

**SENIOR CERTIFICATE
EXAMINATION
*SENIORSERTIFIKAAT-EKSAMEN***



**FEBRUARY / FEBRUARIE
*MARCH / MAART***

2005

**BRICKLAYING AND
PLASTERING**

***STEENMESSEL EN
PLEISTERWERK***

SG

701-2/0

BRICKLAYING AND PLASTERING SG
Question Paper & Answer Book



701 2 0

SG

X05



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**9 pages
9 bladsye**



GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT-EKSAMEN**STEENMESSEL EN PLEISTERWERK SG****TYD: 3 uur****PUNTE: 300**

BENODIGHEDE:

- Antwoordboek
- A3-grootte tekene antwoordboek (701-2/X)
- Sakrekenaars mag gebruik word.
- Antwoordblad (bl. 8 en 9 van die vraestel)

INSTRUKSIES:

- Beantwoord AL die vrae.
- Gebruik beide kante van die papier in die tekene antwoordboek.
- Alle tekeninge moet in die tekene antwoordboek in potlood gedoen word.
- Aanvaar dat die afmetings van 'n steen die volgende is:

Lengte: 220 mm
Breedte: 110 mm
Hoogte: 75 mm

VRAAG 1

- | | | |
|-----|---|-------------|
| 1.1 | Noem VYF (5) onveilige handeling. | 5x2=(10) |
| 1.2 | Noem VYF (5) onveilige toestande. | 5x2=(10) |
| 1.3 | Noem TIEN (10) punte om in gedagte te hou as 'n rioolstelsel vir 'n privaat woonhuis aangelê moet word. | 10x2=(20) |
| 1.4 | Meld DRIE (3) tipes materiaal wat vir die vervaardiging van rioolpype gebruik kan word. | 3x1=(3) |
| 1.5 | Gee DRIE (3) voordele van 'n mangat. | 3x1=(3) |
| 1.6 | Noem TWEE (2) toetse wat uitgevoer kan word om te verseker dat daar geen lekkasie in riolering is nie. | 2x2=(4) |
| | | [50] |

**GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION****BRICKLAYING AND PLASTERING SG****TIME: 3 hours****MARKS: 300**

REQUIREMENTS:

- Answer book
- A3-size drawing answer book (701-2/X)
- Calculators may be used.
- Answer sheet (pages 8 and 9 of the question paper)

INSTRUCTIONS:

- Answer ALL the questions.
- Use both sides of the paper in the drawing answer book.
- All drawings must be done in the drawing answer book and in pencil.
- Assume the dimensions of a brick to be:

Length: 220 mm
Width: 110 mm
Height: 75 mm

QUESTION 1

- | | | |
|-----|---|-------------|
| 1.1 | Name FIVE (5) unsafe acts. | 5x2=(10) |
| 1.2 | Name FIVE (5) unsafe conditions. | 5x2=(10) |
| 1.3 | Name TEN (10) points to be remembered when laying a private sewerage (sewer). | 10x2=(20) |
| 1.4 | Name THREE (3) types of material which can be used for the manufacturing of sewage pipes. | 3x1=(3) |
| 1.5 | Name THREE (3) advantages of a manhole. | 3x1=(3) |
| 1.6 | Name TWO (2) tests which may be carried out to ensure that there is no leakage in sewerage. | 2x2=(4) |
| | | [50] |

VRAAG 2

Die tekening in **Figuur 1** op bladsy 6 toon die grondplan van 'n woonhuis. Dit het 'n geweldak met 'n helling van 30°. Die dak is met sinkplaat bedek en het 'n oorhang van 600 mm reg rondom. Die mure is 2 800 mm hoog, gemeet vanaf die vloer tot by die dakplaat. Die vloervlak is 500 mm bokant die grondvlak. Die staalvensters is 2 000 mm breed en 1 500 mm hoog en moet volgens die vensterskedule **Figuur 2** ingeteken word. Die geraamde, verlengde en verspande deur is 2 000 mm hoog en 900 mm breed. Die dak is met 200 mm-fassieplanke en vierkantige geute en afvoerpeype afgewerk, die vensterbanke is van 150 mm x 150 mm-kleiteels gemaak.

