demonstration to be displayed in the classroom and workshop.

Responses of candidates demonstrated a lack of critical and logical thinking skills.

The use of practical demonstrations and exercises by learners cannot be over emphasised as a teaching methodology for practical content. Learners understand the concepts much better if they did it practically, than from mere textbook teaching.

QUESTION 5

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

The response to Question 5 was poor compared to the performance on the other five questions, with an average score of 15.1%, as indicated in the data analysis of the 56 scripts available. Question 5.1, candidates demonstrated an inability to identify the components of a rainwater installation system, including a lack of understanding of gutter components and their functions. In Question 5.5, candidates struggled to perform developments of a frustum of a cone for a lampshade. The entire question was answered poorly, with 18 learners scoring zero marks, indicating a significant challenge in grasping the concepts related to this topic.

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

In Question 5.1, it was evident that candidates lack content knowledge regarding a rainwater installation system.

Concerning Question 5.5, candidates demonstrated a lack in drawing and interpretation skills related to sheet metal developments.

Moreover, candidates encountered challenges in applying basic drawing skills in the context of dividing a circle into 12 equal parts, projecting the sides to the apex of the cone, and determining the development. The poor performance in this question can be attributed to incorrect use of drawing equipment and a lack of drawing accuracy among the candidates.

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

More focused exercises on elevation and development drawings.

The drawing of developments is an application competence and a skill. The challenge can be addressed by drawing multiple examples of the different developments to develop the learners understanding and drawing skills in this section.

The challenges regarding the developments can be addressed by developing PAT tasks for GR 10 and 11 learners that will require them to draw the prescribed developments and physically make a

model of the drawn development.	
(d)	<i>Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.</i>
• Educators should use application of practical knowledge and skills to equip learners to be able answer questions in question one. • Working through past NSC exam papers. • To familiarized learners with the format and layout of certain questions and the responses to the questions. • Candidates need to do informal tests and set themselves benchmarks in order to perform better. • Candidates do not know how to structure a sentence to give a logical answer to the question. Responses was very poor considering that all these learners also have EGD as a subject. There is THREE types of developments that GR 12 learners should be able to draw, with variations on the angle on which these objects can be cut. It is recommended that teachers start with the most basic drawings and focus on the principles that need to be applied to draw these developments. Gradually increase the level of difficulty and ensure that learners draw multiple examples of the different developments. These drawings should be practiced again just before the examination as it is an applied competence that need to be refreshed.	

<u>QUESTION 6</u>	
(a)	<i>General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?</i>
The performance on Question 6 was notably very poor compared to the other five questions, with an average score of 14.7%, as indicated in the data analysis of the 56 scripts. In Question 6.1, candidates exhibited poor performance, particularly in their inability to articulate the process of joining a capillary fitting to a copper pipe. Regarding Question 6.3, candidates faced challenges in identifying the characteristics of cast iron pipes, resulting in a poor response to this question. In Question 6.4, candidates were unable to identify and explain the working principles of the apparatus presented in Figure 6.4. Question 6.5, candidates encountered difficulty in explaining the construction and advantages of a manhole ramp. Question 6.7, candidates' drawing skills were lacking, as evidenced by their inability to complete the sewerage layout of a dwelling, including sanitary ware and abbreviations, as well as the vacuum tank. This lack in drawing skills contributed to their poor performance in this question.	
(b)	<i>Why was the question answered poorly? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.</i>
In Question 6.1, most candidates encountered difficulty in explaining the process of joining a capillary fitting to a copper pipe. Question 6.3, many candidates struggled to explain the characteristics of cast iron pipes.	

Question 6.4, candidates were unable to identify the type of test and the working principles of a compressed air machine.

Question 6.5, most candidates faced challenges in explaining the advantages of a manhole ramp.

Question 6.7, candidates were unable to identify the abbreviations of components, faults, and angles of pipes in the layout.

Question 6.8, candidates could not complete the missing components in the given drawing, highlighting a lack in their ability to accurately represent and complete the drawing.

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

More focused exercises on vacuum tanks, sewage tanks, sewerage layout drawings and drawing symbols.

It is recommended that teachers physically disassemble and reassemble fittings as demonstration to learners and allow learners to apply these fittings to short sections of pipe in order to understand the working principles and develop the skill of correctly using the appropriate fittings when joining pipes.

It will be beneficial to learners if they are exposed to more exercises on the drawing of sewerage plans. When dealing with sewerage systems, it will assist learners with the understanding of the concepts if they do site visits and see the different systems including septic tanks operating in a real context. Simulation exercises in PAT tasks can be effectively used to develop the skills required in this section.

(d) Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

From the responses in the candidates' scripts, it is evident that they lack practical exposure to most of the sections, and this is having a negative impact on performance.

More sewerage layout plans should be covered by teachers in class to prepare learners for question sewerage plans in the question paper.