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

SUBJECT:	CIVIL TECHNOLOGY-CONSTRUCTION
PAPER:	1
DURATION OF PAPER:	3 HRS
DATES OF MARKING:	01/12/1018- 13/12/2018

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

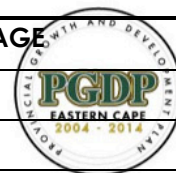A variety of performances was obtained in the 2018 question paper.

A couple of centres obtained satisfactory results to good results. Although the paper was set up fair, a large number of centres perform poorly.

Many candidates obtained high marks in some questions but scored less marks in other questions indicating that not all the content was covered. There were a few learners who left out some sections of the paper but overall all candidates finished the question paper. A few candidates did not use the answer sheets provided but draw their sketches in their answer books. Free hand sketches like Question 4.3 and 5.2 can be drawn in answer books instead of using answer sheets which would allow for marking to be easier. Learners must look at the rubrics to see mark allocation.
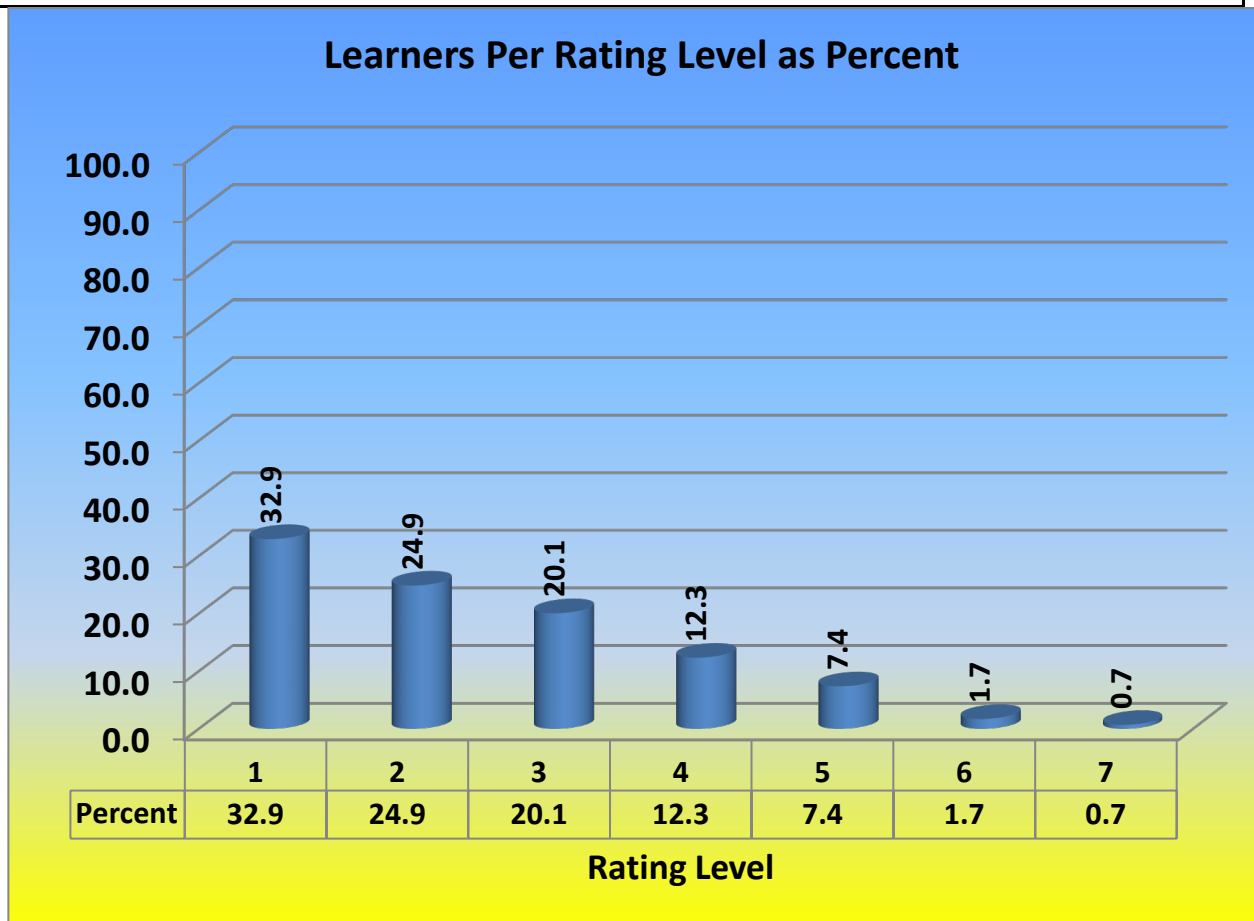
In analysing the type of answers in the papers of the centrums who performed poorly, it indicates to a knowledge gap in especially in formwork, brickwork, calculating of quantities and poor drawing skills.

