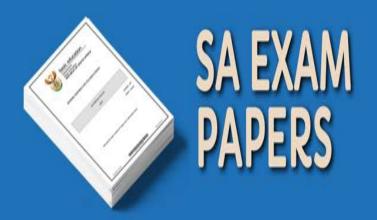


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## NATIONAL SENIOR CERTIFICATE

**GRADE 12** 

## **ENGINEERING GRAPHICS AND DESIGN P1**

FEBRUARY/MARCH 2011

**MARKS: 100** 

TIME: 3 hours

This question paper consists of 6 pages.



- 1. This question paper consists of FOUR questions.
- 2. Answer ALL the questions.
- 3. ALL drawings are in first-angle orthographic projection, unless stated otherwise.
- 4. ALL drawings must be drawn to scale 1:1, unless stated otherwise.
- 5. ALL the questions must be answered on the QUESTION PAPER as instructed.
- 6. ALL the pages must be restapled in numerical sequence, irrespective of whether the question was attempted.
- 7. Time management is essential in order to complete all the questions.
- 8. Print your examination number in the block provided on every page.
- 9. Any details or dimensions not given, must be assumed in good proportion.
- 10. ALL answers must be drawn accurately and neatly.

FOR OFFICIAL USE ONLY											
QUESTION	MARK	(S OBT	AINED	1/2	SIGN	MC	DERAT	ED	1/2	SIGN	
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3											
4											
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СО	MPLETE THE FOLLOWING:	
	CENTRE NUMBER	
	CENTRE NUMBER	
	EXAMINATION NUMBER	
	EXAMINATION NUMBER	



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THE SITE PLAN SHOWS STAND 80 SITUATED AT KAYSERS BEACH

SURVEYED ON 12-04-2010

LAND SURVEYOR'S CERTIFICATE SIDE LENGTHS AB = 37 806 BC = 24 200 CD = 10 615 DE = 30 300 EA = 31 706  $\frac{3}{2}$ 

31 5

32.5 31.5 OPEN STAND 79 KINGFISHER DRIVE 3000 B/L PROPOSED NEW OUTBUILDING 5000 B/L R 品  $\blacksquare$ 面 ᆔ 9400 PROPOSED NEW DWELLING \_3000 B/L (တ) STAND 80 STAND 81 DRIVEWAY (တ) D 5000 B/L MARLIN DRIVE 32 32.5 (N) $(\omega)$ 4

32

SITE PLAN SCALE 1: 200



## QUESTION 1: ANALYTICAL (CIVIL)

DBE/Feb - Mar 2011

**Given:**The site plan of a proposed new dwelling and outbuilding and a table of questions. The drawing is not to scale.

Instructions:

Complete the table below by neatly answering the questions, which all refer to the accompanying drawing.

[27]

27		TOTAL	
4 <u>1</u>		Determine the total area of the stand in square meters. Show ALL calculations.	21
$2\frac{1}{2}$		Determine the perimeter of the stand in metres. Show ALL calculations.	20
_		The side of the new dwelling that faces Kingfisher Drive will be called theelevation.	19
1		Determine, in metres, the difference in height between corner B and corner C of the stand.	18
1		What does the complete feature at 7 indicate?	17
1		What does the line at 6 indicate?	16
1		What does the line at 5 indicate?	15
1		Name the feature at 4.	14
1		What does the line at 3 indicate?	13
1		What does the line at 2 indicate?	12
1		Name the feature at 1.	11
1		What does the abbreviation IE stand for?	10
1		What is the distance, in metres, from the municipal boundary line on Marlin Drive to the propopsed new dwelling?	9
_		How many rodding eyes are shown on the site plan?	œ
1		From which street is the motor vehicle access to the site?	7
1		In which residential area is the proposed dwelling situated?	6
_		On what date was the site surveyed?	Q
1		What scale is indicated for the drawing?	4
1		How many complete stands are shown on the site plan?	သ
_		Which stand is to the west of stand 80?	2
Ν		Why would the site plan for the proposed new dwelling and outbuilding not be approved by the municipality?	_
	ANSWERS	QUESTIONS	

EXAMINATION NUMBER	
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**EXAMINATION NUMBER** 

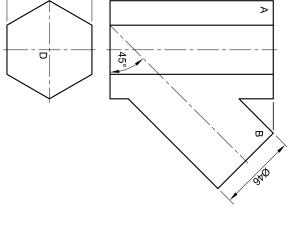
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## QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- Given:
  The incomplete front view and top view of a connecting piece for a ventilation system. The connecting piece consists of a hexagonal pipe (A) and a cylindrical branch pipe (B) that lie in a common vertical plane
  Centre point D as the reference point on the drawing sheet

- Instructions:
  2.1 Draw, to scale 1:1, the following views of the connecting piece:
  2.1.1 The complete ton views
- reference point
- of interpenetration
  2.2 Develop the surface of the cylindrical branch pipe (B). 212 The complete front view clearly showing the curve
- Show ALL necessary construction and calculations.