Teken, volgens 'n skaal van 1:100, die noord- en wes-aansigte van die woonhuis.

[50]

VRAAG 3

3.1 Teken, volgens 'n skaal van 1:10, die planlae van 'n isometriese aansig van 'n eensteen-muur wat in Vlaamse verband gebou is. Die muur is sewe stene lank en loop dood aan die een kant en 'n terughelling aan die ander kant. Toon die kant wat doodloop en terughel. Drukskryf 'n titel.

(20)

3.2 Teken, volgens 'n skaal van 1:10, 'n dwarsnit van 'n eensteen-muur met 'n betonbasis. Jou tekening moet die volgende insluit:

3.2.1 630 x 220 mm-strookfondasie

3.2.2 220 mm-fondasiemuur

3.2.3 320 mm-grondvlak vanaf bodem tot in voor

3.2.4 Vogweringlaag 150 mm bokant grond

3.2.5 Hardepuin-vulling

3.2.6 75 mm-betonvloer

3.2.7 20 mm Grano

3.2.8 220 mm-buitemuur

3.2.9 12 mm-binne-pleisterwerk

3.2.10 Vogweringslaag onder betonvloer.

Benoem jou tekening.

(30)
[50]

QUESTION 2

The drawing in **Figure 1** on page 6 shows the ground plan of a dwelling. It has a gabled roof with a pitch of 30°. The roof is covered with corrugated iron and has an overhang of 600 mm all round. The walls are 2 800 mm high, measured from the floor to the wall-plate. The floor level is 500 mm above the ground level. The steel windows are 2 000 mm wide and 1 500 mm high and must be drawn as in the window schedule in **Figure 2**. The framed, ledged and braced door is 2 000 mm high and 900 mm wide. The roof is finished off with 200 mm fascia boards, square gutters and downpipes, the window sills are made of 150 mm x 150 mm quarry tiles.

Draw, to a scale of 1:100, the north and west elevations of the dwelling.

[50]

QUESTION 3

3.1 Draw, to a scale of 1:10, the alternating plan courses of an isometric view of a one-brick wall built in Flemish bond. The wall is seven bricks long with a stop end side and a racking back on the other side. Show the stop end and the racking back. Print a title.

(20)

3.2 Draw to a scale of 1:10, the cross-section of a one-brick wall with a concrete foundation. Your drawing should show the following:

3.2.1 630 x 220 mm strip foundation

3.2.2 220 mm foundation wall

3.2.3 320 mm ground level from bottom to trench

3.2.4 d.p.c 150 mm above ground level

3.2.5 H.C.F.

3.2.6 75 mm concrete floor

3.2.7 20 mm Grano

3.2.8 220 mm external wall

3.2.9 12 mm internal plaster

3.2.10 d.p.c. under concrete floor

Label your drawing.

(30)
[50]

INSTRUKSIES:

- Verwyder antwoordblad (bladsye 8 en 9).
- Skryf jou eksamennommer op albei bladsye.
- Gebruik die antwoordblad om Vraag 4 te beantwoord.

VRAAG 4

Figuur 3 op bladsy 7 toon die bo-aansig van 'n woonhuis.

- 4.1 Bereken die getal stene nodig vir die oprigting van die onderbou.
- 4.2 Bereken die getal stene vir die oprigting van die bobou. (Trek die getal stene vir vensters en deure af vir die bobou.)
- 4.3 Bereken die getal stene nodig vir balkvulling.
- 4.4 Bereken die totale getal stene met 'n 5% toelating vir vermorsing. Hou by die berekening die volgende spesifikasies in gedagte:
- A. Gebruik 50 stene per vierkante meter vir 'n halfsteen-muur.
 - B. Hoogte van onderbou 375 mm
 - C. Hoogte van bobou 2,8 m
 - D. Muurdikte van buitemure 220 mm
 - E. Deuropening is 2 000 x 1 000 mm
 - F. Al die vensters is 2 500 x 1 500 mm.