These challenges could be caused by not enough revision of work, wrong textbooks, language barrier, insufficient guidance, poor mathematical skills and insufficient commitment by learners.

LEVEL	NUMBER	PERCRNTAGE
1	192	32.9
2	145	24.9
3	117	20.1
4	72	12.3

5	43	7.4
6	10	1.7
7	4	0.7
TOTALS	**583**	**63.6**

Learners Per Rating Level as Percent

Rating Level	1	2	3	4	5	6	7
Percent	**32.9**	**24.9**	**20.1**	**12.3**	**7.4**	**1.7**	**0.7**

SECTION 2: Comment on candidates' performance in individual questions

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

QUESTION 1
Knowledge of construction safety was tested in this question with emphasis on construction, tools joining and materials.
(a)   General comment on the performance of learners in the specific question. Was the question answered or poorly answered?
Question 1 was adequately answered by most learners although some centrums struggled with th construction questions.   Safety questions were answered adequately.

(b) Why was the question poorly answered? Also provide specific examples, indicate common err committed by learners in this question, and any misconceptions.	
Question 1.1 Match description from column B to item in column A: This question was answered reasonably well.	
Question 1.2. Two safety precautions when working on scaffolding: Most learners answered this question correctly.	
Question 1.3 Purpose of guard rail: Most learners answered this question correctly. Some learners name safety rule for scaffolding th was not specific to the guard rails.	
Question 1.4 Purpose of painting: For protection and aesthetic appearance and not to prevent cracks in the wall.	
Question 1.5 One advantage of curing of concrete: Most learners answer this question correctly.	
Some learners name the methods to cure concrete instead of the advantages.	
Question 1.6 Identify tool: 1.6.1 Multi-detector not laser detector.	
1.6.2 Used to detect materials behind wall not under soil. Determine distance.	
1.6.3 Prevent batteries from running flat and acid leaks can damage tool.	
Question 1.7.1 Identify A and B: This question was answered satisfactory.	
Most learners knew the bolt and nut but wrong answers were given for the raw bolt.	
Question 1.7.2 Explain one use of each: This question was answered reasonably well, but some learners did not know the correct use for each one. Rawl bolt is used to anchor parts to a wall and not a bolt and nut.	
QUESTION 2. Answered on answer sheet.	
Question 2 Nr. 8 + 9 Most learners had the date and name correct.	
Question 2 Nr.10 – 12 Most learners could identify the features. - Ramp / stairs / gable roof.	
Question 2 Nr.13 - Explain purpose of ridge plate.	
Question 2 Nr.14 - Explain purpose of gutter.(facia board)	
Question 2 Nr.15-18 – Explain meaning off……	

Question 2 Nr.19 - Most learners answered bathroom.

Question 2 Nr.20 – Most learners indicated it shows the direction of window opening.

Question 2 Nr.21 - a Few learners wrote the width instead of height of 1.2m.

Question 2 Nr.22 - a Few learners wrote the height instead of width of 2m.

Question 2 Nr.23 – a Few learners answered front view instead of west elevation.