[40]



EXAMINATION NUMBER	TOTAL 40	6. DEVELOPMENT 11½	5. TOP VIEW OF CYLINDER 7	4. INTERPENETRATION $5\frac{1}{2}$	3. PROJECTION 4	2. AUX. CIRCLES 4	1. GIVEN + CENTRE LINES 8	ASSESSMENT CRITERIA	50 96

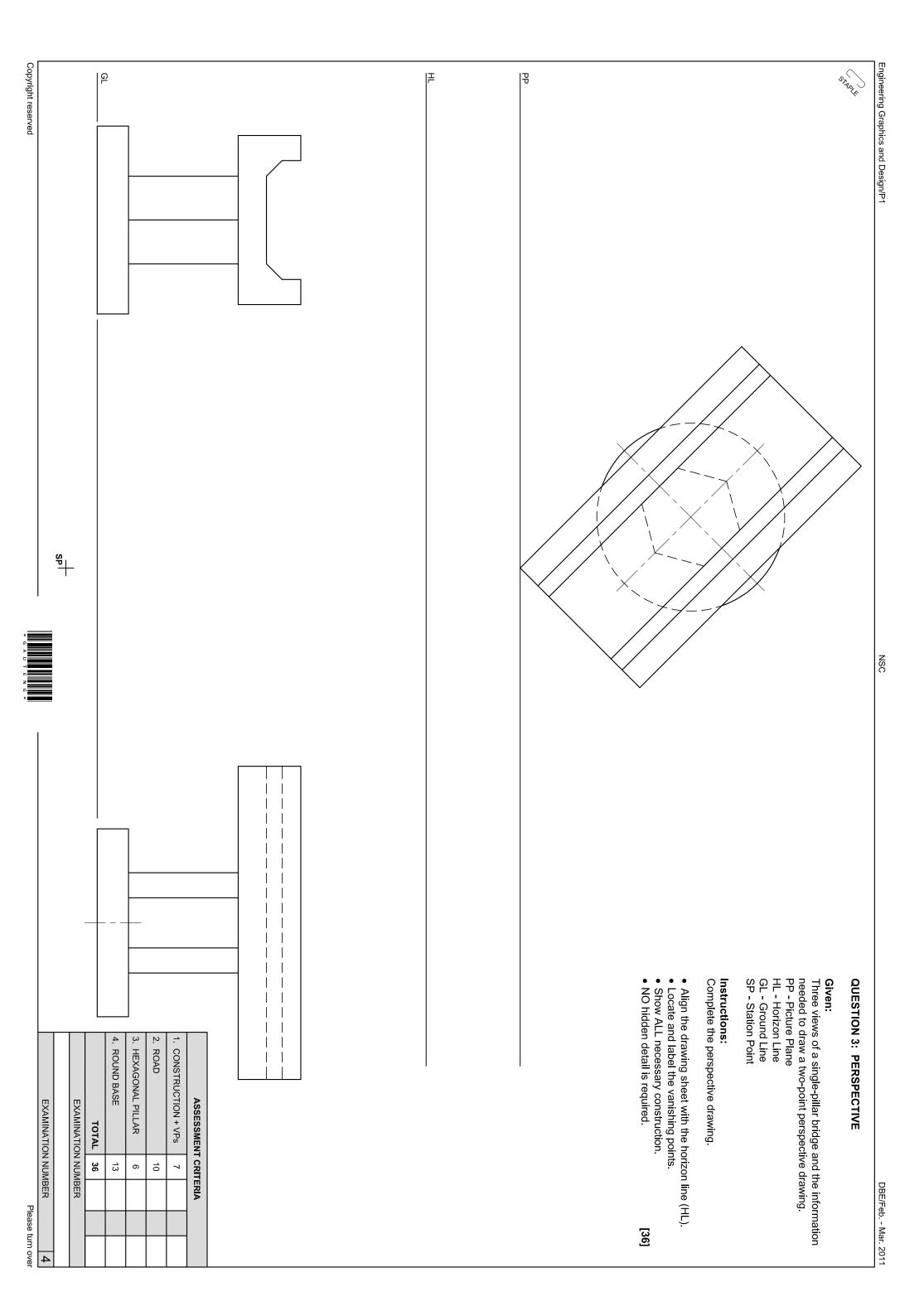
EXAMINATION NUMBER	TOTAL	6. DEVELOPMENT	5. TOP VIEW OF CYLINDER	4. INTERPENETRATION	3. PROJECTION	2. AUX. CIRCLES
N NUME	40	112	7	5 <del>2</del>	4	4
ËR						

