

**GAUTENG DEPARTMENT OF EDUCATION  
SENIOR CERTIFICATE EXAMINATION**

**BRICKLAYING AND PLASTERING SG**

**TIME: 3 hours**

**MARKS: 300**

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**REQUIREMENTS:**

- Answer Book
- Drawing answer book (701-2/X)
- Calculators may be used.

**INSTRUCTIONS:**

- Answer ALL questions.
- All drawings must be done in pencil in the drawing answer book (701-2/X).
- Assume the dimensions of a brick to be the following:

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

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**QUESTION 1**

- 1.1 Methods of curing are designed to maintain the concrete in a moist condition for a continuous period of several days or weeks. Explain FOUR acceptable methods of curing. (8)
- 1.2 Name the test used to determine the strength of concrete. (1)
- 1.3 Name the test used to determine the workability of concrete. (1)
- 1.4 Name SIX types of damp-proof course that could be used in a building. (6)
- 1.5 Give FIVE factors that cause chimneys to smoke. (10)
- 1.6 What is meant by the term '**SET**' in piling? (2)
- 1.7 Name TEN regulations regarding drains. (20)
- [48]**

### QUESTION 2

- 2.1 Name any EIGHT scaffold fittings for a dependent scaffold. (8)
- 2.2 Draw a neat sketch of a cross-sectional part of a dependent scaffold and label only TEN parts. (20)
- [28]**

### QUESTION 3

- 3.1 Explain the term **plaster**. (2)
- 3.2 Describe how the following would be carried out:
- 3.2.1 Two-coat plastering (24)
- 3.2.2 Mixing mortar by hand (12)
- 3.3 Explain by means of a flow chart the manufacturing of ordinary Portland cement. (10)
- [48]**

### QUESTION 4

- 4.1 Name THREE different types of arches in common use on construction sites. (3)
- 4.2 Draw, to an appropriate scale of 1:10, the front elevation of a two-half-brick ringed semicircular rough arch. The arch has a span of 800 mm. (12)
- 4.3 By means of a neat isometric drawing, draw to a scale of 1:10, the application of a brick force to a cross-junction formed by one-brick walls built in English bond. The walls are four courses high with brick-force reinforcement shown exposed on the top course. The walls on each of the four sides of the junction must be approximately 660 mm long. (21)
- [36]**

### QUESTION 5

- 5.1 Draw to a scale of 1:20, a cross-sectional and a plan elevation of a septic tank. (30)
- 5.2 Provide standard abbreviations for the following components on a sewerage plan:
- 5.2.1 Concrete (2)
- 5.2.2 Manhole cover (2)
- 5.2.3 Inspection eye (2)
- 5.2.4 Gully (2)
- 5.2.5 Invert level (2)
- [40]**

### QUESTION 6

Draw to a scale of 1:10 a vertical section through the roof eaves and ceiling of a building by using the following specifications:

Roof-truss:	South African roof truss with gang nailed plates
Roof pitch:	30 degrees
Roof-truss construction:	All members consist of 114 mm x 38 mm South African pine
Wall-plate:	114 mm x 38 mm
External wall:	270 mm cavity wall plastered 19 mm thick on the inside only
Roof covering:	Asbestos cement slates 610 x 406 x 4, 25 fixed to 50 mm x 50 mm battens at 230 mm centres on 230 micron underlay
Eaves batten:	45 mm x 45 mm
Eaves:	Closed eaves with 300 mm overhang
Fascia:	200 mm x 15 mm
Rainwater goods:	100 mm half round PVC gutter with 75 mm swan neck or off-set and 75 mm downpipe
Ceiling construction	12 mm Rhino board fixed to 38 mm x 38 mm brandering at 400 mm centres

The drawing must include the following:

- Part of the roof with asbestos cement slates specifications
- Part of the external wall
- Rainwater goods
- Part of the ceiling
- Completed closed eaves specifications

No details at the ridge are required.

**[40]**

### QUESTION 7

7.1 20 rectangular columns, 225 mm wide, 300 mm long 3 metres high are to be cast in concrete. The concrete mix is 1:2:3. Assume the volume of one sack of cement to be 0,033 m<sup>3</sup>.