Question 2 Nr.24 – Adequately answered by most learners. window / sliding door.

Question 2 Nr.25 – Many variations of two types of lights. Fluorescent / ceiling light.

Question 2 Nr.26 – Answered correctly by most learners (tiles)

Question 2 Nr.27 – Scale was correctly answered by most learners. (1:50/100/200)

Question 2 Nr.28 – Shower was correctly answered by most learners.

Question 2 Nr.29 – Many learners calculated wrong by using wrong measurements or did not know the formula to calculate area. (l x b x h = m²)

Question2 Nr.30 – Many learners struggled to calculate the perimeter of the building.

Some measurements were omitted or added up wrong which show poor mathematical skills. Teachers must emphasize the Building Drawing Practice requirements. Many construction methods are explained by means of drawings, therefore it is important for learners to know all the symbols for construction.
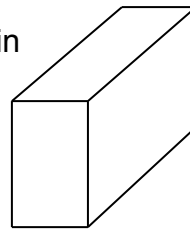
QUESTION 3 ROOFS, STAIRCASES AND JOINING.

3.1 Pitch of roof answered adequately by most learners. 5/10/30 degrees.

3.2 Many learners guessed the spacing of purlins for roof trusses.
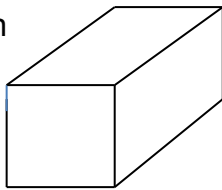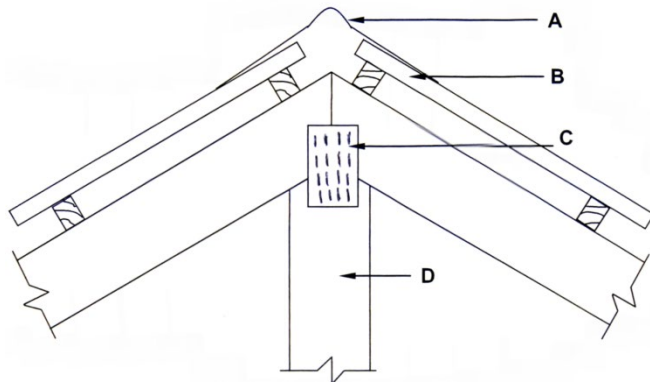
3.3 Batten   Purlin

3.4 Purlin 76 x 50mm

3.5 Learners knew the distance was further apart for fibre cement tiles but did not know the correct distance.

3.6 Labels for ridge at roof truss.

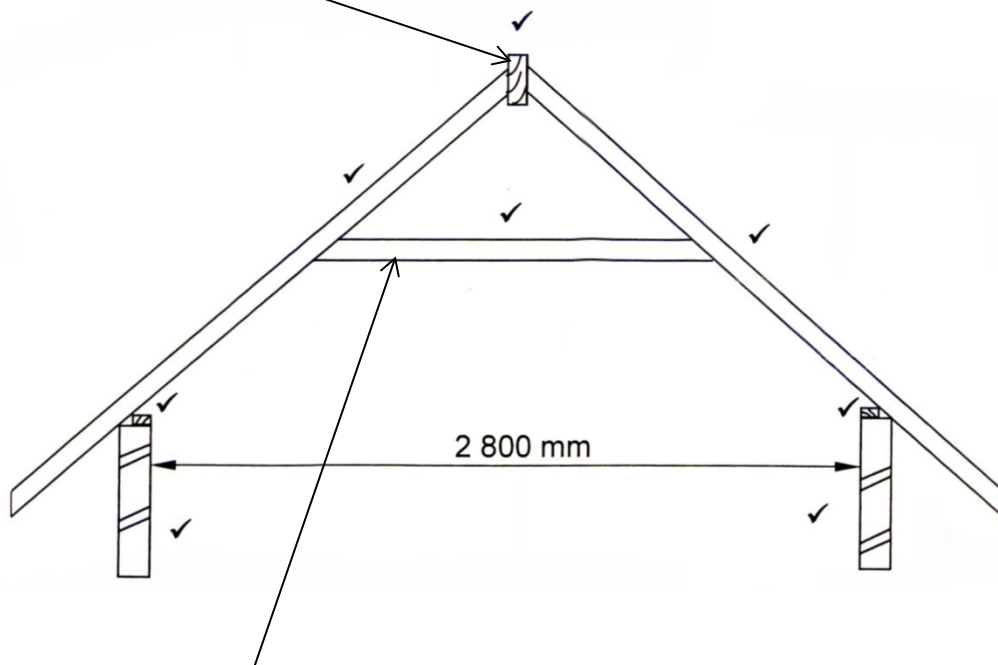A – Ridge plate. B – Roof covering. C – Nail plate. D – King post.

