



Province of the  
**EASTERN CAPE**  
 EDUCATION

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## EXAMINER'S REPORT

### INSTRUCTIONS

1. The Chief Examiners are required to complete this report during the marking session. The aim of the report is to provide a feed back and to help subject advisors and educators to improve the teaching and learning.
2. The report should be informed by discussions between the **Examiner, moderator, senior markers and markers** of the particular subject. **NB: There should be one report per subject per paper.**
3. The report must be detailed, informative and question by question performance of the candidates.
4. Reference may be made to the topics identified below as well as any aspect the Examiner wishes to bring to the attention of the subject advisors and educators.
5. **The report must be submitted in hard copy and an electronic version to the centre manager at the marking centre.**
6. The centre managers then forward the report to the Directorate of Assessment and Examination (Att: Mr. V A Joseph) in King William's Town.

<b>SUBJECT:</b>	<b>ENGINEERING GRAPHICS AND DESIGN</b>
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<b>GRADE:</b>	12	<b>PAPER:</b>	1
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<b>DATE OF EXAMINATION:</b>	NOVEMBER 2009	<b>DURATION:</b>	3 HRS
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### 1. ANALYSIS OF QUESTION BY QUESTION PERFORMANCE OF THE CANDIDATES

Give a detailed account of how the candidates performed in each question. In doing this, the following steps should be followed:

- 1.1 The aim/objective for setting the question (what skills, knowledge, values and attitudes were being tested by asking the question)
- 1.2 Relevance or relation of the question to the Los and ASs.
- 1.3. How did the candidates perform in the question?
- 1.4 Where and how did candidates lack or fail in giving an appropriate answer to score high marks in the question?

### **QUESTION 1 (ANALYTICAL CIVIL)**

#### 1.1 Aim and objective:

This is an analytical question consisting of lower medium and higher level questions. The question counted 30 marks.

The aim of the question was to test by means of short questions, knowledge peculiar to civil engineering and architecture. Learners were given working drawing of a proposed dwelling with a title block. From this information learners were required to read, sketch conventions, analyse information and calculate area and perimeter.

1.2 Relevant to LO 3 AS 1, 7

1.3 The questions which was poorly answered were:

Q1, 12&13 Learners are not able to label views as expected in architecture.

Learners are still using terms like front view , left view and top view.

Q1, 14 Many learners were unable to identify features of a building sub-structure although it is dealt with from grade 10.

Q1, 15 Most learners were unfamiliar with the SABS conventions for fixtures in houses and scored very low marks here.

Q1, 17 A very high percentage did not know this answer.

Q1, 18&19 It was disappointing to note that most learners were unable to do simple calculations of perimeter and area. The small space provided on the answer table made it difficult for learners to show their calculations leading to the final answer.

This resulted in learners either getting the answer wrong or right with no marks for calculations.

7.3.1 This question had an average score of 46,2%

### **QUESTION 2 (Development)**

#### 1.1 Aim and objective:

This question forms an important part of mechanical engineering in the field of sheet metal working and formwork in Civil Engineering. Learners are required to interpret from two or more orthographic views, the development and curve of interpenetration of the component concerned. The important skill of designing a template for manipulation by a sheet metal worker is being taught.

A good knowledge of how to determine true lengths is essential.

1.2 LO 3 AS 2 and LO 4 AS 3 is mostly covered here. The learner has to apply a variety of drawing skills learned in grade 11 and 12.

1.3 This question was the most poorly answered of all four questions. Learners were not even able to copy the given views in the correct positions.

Although learners was expected to copy the given views, the given information was too cryptic causing most learners to go wrong at the start. More information could have been given to enable learners to get started.

The question required learners to draw to a scale of 1:100 but no marks were awarded for this on the marking memo.

The curve of interpenetration in the front and left view was attempted by some but mostly to the incorrect scale. It is evident that learners did not know that an auxiliary view must be drawn first to obtain a true shape of the branch. Very few

learners attempted the development of the branch.

The wording of this question could have been simplified to give the learners a clearer understanding of what to do. eg. “develop the surface of the stainless steel cladding” could have been simplified to “develop branch B”.

The given orthographic orientation of the views were not usual and this could have confused the learners.

There were no marks allocated for correct scale

This work is introduced in Gr 11 and teachers tend to leave it out in Gr 12

Teachers have to consolidate this section of the work in Gr 12 as a lot of marks were lost in this question.

