NATIONAL SENIOR CERTIFICATE EXAMINATION
2014

ENGINEERING GRAPHICS AND DESIGN
PAPER 1

MARKS: 200
TIME: 3 HOURS

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 6 pages including the cover page and 4 questions.
2. All questions must be answered.
3. Unless specified otherwise, all questions are in First Angle Orthographic Projection.
4. Unless specified otherwise, all questions are to be completed to a scale of 1:1.
5. All answer sheets must be re-stapled in numerical order, even questions that are not attempted/blank.
6. All construction work must be shown.
7. Print your examination number neatly on each page.
8. Use only the drawing sheets provided.
9. Your drawings should reflect neatness and accuracy.
10. All dimensions or detail not given may be assumed in good proportion.
1.1 What elevation is VIEW A?
1.2 What would be the room designation of ROOM 9?
1.3 What type of tiles cover the roof?
1.4 What does the abbreviation 'B' stand for?
1.5 What does the abbreviation 'UR' stand for?
1.6 A car reverses straight out of the garage. In which direction is it moving?
1.7 What is the feature at 1 called?
1.8 What is the feature at 2 called? (No abbreviations)
1.9 What is the feature at 3 called? (No abbreviations)
1.10 What is the feature at 4 called?
1.11 What is the name of the area indicated by arrow 5?
1.12 What is the feature at 6 called?
1.13 How many panes of glass are needed for all the ND84 windows?
1.14 With reference to the drawing of the wall section with partial roof detail, indicate which feature is represented by the corresponding letter.
1.15 What material is the lintel (indicated by E) made from?
1.16 In the space below, draw, in NEAT freehand, the PLAN VIEW and ELEVATION VIEW of the SABS convention for a Water Closet (toilet).
The figure below shows the INCOMPLETE Front View and an INCOMPLETE Top View of a SQUARE DUCT penetrated by a CIRCULAR PIPE which is drawn in First angle Orthographic Projection. The axes of both the square duct and circular pipe lie in the same vertical plane.

Draw the following:

2.1 the complete FRONT view clearly showing the curve of the interpenetration. Show all hidden detail.

2.2 the complete TOP view.

Show all construction.

**ASSESSMENT CRITERIA**

You will be assessed on your ability to do the following:
- draw the complete front view 19
- draw the complete top view 13
- show necessary centre lines and construction 6

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**EXAMINATION NUMBER**

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38 MARKS
The figure shows the three views of a dwelling with a semi-circular step. Draw a neat two-point perspective view of the dwelling and step.

PP - Picture Plane
HL - Horizon Line
GL - Ground Line
SP - Station Point

Show the wall thickness where applicable.
Nastly label the vanishing points RVP and LVP.
SHOW NO HIDDEN DETAIL.

ASSessment CRITERIA
You will be assessed on your ability to do the following:
- determine and label the vanishing points 2
- determine the two point perspective view 40

42 MARKS

ANSWER SHEET 3
**Answer this question on ANSWER SHEET 4.**

All drawings must comply with SABS 10143.

**The following is given:**
- An incomplete schematic floor plan of a single bedroom house.
- Window and door positions.
- Perimeter dimensions.
- An incomplete schematic elevation.
- Door and window positions, ground and floor levels.
- Door and door frame detail.
- Incomplete foundation detail.
- Roof and down pipe detail.
- Plumbing and other fixtures legend.
- Window, window frame and window sill detail.

**Draw the following:**
1. The complete floor plan using a scale of 1:50
2. The SOUTH elevation using a scale of 1:50
3. The sectional detail of only the window and foundation as indicated on the right hand wall using a scale of 1:25

**FLOOR PLAN INSTRUCTIONS (use scale 1:50)**
- Draw and hatch all walls.
- Insert all window details.
- Insert the door detail of the external door only.
- Draw a 1,000 x 1,000 shower and wash basin (position suitably).
- Insert a double bed in the bedroom in the position indicated.
- Draw a 500 mm deep built in cupboard against the northern wall of the bedroom.
- Insert the following electrical detail:
  - A 10, 40 watt fluorescent tube light in the centre of the room.
  - A single wall mounted light outside the southern door.
  - One switch for both lights.
  - One switched socket outlet on the Eastern bedroom wall.
- Label the floor plan and the scale.

**SOUTH ELEVATION INSTRUCTIONS (use scale 1:50)**
- Draw the complete outside south elevation showing window and door details.
- Include a Rain Water Down Pipe on both the left and right of the dwelling – position the top of the pipe half way down the barge board.
- Show some detail for the corrugated Asbestos roof sheeting.
- Label the South Elevation.

**SECTIONAL DETAIL INSTRUCTIONS (use scale 1:25)**
- In the space provided and indicated, draw the sectional detail of the window and foundation for the right hand, external wall at a scale of 1:25.
- Sectional window detail:
  - Use one, 242 x 75 concrete lintel above the window.
  - Use 222 x 110 quarry tile window sill.
  - Show the window frame detail.
  - Complete all hatching detail.
- Sectional Right foundation detail:
  - Insert all floor slab details.
  - Use 10 mm screed and 150 mm compacted hardcore filling.
  - Label the ground level and damp proof course.
  - Complete all hatching detail.