EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
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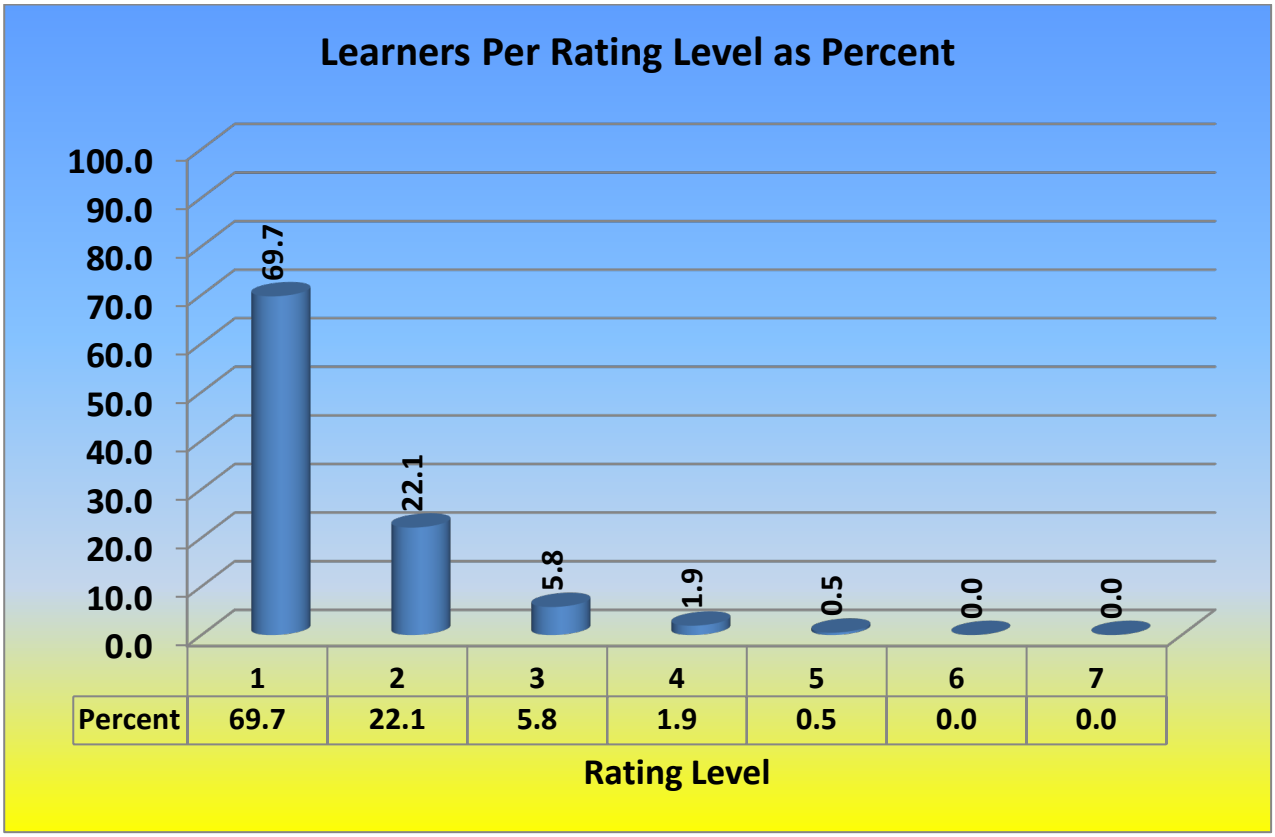
WELDING AND METALWORK

2018 NSC CHIEF MARKER'S REPORT

SUBJECT:		**WELDING AND METALWORK**
PAPER:		**1**
DURATION OF PAPER:		**3HOURS**
DATES OF MARKING:		**30/11/2018 TILL 13/12/2018**