Calculate the

- |       |  |      |
|-------|--|------|
| 7.1.1 | Total volume of concrete needed for 20 columns.  | (11) |
| 7.1.2 | quantity of cement to the nearest sack.          | (3)  |
| 7.1.3 | quantity of sand required. (in m <sup>3</sup> )  | (3)  |
| 7.1.4 | quantity of stone required. (in m <sup>3</sup> ) | (3)  |

7.2 The low-cost housing project planned by your local municipality requires that a number of houses be erected according to the plan given in **Figure 1** on page 6. To be able to quote on this project you must calculate the number of bricks required per unit. Besides the information given in the plan, you will also require the following data:

#### OPENINGS

Windows A & B: 1,6 m x 1,3 m  
 Windows C & D: 1,2 m x 1,0 m  
 All doors: 0,850 m x 2,0 m

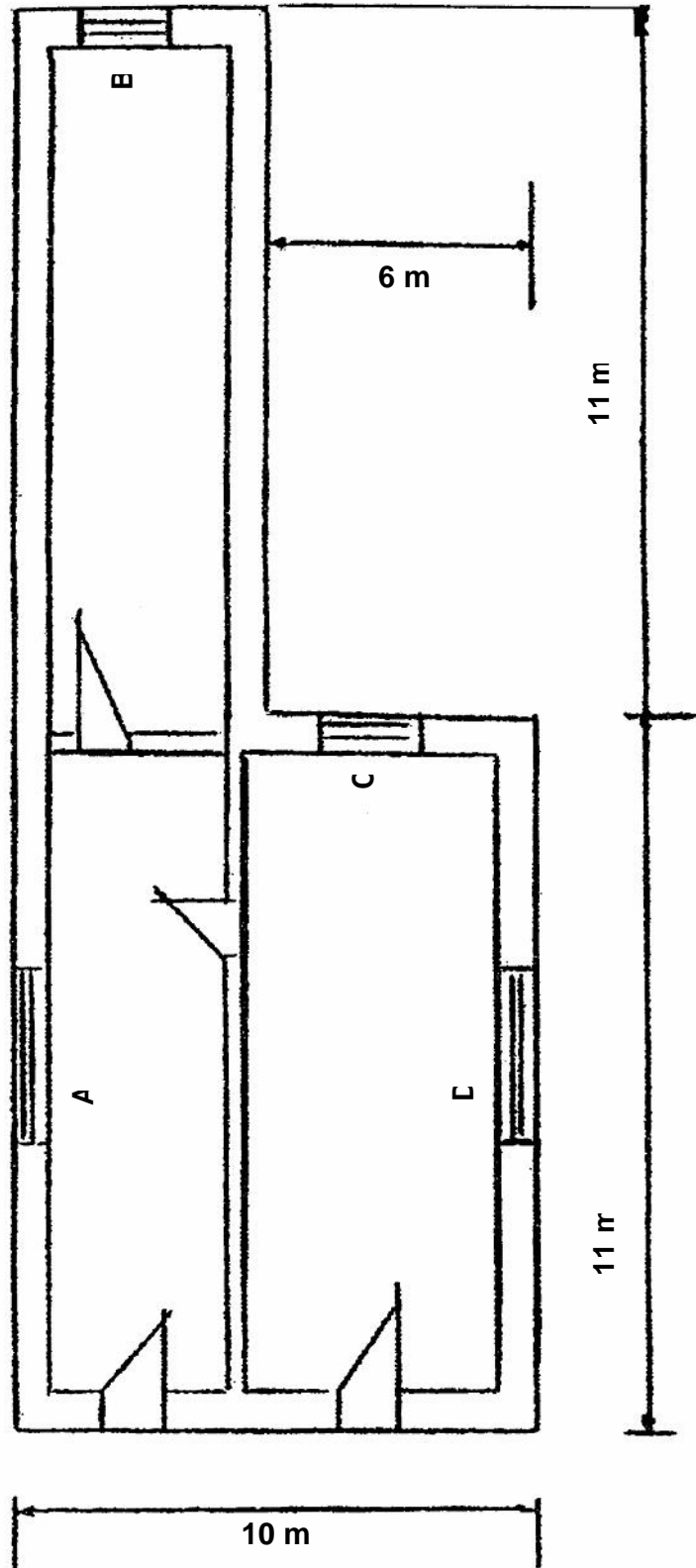
For external walls, assume 108 bricks/m<sup>2</sup>

For internal walls, assume 54 bricks/m<sup>2</sup>

Width of external walls:	220 mm	
Width of internal walls:	110 mm	
Height of walls:	2,6 m	(40)
		<b>[60]</b>

**TOTAL: 300**

FIGURE 1



END