LET WEL: Onthou asseblief om die antwoordblad voor in die omslag van jou antwoordboek te plaas.

[50]**VRAAG 5**

- 5.1 Gee standaardafkortings vir die volgende komponente op 'n rioolplan:

5.1.1 Inspeksiekamer

5.1.2 Bodemvlak

5.1.3 Ventilasiiepyp

5.1.4 Steekoog

5.1.5 Beton

5x2=(10)

INSTRUCTIONS:

- Remove answer sheet (pages 8 and 9).
- Write your examination number on both pages.
- Use the answer sheet to answer Question 4.

QUESTION 4

Figure 3 on page 7 shows the top view of a dwelling.

- 4.1 Calculate the number of bricks for building the substructure.
- 4.2 Calculate the number of bricks for building the superstructure. (For superstructure subtract the number of bricks for windows and doors.)
- 4.3 Calculate the number of bricks for the beam filling.
- 4.4 Calculate the total number of bricks including an allowance of 5% for wastage. Keep the following specifications in mind in your calculations:
- A. Use 50 bricks per square metre for a half-brick wall.
 - B. Height of substructure 375 mm
 - C. Height of superstructure 2,8 m
 - D. Wall thickness of outer walls 220 mm
 - E. Doorway is 2 000 x 1 000 mm
 - F. All the windows are 2 500 x 1 500 mm

N.B. Please remember to place the answer sheet inside the front cover of the answer book on completion of the examination.

[50]**QUESTION 5**

- 5.1 Give standard abbreviations for the following components on a sewerage plan:
- 5.1.1 Inspection chamber
 - 5.1.2 Invert level
 - 5.1.3 Ventilation pipe
 - 5.1.4 Cleaning eye
 - 5.1.5 Concrete

5x2=(10)

- 5.2 Gee VYF (5) stappe wat gevolg moet word wanneer 'n rioollyn vir lekkasies
getoets word. 5x2=(10)
- 5.3 Noem in DRIE (3) stappe hoe om 'n septiese tenk met 'n tenker leeg te maak. (10)
- 5.4 Teken in goeie verhouding 'n lengtedeursnit deur 'n vakuumtenk en toon die
volgende:
- 5.4.1 Betonfondasie (2)
- 5.4.2 Kanaal (2)
- 5.4.3 Vloevulling (2)
- 5.4.4 Betonmure (2)
- 5.4.5 Klep in uitlaat-mangat (2)
- 5.4.6 Inlaat-mangat (2)
- 5.4.7 Mangatdeksels (2)
- 5.4.8 Ventilasiiepyp (2)
- 5.4.9 Ontvangsperder (2)
- 5.4.10 Drukskryf die titel. (2)
- 10x2=(20)**
- [50]**

VRAAG 6

- 6.1 6.1.1 Noem DRIE (3) plekke waar keermure gebou kan word. 3x2=(6)
- 6.1.2 Noem VIER (4) materiale wat vir pale gebruik kan word. 4x3=(12)
- 6.2 Maak 'n groot, netjiese, vertikale snit deur 'n gepersde of aangevulde paal en
toon die volgende:
- 6.2.1 Gepersde paal (6)
- 6.2.2 Plaatbol op die basis (6)
- 6.2.3 Die skag (6)
- 6.2.4 Posisie van versterking (6)
- 6.3 Maak netjiese sketse van die metodes waarop die onder- en bokant van 'n
houtpaal versterk word. (8)
- [50]**