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D

Please turn over ω

EXAMINATION NUMBER



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## DOOR AND WINDOW SCHEDULE

DOOR FRAME STANDARD, EXTERNAL, MILD STEEL

FRAME PROFILE 50 132 WINDOW STANDARD W0609 TIMBER FRAME

600

DOOR H/W FRAMED, LEDGED AND BATTENED 835

900

DOOR

FRAME

2100

WASH BASIN 퓓 500 500 TOILET 930

500

**(** 

ELECTRICAL SYMBOLS OR X ₽ SR X DISTRIBUTION BOARD D D

900

500 450

INCOMPLETE ROOF TRUSS, WALL AND CEILING DETAIL

2700 CEILING LEVEL

400 <del>+</del> 100 <u> 200</u>

INCOMPLETE
FOUNDATION DETAIL
FOR THE NEW INTERIOR WALLS

INCOMPLETE LOAD-BEARING FOUNDATION DETAIL

KEY TO NUMBERED FEATURES ON PLAN

1. DOUBLE INSULATED SWITCH
SOCKET OUTLET OUTSIDE LIGHTS
TWO-POLE LIGHT SWITCH 2 x 40 W FLUORESCENT TUBES

TOILET SHOWER WASH BASIN

900

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SHOWER

LOAD-BEARING BRICK WALLS

OUTSIDE LINE OF EXISTING 200 mm

114 x 38 mm GANG-NAILED ROOF TRUSS ON A 114 x 38 mm WALL PLATE

TRUSSES

EQUAL 30 5000

SCHEMATIC DRAWING OF THE ROOF TRUSS

6 mm CEILING BOARD ON 38 x 38 mm BATTENS @ 450 mm C/C

250 FLOOR LEVEL **250** 100 75 500 700 SECTIONAL SOUTH ELEVATION 2700

⋗ 1050 600 2000 NEW WINDOW ¥ W0609 **5 6** GENTS  $\bigcirc$ FLOOR PLAN  $\Theta$  $\odot$ CENTRE LINES OF J NEW 100 mm BRICK WALLS PLASTERED BOTH SIDES LADIES  $\bigcirc$ **6** 9

# ROOF NOTE 37 × 740 IBR SHEETS LAID ON 75 × 50 PURLINS @ 1250 C/C ON 114 × 38 ROOF

• The Given:

previous extention to a clubhouse showing the outside line of the existing outer wall, the incomplete load-bearing

incomplete sectional south elevation of a part of

foundation detail, the ceiling level and an existing 200 mm

QUES:

FION 4: CIVIL DRAWING

The

load-bearing wall

6000

scale

The fixtures for the change rooms

A table of electrical symbols

A door and window schedule relevant notes and dimensions

interior walls, the position of all the fixtures and features.

of the exterior walls, the centre lines of the new

ines

gents change rooms, that will be developed inside the given part of the previous extention, showing the outside

incomplete floor plan of proposed new ladies and

The incomplete roof truss, wall and ceiling detail

A schematic drawing of the roof truss, drawn to a different

• The incomplete foundation detail for the new interior walls Instructions:

change rooms Draw, to scale 1:50 and to the given specifications, the following views of the proposed new ladies and gents Answer this question on page 6.

4.11 he complete floor plan

42 The complete sectional south elevation on cutting plane A-A

ALL drawings must comply with the guidelines contained in the SABS 0143.

左

## SPECIFICATIONS:

THE FLOOR PLAN

## Show the following features on the drawing:

- ALL the walls with hatching detail
- ALL the doors and windows
- The conventions of ALL the fixtures as indicated with the
- numb ALL t Each be connected to the two-pole light switch. the electrical features as indicated with the numbers. change room's outside light and florescent tubes must
- The cutting plane A-A

## THE SECTIONAL SOUTH ELEVATION

## Show

## the following features on the drawing:

• The roof complete foundation, floor, wall, window, ceiling and detail. The window must have two lintels.

 $\triangleright$ 

- The doors and window to the north of cutting plane A-A
- The A<del>-</del>A conventions of the fixtures to the north of cutting plane
- ALLhatching detail

## Label The the following:

- floor plan, including the scale sectional south elevation
- The
- change rooms and floor finish (ceramic tiles)

The

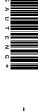
## NOTE

ALL substructure hatching may be drawn in freehand

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EXAMINATION NUMBER

6

EXAMINATION NUMBER

5. LABELS 6. CUTTING PLANE A-A 3. FEATURES 2. WINDOWS + DOORS 1. WALLS + HATCHING 3. FIXTURES 1. WALLS + HATCHING 4. ELECTRIC 4. ROOF + CEILING 2. WINDOWS + DOORS SUBTOTAL SUBTOTAL SECTIONAL SOUTH ELEVATION TOTAL ASSESSMENT CRITERIA FLOOR PLAN 97 47 12 50 10 1 16 10 5 2 6 9 15 OBTAINED SIGN MODERATE

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