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

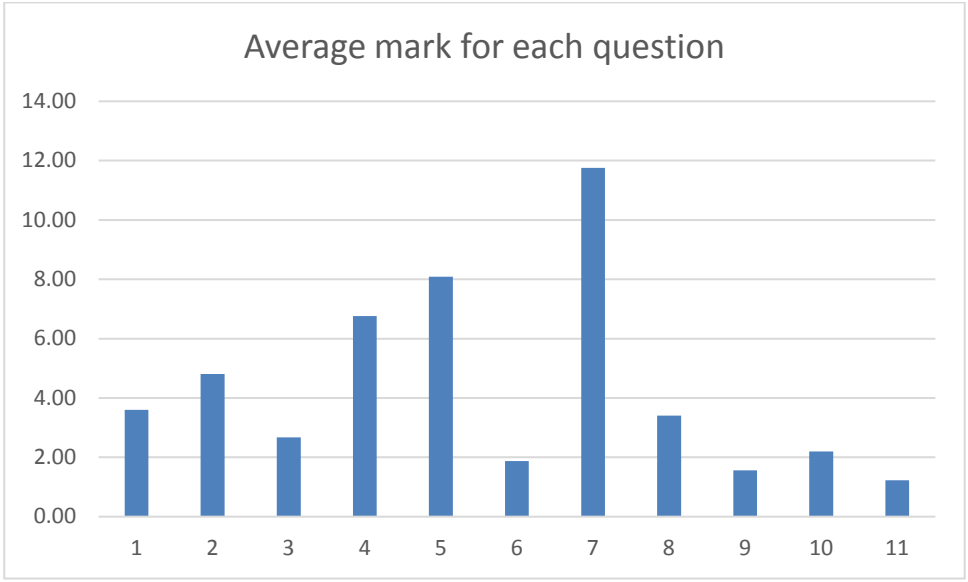
Total Wrote		**208**
% Passed		**30,3**
Levels	**Total**	**Percent**
1	145	69,7
2	46	22,1
3	12	5,8
4	4	1,9
5	1	0,5
6	0	0,0
7	0	0,0
		100,0

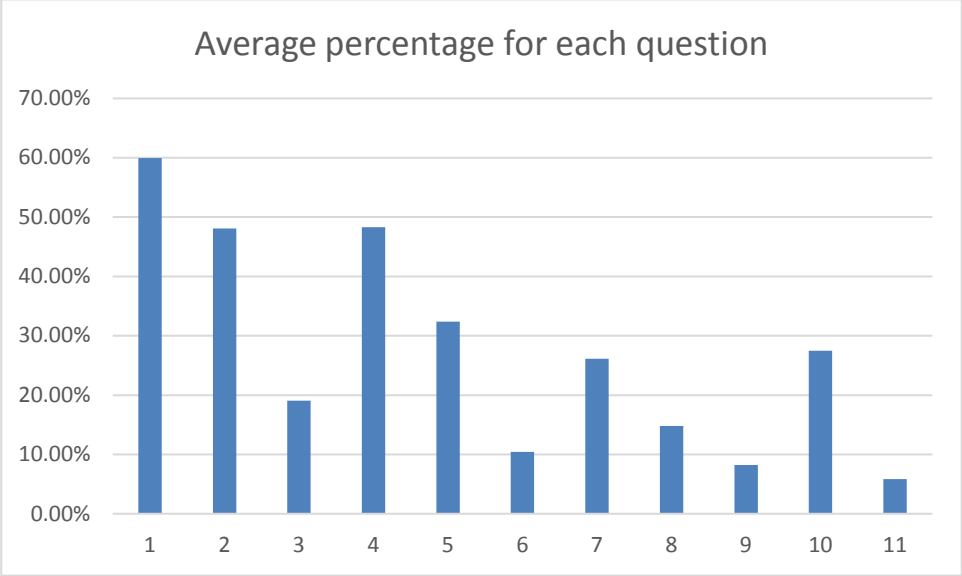


The above graph is pathetic for the subject. For some reason or the other, the learners perform below average.

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?

QUESTION 1: MULTIPLE CHOICE QUESTION

This question was well answered. Few learners got level 1 and 2.

QUESTION 2: SAFETY

2.2. It was an open-ended question with many possible answers, yet few answers were included in the memo.

2.3. Learners did not state what the goggles protect eyes from, which is the main reason as to why goggles are worn.

Most learners answered “helmet” which is not appropriate when using hydraulic press.

2.4. At least 60% of learners answered this question properly.

Many students added the answer “machine layout” which was correct, even though it was not included in the memo.

2.5. This question was misleading, the reference to the employer confused many students as they thought the question was asking what the employer to do in a case where there was an injury in the work place.

The examiner could have made the question more relatable to students by referring to the principles.

The question created a huge language barrier.

Learners were generalising their answers with regards to the employer’s responsibilities.

QUESTION 3: MATERIALS

The mark allocation for all of question 3 was inconsistent.

3.1 This question was taken from the textbooks, this is a disadvantage to students who didn't have textbooks.

Many students did not understand the question, they gave the types of steel as answers and not the properties of steel.

Most learners included "hard" as a property of steel, it had to be marked incorrect as it was not included in the memo.

Instead of giving the properties of steel, the learners were naming the type of steel.

3.2. Mark allocation

3.2.2. Mark allocation was inconsistent, as 2 marks were awarded for 1 statement. Yet in 3.2.1 1 mark was awarded for 1 statement.