TOTAAL: 300

- 5.2 Give FIVE (5) steps to be followed when testing a sewage line for leakages. 5x2=(10)
- 5.3 State in THREE (3) steps how to empty a septic tank by means of a tanker. (10)
- 5.4 Draw in good proportion a longitudinal section through a vacuum tank and show the following:
- 5.4.1 Concrete foundation (2)
- 5.4.2 Channel (2)
- 5.4.3 Benching (2)
- 5.4.4 Concrete walls (2)
- 5.4.5 Valve in outlet manhole (2)
- 5.4.6 Inlet manhole (2)
- 5.4.7 Manhole covers (2)
- 5.4.8 Ventilation pipe (2)
- 5.4.9 Receiving trap (2)
- 5.4.10 Print the title. (2)
- 10x2=(20)

[50]

QUESTION 6

- 6.1 6.1.1 Name THREE (3) places where retaining walls can be built. 3x2=(6)
- 6.1.2 Name FOUR (4) materials that can be used for piles. 4x3=(12)
- 6.2 Make a large, neat, vertical section through a "compressed" or extended pile, showing the following:
- 6.2.1 Expanded pile (6)
- 6.2.2 Expanded bulb at the base (6)
- 6.2.3 The shaft (6)
- 6.2.4 Position of the reinforcement (6)
- 6.3 Make neat sketches illustrating the methods of strengthening the bottom and top ends of a wooden pile. (8)

[50]

TOTAL: 300

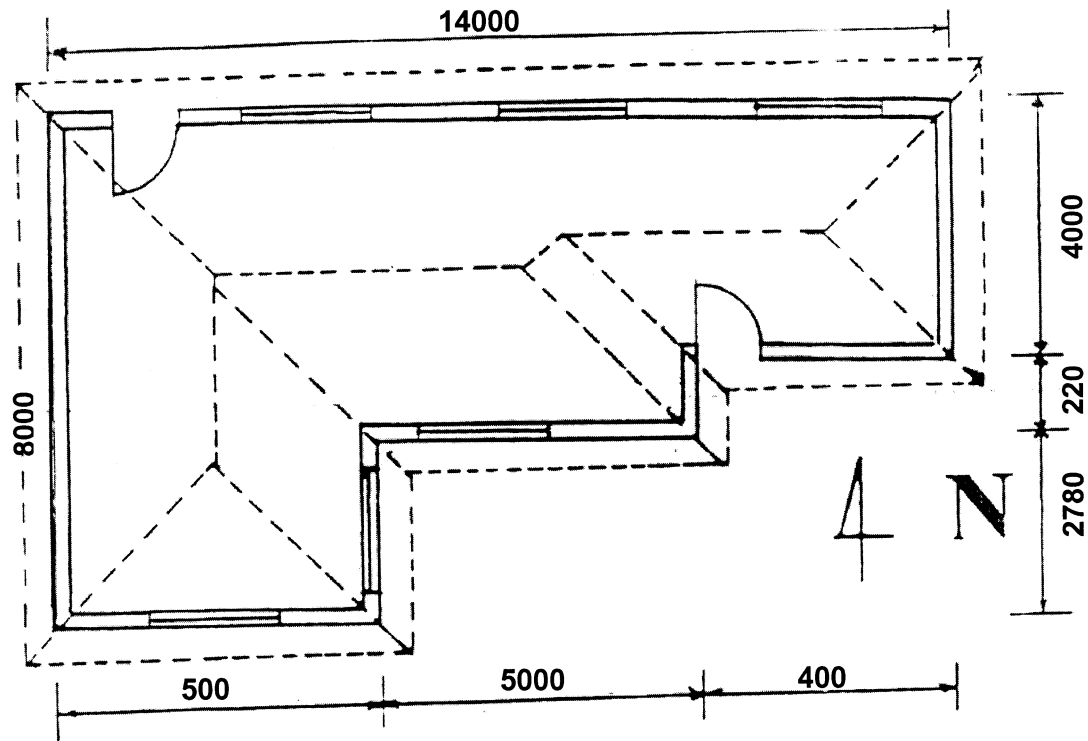
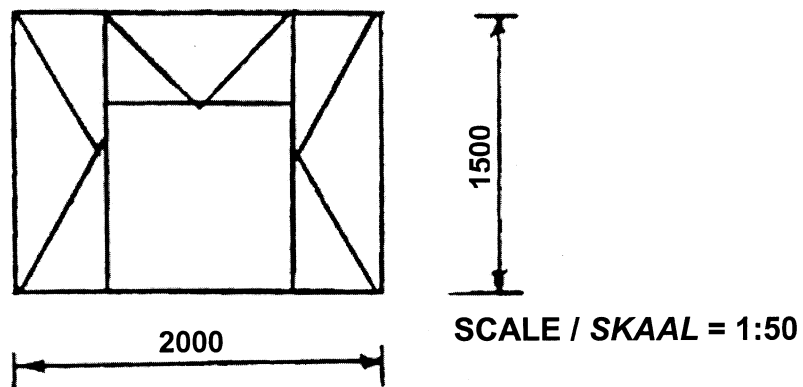