Answered satisfactory by most learners. Learners must use correct terminology:

Gang nail plate – not plate, Ridge plate – not ridge.

3.7 Collar tie roof truss.

Ridge beam

Height of Collar beam must be halfway or slightly upwards. Many learners draw the truss without the Ridge beam.

3.8 Learners chose the wrong description from the list for a staircase. Learners must be taught the correct terminology.

3.9 Most learners draw the handrails correct but some drawings were untidy.

3.10 Handrails must be screwed / use bracket or raw bolts to fix to the wall.

3.11 Most learners could name at least one method to secure a wall plate to a wall.

3.12 Answered adequately by most learners.

QUESTION 4 EXCAVATIONS, FORMWORK ,EQUIPMENT AND MATERIALS.

4.1 Two safety precautions when working on scaffolding: Most learners answered this question correctly.

4.2.1 Safety excavations.

4.2.2 Preparation of site. Site must be cleared not clean site.

4.3 Shuttering for firm soil.

4.3

Poling boards ✓
Folding wedges
Struts
Walling boards ✓

Shuttering correctly drawn ✓
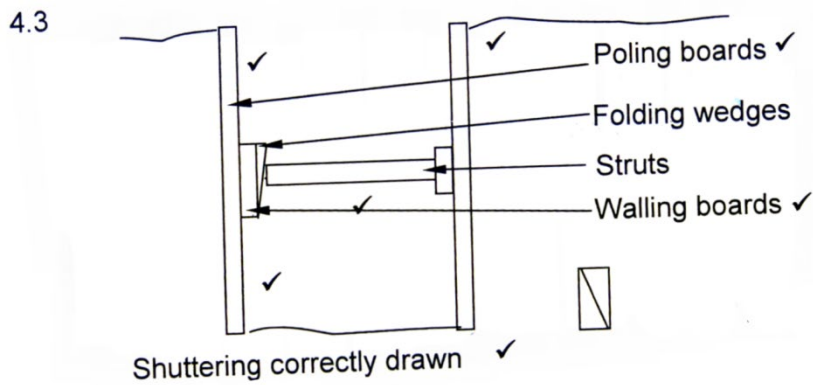
4.3 A Sectional view of shuttering for firm soil was asked but many learners drew an isometric view which took time and was difficult to draw. Poling boards and wedges must be drawn in the correct position as indicated in the above drawing.