3.3 Learners did not answer the question, in some instances they repeated the question.

The question was also unfair, asking for the reasons would have been easier for the learners.

3.4 Learners gave the factors not the properties.

3.5 This question was badly answered; many learners did not include the soaking.

Answer was supposed to be chronological order, many failed to give answer in that order.

QUESTIION 4: MULTIPLE CHOICE QUESTION (SPECIFIC)

This question was well answered. Most of learners managed to get level 5 to 7.

QUESTION 5: TERMINOLOGY (TEMPLATES)

5.1 Most learners have never seen or learnt about the template loft, as it is mostly found in construction. It is unfair to expect the learners to know something they've never been exposed to.

5.2 This question was well answered.

5.3 The learners were confused by the 50mm by 50mm dimension for thickness, it would have been better if they had used industry terminology for it and referred to it as 50mm square bar.

As most learners interpreted the question as 880- (50x50)

5.3.2 Question were confused as learners thought it was cubing,

5.4 Question was taken from textbook, this is a disadvantage to students who do not have the textbook.

5.4.2 The drawing was incomplete and not in accordance with the text book in terms of the wording. In the textbook D was labelled as elements not symbols.

Students were misleading due to the terminology used.

6.1. Most schools don't have both the guillotine and the bending rollers, this means that the students have never seen either of the machines. It is unfair to expect the learners to explain the working principle of something they have never seen.

The students mostly stated the uses of it.

6.2 The question was fair, the learners failed to give the functions of regulators.

6.3 This question was very vague as it does not describe the type of press machine. Because of the ambiguity of the question, most learners assumed the press machine being described is the drill.

6.4 This question was unfair; the textbook did not have such a diagram.

The illustration of gas(D) was bad, most students interpreted it as sparks.

QUESTION 7: FORCES

7.1 This question was unfair.

There was not enough information provided for a 20-mark question.

The question could have been broken down into smaller specific questions.

The learners could have been given a list of the members to serve as a guideline as to how marks will be allocated.

Learners were overwhelmed upon seeing mark allocation and did not know where to start when it came to answering the question.

Scale included in memo was incorrect, Chief Marker had drawn a correct scale. Refer to annexure A.

Learners did not have correct equipment to draw the accurate scale.

It was unfair to expect learners to draw to scale on the workbook

Magnitude is derived from the drawing, if drawing is incorrect. Learner loses marks for the rest of the question

7.2.1 Learners did not understand how to work with the turning points.

7.2.2. If learner got RL wrong in 7.1 than they would also get this wrong.

7.2.3 Learner has already been penalised in 7.1 it is unfair that they be penalised again

7.3 Learners failed to do this calculation.

They also failed to convert mm to m.

Answers had to be given in scientific notation.

QUESTION 8: JOINING METHODS

8.1 Poorly answered. Due to the interpretation

8.3 Learners made the common mistake of mixing up the causes between 8.3.1, 8.3.2 & 8.3.3. especially when it came to voltage, current and speed.

8.4 Poorly answered.

Learners are not exposed to such, it is unfair to expect them to answer on things they don't know about.

8.5 Learners gave methods for destructive and non-destructive breakdown tests.

8.6 Poorly answered.

8.7 Not enough defeats were included in the memo.

QUESTION 9: JOINING METHODS

The whole of question 9 focuses on continuous welding. In schools the time allocated to being in the workshop is not enough for the learners to be knowledgeable enough to answer the question adequately. The whole question was poorly answered.

9.1 Many learners confused residual stress with the formula for stress and strain.

9.3 This question formed part of the generics.

9.4 The mark allocation disadvantaged the learners.

9.5 This question should have been 9.2

It repeats the factors of residual stress.

The fact that the examiner moved away from residual stress and focuses on other areas then comes back to it in 9.5 disturbs the learners thought process.

9.6 This question was poorly answered as leaners lack experience when it comes to dealing with such matters as they require continuous welding.

QUESTION 10: MAINTENANCE

Learners failed to answer this question due to their lack of understanding when it came to the terminology in this section

10.1 This was a very open-ended question with many possible answers, however the memo was very specific in the type of answer it wanted.

10.2 This question is unfair as it is only relevant to the industry, it is not and cannot be practised in class.

A language barrier was also created by the question as industry jargon was used, learners are not familiar with such terms.

10.3 This was a very open-ended question that could have been interpreted in many ways. Examiner could have been more specific

Some learners ended up giving answers relating to returning goods and service dates.

10.4 Satisfactorily answered. Even though learners lacked enough experience to answer this question.

QUESTION 11: TERMINOLOGY (DEVELOPMENT)

11.1 A language barrier was created by this question.

Many learners thought it was an electrical question because of words such as “transformer”.