FIGURE / FIGUUR 1

SCALE / SKAAL = 1:100



WINDOW SCHEDULE / VENSTERSKEDULE

FIGURE / FIGUUR 2

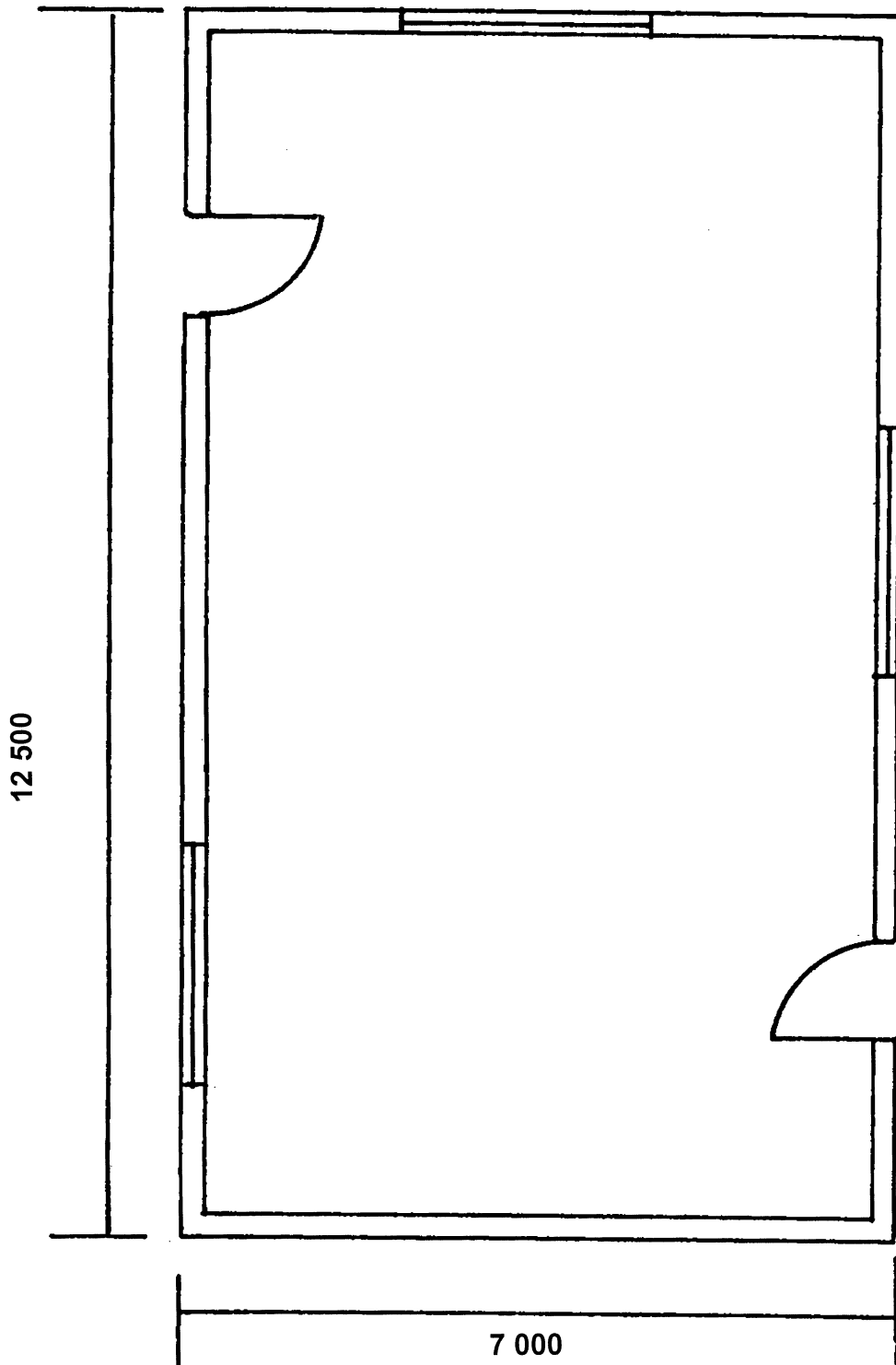


Figure / *Figuur* 3

QUESTION / VRAAG 4

**EXAMINATION NUMBER/
EKSAMENNOMMER:**

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ANSWER SHEET/ANTWOORDBLAD

4.1			SUBSTRUCTURE / ONDERBOU <u>CENTRE LINE FOR SUBSTRUCTURE / MIDDELLYN VAN ONDERBOUSTRUKTUUR</u> 2 x _____ = _____ 2 x _____ = _____ Subtotal/Subtotaal = _____ Minus 4 x _____ = _____ Centre line of substructure is 25,0 m long <i>Middel lyn van onderboustruktuur is 25,0 m lank.</i> Area if substructure is 375 mm high/ <i>Oppervlak as onderboustruktuur 375 mm hoog is = _____</i>
	1	,375 m	
	2	50	Number of bricks for substructure if there are 50 bricks per square metre for a half-brick wall/ <i>Getal bakstene vir onderbou-struktuur indien daar 50 bakstene per vierkante meter vir 'n halfsteen-muur is.</i> = _____
4.2			SUPERSTRUCTURE / BOBOU <u>Centre line for superstructure / Middellyn van boboustruktuur</u> 2 x _____ = _____ 2 x _____ = _____ Subtotal/Subtotaal = _____ Minus 4 x _____ = _____ Total/Totaal = _____ Centre line of superstructure is 25,0 m long. <i>Middellyn van boboustruktuur is 25,0 m lank</i> Height of superstructure is 2 800 mm / <i>Hoogte van boboustruktuur 2 800 mm is = _____</i>