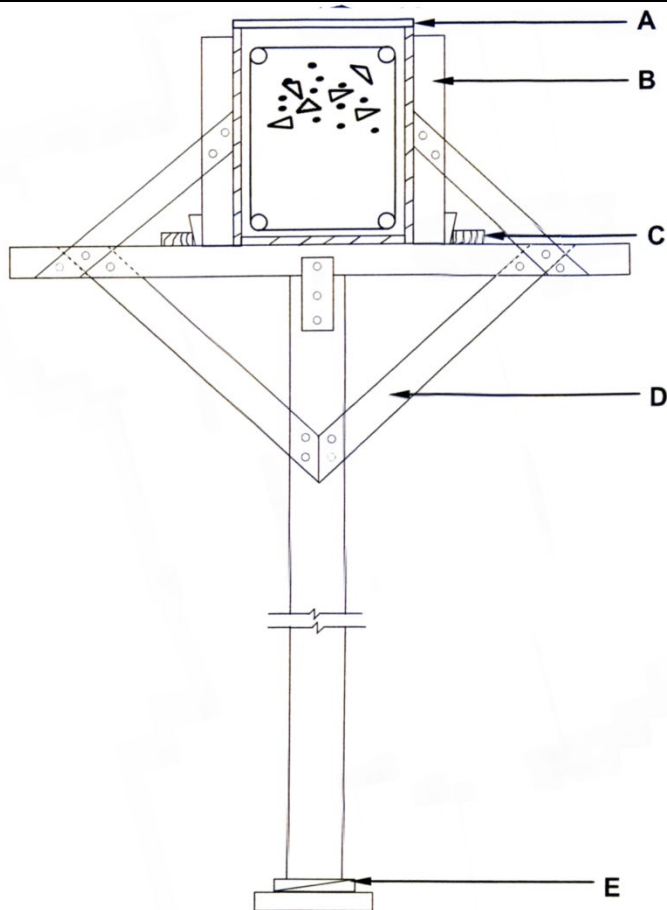4.4 Most learners could describe one property of good formwork.

4.5.1 Beam formwork.

4.5.2 Learners must know the correct labels for beam formwork.

A is a tie not a strut.

C is a fixing plate not a plate.

4.5.3 Wedges not used to prevent props from sinking into the ground.

4.6 Steel shuttering

4.7 Care for vibrator machine was asked. Some learners answered safety rules.

4.8 Care of rammer machine was asked. Some learners answered safety rules.

4.9 Disadvantages of ready –mix concrete.

4.10 The purpose of slump test is to test workability/consistency and true slump of mixed concrete and not to test strength or quality.

4.11 Curing of concrete. Some learners answered why concrete must be cured instead of methods to cure concrete.

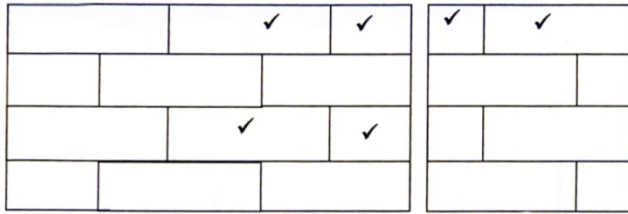## QUESTION 5

5.1 Plastering of wall.

5.1.1 A – Wet the wall not paint the wall.

    B – Apply plaster, not screed or concrete.

     C – Scrape plaster to obtain level surface.

     D – Float to smooth surface.