1.3.1 The average score for this question was 14,4%

### **QUESTION 3. (Perspective)**

1.1 Aim and objective:

To test the ability of the learner to pictorially illustrate how an object will look when viewed from a particular station point, thereby creating a pictorial view that is graphic and vivid. This is an important skill in architecture and is used to give an artist impressions of the product to be manufactured, in this case a house.

1.2 This question relates to LO 4 AS 4

1.3 Most candidates attempted this question. Some learners did very well, obtaining full marks in some cases.

The areas where learners performed poorly in this question is:

- Incorrect placing of the VP's
- Not labelling the VP's
- Not able to construct and project a perspective circle
- Not knowing how to project an object which lies behind the PP
- Incorrect roof height

1.3.1 The average score for this question was 43,6%

### **QUESTION 4 (CIVIL)**

1.1 Aim and objective:

A thorough knowledge of house plans with relevant views was tested in this question. Candidates had to be familiar with application of sectioning, door and window details, electrical symbols, roof construction and labelling of features.

This question is a culmination of work covered in grade 10, 11, and 12 and carries the most marks.

1.2 LO3 AS 1 and LO4 AS 1,2,3 and was extensively covered in this question.

1.3 Most candidates attempted this question and some achieved quite good marks.

**Marks were forfeited in the following areas:**

The biggest reason why learners do not perform well in this question is because of their inability to read with understanding the attached schedule. The ability to do this will drastically improve their marks. Learners know how to draw the individual items but cannot put it together as per instruction on the schedule. Teachers have to ensure that learners get enough practise here as a matter of urgency.

**PLAN VIEW**

- Incorrect scale of plan – although the size of this view was incorrect due to a printing error, many learners got the overall size of the drawing wrong in any case.
- Outer and inner wall thickness incorrect
- Unable to draw garage door in plan
- Learners do not use conventions for fixtures, thereby wasting a lot of time.
- Electrical detail incorrect or misplaced
- No labels and cutting planes inserted

**SECTIONAL VIEW**

- Incorrect scale
- Drawing and labelling of substructure poorly done.
- The lowest scores were obtained for the roof truss. Purlins, fascia boards and gutters were left out. The pitch of the roof was incorrect in most cases.
- It is evident that learners did not read the instructions or did not know how to use the given information sheet to complete the answer.

1.3.1 The average score for this question was 44,7%

**ANY ADVICE THAT YOU COULD GIVE TO EDUCATORS IN HELPING THE LEARNERS TO REACH THE EXPECTED LEVEL.**

Because this is a new subject teachers have to acquire a variety of text books dealing with the changed content.

Cluster meetings must be used by teachers to exchange ideas about areas of concern in the subject.

Competent subject advisors must be appointed to help schools who consistently produce poor results.

Teachers have to stick to the pacesetters to ensure that they complete the syllabus in good time.

Learners must be encouraged to practice at home as much as possible to increase their general speed.

The exemplars and provincial papers must be thoroughly worked through as this is an ideal preparation for the final exam.

***Summary of areas that need to improve:***

**ANALYTICAL**

- Conventions used in civil must be practised
- Calculation of area and perimeter
- Correct labelling of views
- Substructure to roof labelling

**INTERPENETRATION AND DEVELOPMENT**

- Construction of geometrical solids and auxiliary views
- Projecting of curve of interpenetration
- Development

**PERSPECTIVE**

- Determining the VP's
- Projection of circular elements
- Projection of elements behind the PP

**CIVIL**

- Incorrect scale used
- Not familiar with civil and electrical conventions for fixtures.
- Incorrect roof detail
- Incorrect sectioning of walls and sub-structure
- Incorrect wall thickness for load and non load bearing walls.

**ANY OTHER COMMENTS**

- The current curriculum is too wide and diversified. Teachers struggle to get through the syllabus, leaving very little time for consolidation.
- Teacher need to be trained in new content and recommended books have

to be bought as reference books for teachers

- The quality and standard of the work produced by learners in this subject has declined over the past few years. Line quality must be emphasised
- Teachers are demotivated by the amount of administration required during assessment and recording. Teachers need more contact time for teaching.
- It is evident that poor performance by pupils are sometimes the result of insufficient content knowledge by teachers.
- Very little progress is made in most schools to acquire CAD stations. This forms a vital part of the syllabus and the future success of the subject.

**SIGNATURE OF EXAMINER:** \_\_\_\_\_



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