Many learners were also confused by the word “ventilation” and proceeded to talk about the ventilation in a workshop.

11.2 This question was unfair.

It referred to transmission pieces as “hoppers” learners are used to the terminology used in the textbook.

11.3.1 This question was unfair.

Question was unlike those in past exam papers.

Some learners were overwhelmed and didn’t know where to start answering the question, so they included an angle, confusing themselves even more by now having two unknowns.

11.3.2 There were two methods of finding the answer. The memo only gave the method of the similar triangles, not including the method of using Pythagoras.

The learners were also misled by the exemplar, which is supposed to be a guideline for the final exam.

It was also disadvantageous to the learners as they were expected to apply mathematical principles.

Welding and metal work are a new subject, it would have been better to include the concepts used in the exemplar.

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

Specialisation

QUESTION 5 TERMINOLOGY

The template loft was poorly answered. Many of the learners did not know or heard about the template loft, which is an integral section with regard to the layout of templates, from the main frames or components to be manufactured,

Most of the learners were penalised for not getting the units correct in the calculations. The rounding off of the final answers from the calculators were problematic, especially if the learners had to use the scientific notation.

Learners struggled to identify the resistance weld symbol, which was incorrectly given in the question paper.

QUESTION 6 TOOLS AND EQUIPMENT

Most of the learners failed to answer this question, whereby they had to give the operational principle of the machines, but rather gave an explanation of the uses of both the guillotine and the rolling machines.

The question on the press machine was very vague and many of the learners gave the answer relating to the drilling machine.

Most of the learners described the machines instead of focussing on the working principle.

The labelling of the MIG welding drawing was poorly answered, because the diagram that was used is not in the prescribed textbook, which is being considered an unfair question especially for the learners with no textbooks.

Question 7: Forces

This question was very poorly answered by most of the learners, due to the manner in which the question was asked, although the question come from the textbook but was wrongly drawn in the teacher's guide.

The beam was also poorly answered because the learners have a lack of understanding when they have to determine the moments about a turning point.

Most of the learners worked around a turning point and then determine the magnitude about the same point, resulting into confusion and losing the marks.

Question 8: Joining Methods

Although this section was not CAPS friendly, in terms of drawings and illustrations the learners failed to read the questions properly and could not even come close to key words in the memo.

In this question the language barrier was clearly visible.

Question 9: Joining Methods (stresses & distortion)

Very few of the learners could generate marks in this question, gaging from the responses given, which had no relation to the question at all.

Stresses and distortion are very advanced sections in the welding process and the learners need more exposure to the welding applications with regard to continuous welding.

Question 10: Maintenance

Although maintenance is understood by the learners, they failed to respond to the specific question being asked and gave answers that could not have been interpreted, hence the suspicion of the language barrier.

Learners could not answer this question relating to the lockout of machinery and came up with weird answers for example: The machine is locked, because the teacher was absent.

The learners also failed to give reasons for the lack of maintenance and the terminology of overloading.

Question 11: Terminology

This question was a pretty straight forward question, which the learners could not relate to and was similar to the example in the prescribed textbook, but the learners failed to use simple mathematical principles and manoeuvring to get to the unknown information.

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

Teachers need to emphasize on the terminology and accuracy of answers in the mathematical questions throughout the year in terms of units and rounding off in the calculations.

The entire curriculum needs to be covered and extensive revision need to take place with the help of past exam question papers, with similar content for example the calculations where the learners loose most of their marks, not entering the units for the questions provided.

The integration of technology in teaching and learning could be accomplished by using You tube videos on the practical components where the teacher cannot fully explain or breaking down the concepts to the learners.

Industry tours should be arranged for the holistic development of the learners, which will give them a better understanding of the world of work.

The teachers should properly conduct the practical tasks so that they can complement the theory taught in class.

Collaboration among subject teachers and subject advisers in supporting the teachers with no or little knowledge of practical expertise.

The cognitive development has to be addressed by the teachers as they integrate the subject terminology in the various chapters.

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

Learners have a language barrier. Some learners used their home language when they do not understand how to write the word in English e.g., they wrote INTLANTSI meaning sparks. Afrikaans or English educators would not understand this terminology, and in essence would mark it wrong.

Teachers should via the school invest in the following:

Enrich your class with notes by downloading specific aspects of the curriculum on the Internet from YouTube.
The school library must have the necessary mechanical related resources for expanding learn opportunities.
Frequent informal class tests on completion of each topic or chapter is recommendable.
Learners must be given continuous feedback on all the work assessed.
Compile and use the past exam papers, (which is relevant) in preparation towards the examination.