5.2 Learners must dry pack the brickwork for walls to make it easier for them to remember the different bonds.
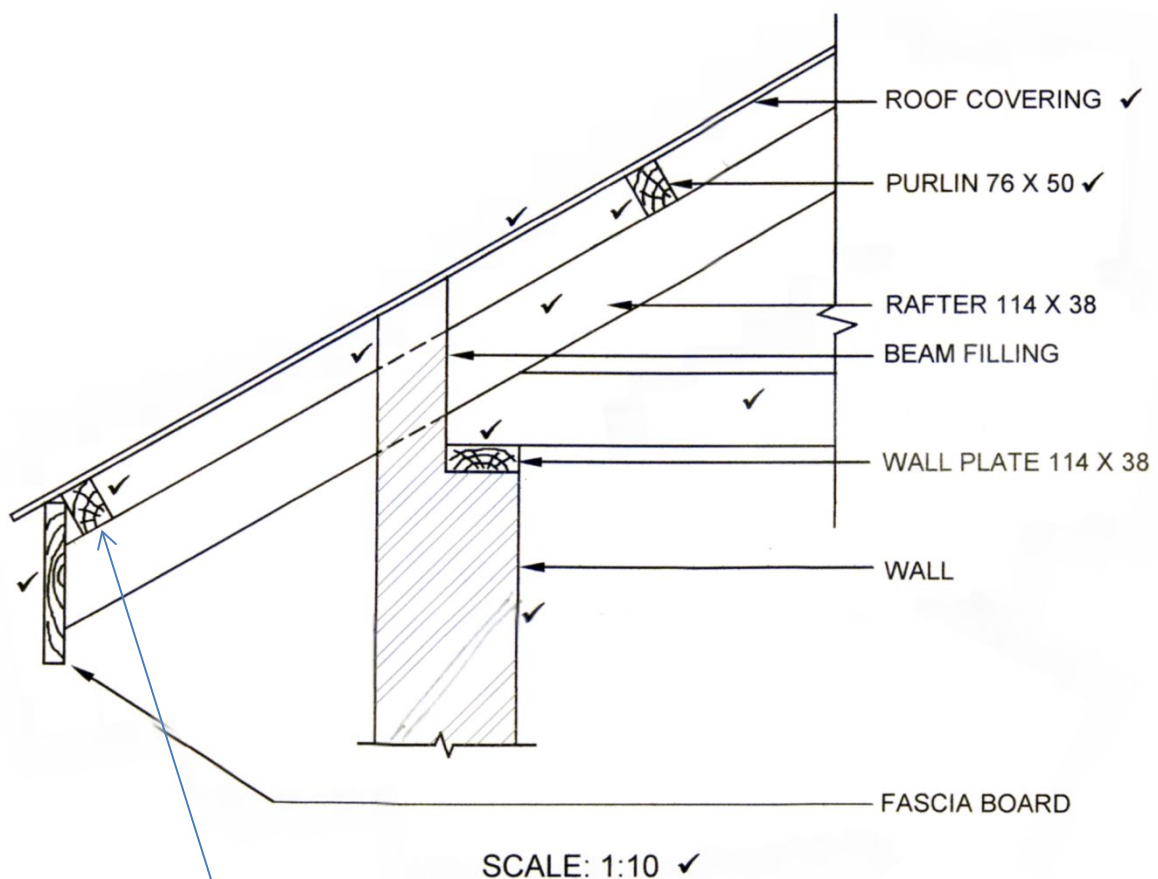
5.3.1 A - Herring bone paving pattern. B – Basket-weave paving pattern.

Many learners did not know the paving patterns.

5.3.2 Paving method.

5.3.3 Jointing paving bricks with sand not cement.

5.4 Open eave roof

ROOF COVERING ✓

PURLIN 76 X 50 ✓

RAFTER 114 X 38

BEAM FILLING

WALL PLATE 114 X 38

WALL

FASCIA BOARD

SCALE: 1:10 ✓

Long part of purlin must face roof sheeting, not on its side.

Beam filling must be extended to roof sheeting.

Wall plate must be on inside of wall.

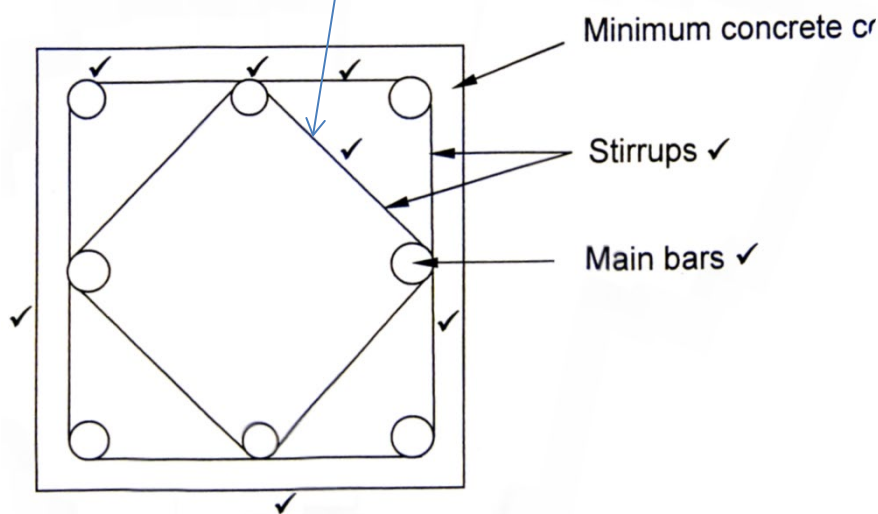Some learners left out the fascia board and the scale.