	1	2,8	
	2	50	Number of bricks for superstructure if there are 50 bricks per square metre for a half-brick wall/ <i>Aantal bakstene vir boboustruktuur indien daar 50 stene per vierkante meter vir 'n halfsteenmuur is</i> = _____

EXAMINATION NUMBER/
EKSAMENNOMMER:

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ANSWER SHEET/ANTWOORDBLAD

4.3

3 2 2	50	_____	DEDUCTIONS / AFTREKKINGS OPENINGS / OPENINGE WINDOWS / VENSTERS 3 @ 2,5 x 1,5 = _____ Doors/deure 2 x 1 = _____ Total area of openings / <i>Totale oppervlak van openinge</i> Windows / <i>Vensters</i> = _____ Doors / <i>Deure</i> = _____ Total / <i>Totaal</i> = _____ Total number of bricks to fall away at openings/ <i>Totale aantal stene wat wegval by die openinge</i> = _____
			TOTAL NUMBER OF BRICKS FOR THE BUILDING TOTALE AANTAL BAKSTONE VIR DIE GEBOU Substructure / <i>Onderbou</i> = _____ Superstructure / <i>Bobou</i> = _____ Subtotal / <i>Subtotaal</i> = _____ Minus openings / <i>openinge</i> = _____ Total / <i>Totaal</i> = _____ Total number of bricks + 5% for wastage / <i>Totale aantal stene + 5% vir vermorsing</i> = _____

END / EINDE