Some drawings were untidy and not to scale. A number of learners did not use the rubric provided which resulted that they did not complete all the assessment criteria.

QUESTION 6

6.1 Learners had to choose the correct answer.

6.2 Concrete column. <u>Stirrups</u> for middle part were left out by many learners.
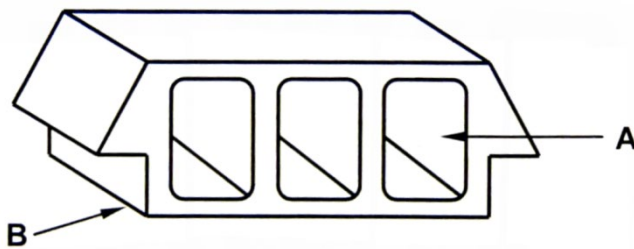

6.3 Advantages of piled foundations.

6.4 This question was poorly answered by most learners .Learners got confused with the different types of piling.

6.5.1 Concrete hollow block.

6.5.2 Purpose of hole: for insulation / reduce weight / placement of conduit pipes. Not for air ventilation.

6.5.3 Ribs will fit in at B and not concrete or lintel.

6.5.4 Materials for rib and block floor.

6.5.5 After the installation of floor it must be cured for 28 days.

6.5.6 Disadvantage of rib-and-block floor is that mechanical handling and manual labour are required.

6.6 Calculate length of skirting and volume of screed needed.

Learners must transfer the answer for length of skirting correctly as indicated.

ANSWER SHEET 6.6

A	B	C	D
			Skirting: Inside length of building
			$\qquad$ =8 000 mm – 440 mm ✓ OR – 2(220)
			$\qquad$ = 7 560 mm ✓ $\qquad$ (2
			Skirting: Inside width of the building
			$\qquad$ = 5 000 mm – 440 mm ✓ OR – 2(220)
			$\qquad$ = 4 560 mm ✓ $\qquad$ (2
			Total length = 7 560 + 4 560 x 2
			$\qquad$ =12,12 x 2
			$\qquad$ = 24,24 ✓meter skirting needed
			$\qquad$ – 0,900 m for the door.
			$\qquad$ = 23,34 m ✓ $\qquad$ (2
1/	7,56 ✓		Screed: length x breath x thickness
	4,56 ✓		$\qquad$ =7, 560 x 4, 560 x 0,025 ✓
	0,025 ✓	0,86 m³ ✓	$\qquad$ = 0,86 m³ screed is needed $\qquad$ (4)

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

This question was poorly answered by many learners which show poor mathematical skills. Learners must look at the rubrics to see mark allocation.

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

Learners must transfer the answer for length of skirting correctly as indicated.

In analysing the type of answers in the papers of the centrums who performed poorly, it indicates to a knowledge gap in especially in, civil services and applied mechanics.

These challenges could be caused by not enough revision of work, language barrier, insufficient guidance, poor teacher content knowledge, poor mathematical skills, and insufficient commitment by learners.

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

A number of learners did not use the rubric provided which resulted that they did not complete all the assessment criteria

Many learners struggled to do the calculations that was asked which show poor mathematical skills. Teachers must emphasize the Building Drawing Practice requirements. Many construction methods are explained by means of drawings, therefore it is important for learners to know all the symbols for construction.

Teachers must also emphasise the meaning of the different questioning terms.

Purpose: Use: Identify: Advantage: Disadvantage: Indicate: Construction method: Describe: Analyse: State: Name: Explain: Calculate: Determine: Convert: Deduce: