SA-STUDENT

To pass high school please visit us at: https://sa-student.com/

aahh... EGD Don't You Just Love It;)





Engineering Graphics and Design/P1 NSC DBE/November 2022



QUESTION 2: SOLID GEOMETRY

Given:

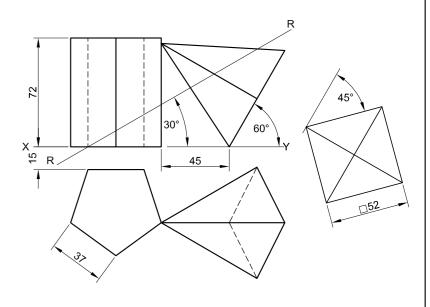
- The front view and top view of a right square pyramid that rests against a right regular pentagonal prism
- An auxiliary view of the right square pyramid
- Cutting plane R-R

Instructions:

Draw, to scale 1:1, the following views of both solids:

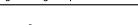
- 2.1 The given front view
- 2.2 A sectional top view with the parts above cutting plane R-R removed
- 2.3 A sectional right view with the parts below cutting plane R-R removed
- 2.4 The true shape of the cut surfaces of BOTH solids
- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.

[37]



	ASSESSMENT CF	RITER	AIS		
1	FRONT VIEW	7			
2	SECTIONAL TOP VIEW	12 ½			
3	SECTIONAL RIGHT VIEW	10			
4	TRUE SHAPE	$6\frac{1}{2}$			
5	CORRECT HATCHING	1			
PENA	ALTIES (=)				
	TOTAL	37			
	EXAMINATION NU	MBER			
	EXAMINATION NU	MBER			3

Engineering Graphics and Design/P1 SC/NSC



QUESTION 2: SOLID GEOMETRY

Given:

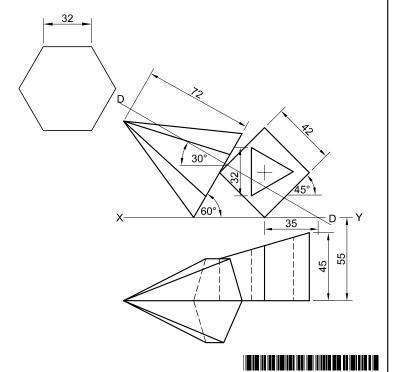
- The front view and the top view of a right regular hexagonal pyramid resting with its base on an edge of a truncated right square prism. The prism is centrally pierced by a right equilateral triangular prismatic hole.
- An auxiliary view of the base of the hexagonal pyramid
- Both solids are cut by cutting plane D-D

Instructions:

Draw, to scale 1: 1, the following views of both solids:

- 2.1 The given front view
- 2.2 A sectional top view on cutting plane D-D
- 2.3 The left view
- 2.4 The true shape of the cut surface of the truncated prism
- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.

[40]



	ASSESSMENT CRITERIA					
1	FRONT VIEW	7 ½				
2	SECTIONAL TOP VIEW	14				
3	LEFT VIEW	12 ½				
4	TRUE SHAPE	6				
PENA	ALTIES (-)					
	TOTAL	40				
	EXAMINATION NU	MBER				

EXAMINATION NUMBER

Copyright reserved

Engineering Graphics and Design/P1 NSC



QUESTION 2: INTERPENETRATION AND DEVELOPMENT

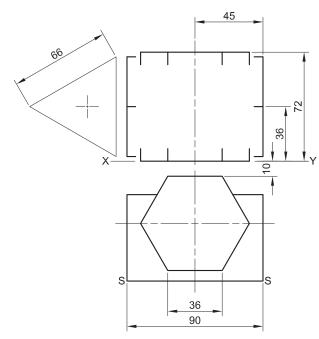
Given:

- The top view and incomplete front view of a connecting piece for a ventilation system. The connecting piece consist of a right equilateral triangular tube and a right regular hexagonal tube. The axes of both tubes lie in a common vertical plane.
- An auxiliary view of the triangular tube.

Instructions:

Draw, to scale 1: 1, the following views of the two tubes:

- 2.1 The given top view
- 2.2 The right view
- 2.3 The complete front view, clearly showing the curve of interpenetration
- 2.4 The development of the triangular tube. Make edge 'S-S' the seam.
- Planning is essential.
- Show ALL hidden detail and folding lines.
- Show ALL construction.



MAKE EDGE	S-S THE SEAM
-----------	--------------

	ASSESSMENT CRITERIA									
1	TOP VIEW	6								
2	RIGHT VIEW	5								
3	FRONT VIEW	16 ½								
4	DEVELOPMENT	10 ½								
PE	NALTIES (-)									
	TOTAL	38								
	EXAMINATION NUM	BER								
	EXAMINATION NUM	BER		3						

[38]

QUESTION 2: SOLID GEOMETRY

Given:

- The front view of a right regular hexagonal prism with a right conical hole
- An auxiliary view
- Horizontal cutting plane C-C

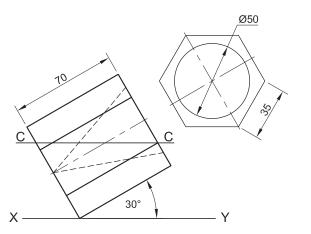
Instructions:

Draw, to scale 1:1, the following views of the solid:

- 2.1 The given front view
- 2.2 A sectional top view
- 2.3 The right view
- Planning is essential.Show ALL hidden detail.
- Show ALL construction.

[36]

DBE/2021



ASSESSMENT CRITERIA									
1	AUXILIARY VIEW	2							
2	FRONT VIEW	5							
3	SECTIONAL TOP VIEW	16							
4	RIGHT VIEW	13							
PEI	NALTIES (-)								
	TOTAL	36							
	EXAMINATION NUMBER								
	EXAMINATION NUMBER 3								



SC/NSC Engineering Graphics and Design/P1 DBE/November 2020

QUESTION 2: SOLID GEOMETRY

Given:

- The front view and the top view of a right regular hexagonal pyramid and a right square pyramid
- Cutting plane S-S

Specifications:

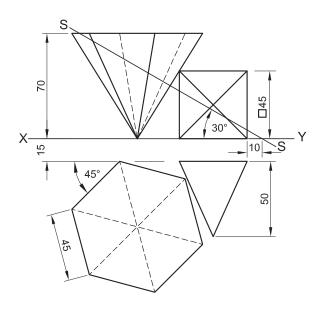
- The two solids do not touch
- Both solids are cut by cutting plane S-S

Instructions:

Draw, to scale 1:1, the following views of the TWO solids:

- 2.1 The given front view2.2 A sectional top view
- 2.3 A sectional right view
- 2.4 The true shape of the cut surface of the hexagonal pyramid
- Planning is essential.
- Show ALL construction.
- Show ALL hidden detail.

[38]



	ASSESSMENT CRI	TERI	A	
1	FRONT VIEW	7\frac{1}{2}		
2	SECTIONAL TOP VIEW + CONSTRUCTION	13½		
3	SECTIONAL RIGHT VIEW	11 ¹ / ₂		
4	TRUE SHAPE	5½		
PE	NALTIES (-)			
	TOTAL	38		
	EXAMINATION NUM	BER		
	EXAMINATION NI IM	RER		3



Engineering Graphics and Design/P1 SC/NSC

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

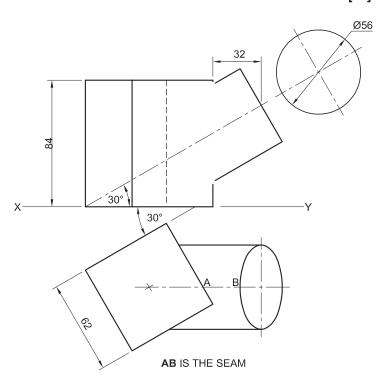
- The incomplete front view and the top view of a hollow right square prism with a right cylindrical branch pipe. The axes of both pipes lie in a common vertical plane.
- An auxiliary view of the branch pipe

Instructions:

Draw, to scale 1: 1, the following views of the TWO pipes:

- 2.1 The given top view
- 2.2 The complete front view, clearly showing the curve of interpenetration
- 2.3 The development of the cylindrical branch pipe. Make **AB** the seam.
- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.

[37]



	ASSESSMENT CR	ITERI	Α	
1	TOP VIEW	$10\frac{1}{2}$		
2	FRONT VIEW + CIRCLE DIVISION	6 ½		
3	CURVE OF INTERPENETRATION	9		
4	DEVELOPMENT	11		
PENA	ALTIES (-)			
	TOTAL	37		
	EXAMINATION NUM	BER		
	EXAMINATION NUM	BER		3



Engineering Graphics and Design/P1 NSC DBE/November 2018

QUESTION 2: SOLID GEOMETRY

Given:

- The front view of a right equilateral triangular pyramid and a right regular hexagonal prism
- The top view of the pyramid and the axis of the prism
- An auxiliary view of the prism
- Cutting plane A-A

Specifications:

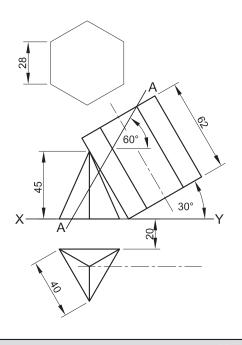
- The prism leans against the pyramid.
- Both solids are cut by cutting plane A-A.

Instructions:

Draw, to scale 1:1, the following views of the TWO solids:

- 2.1 The given front view
- 2.2 A sectional top view
- 2.3 A sectional left view
- 2.4 The true shape of the cut surfaces
- Planning is essential.
- Show ALL construction.
- Show ALL hidden detail.

[40]



	ASSESSMENT C	RIA					
1	CONSTRUCTION	1					
2	FRONT VIEW	$5\frac{1}{2}$					
3	SECTIONAL TOP VIEW	14 ½					
4	SECTIONAL LEFT VIEW	12 ½					
5	TRUE SHAPE	6 ½					
PENA	ALTIES (-)						
	TOTAL	40					
	EXAMINATION N	UMBER					
	EXAMINATION N	UMBER			3		
Diagon from a con-							

Engineering Graphics and Design/P1 SCE DBE/2018

QUESTION 2: SOLID GEOMETRY

Given:

- The incomplete front view and the top view of a hollow open-ended right square prism that has been shaped to fit around a hollow open-ended right regular hexagonal prism. The axes of both hollow prisms lie in a common vertical plane.
- An auxiliary view of the square prism

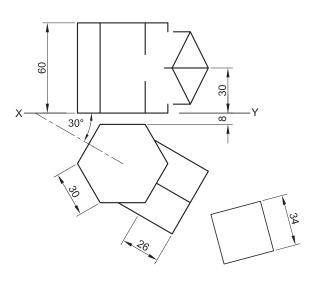
Instructions:

Draw, to scale 1:1, the following:

- 2.1 The given top view
- 2.2 The complete front view, clearly showing the curve of interpenetration
- 2.3 The complete right view, clearly showing the curve of interpenetration
- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.



[37]



	ASSESSMENT C	RITER	RIA		
1	TOP VIEW	7			
2	FRONT VIEW	14 ½			
3	RIGHT VIEW	15 ½			
PENA	ALTIES (-)				
	TOTAL	37			
	EXAMINATION N	UMBER			
	EXAMINATION N	UMBER			3



Engineering Graphics and Design/P1 NSC DBE/November 2017

^

QUESTION 2: SOLID GEOMETRY

Given:

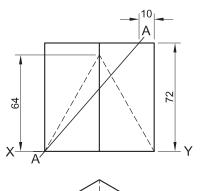
- The front view and the top view of a right regular hexagonal prism with a right regular hexagonal pyramidal hole
- Cutting plane A-A

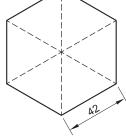
Instructions:

Draw, to scale 1: 1, the following views of the solid:

- 2.1 The given front view
- 2.2 A sectional top view
- 2.3 A sectional left view
- 2.4 The true shape of the cut surface
- Show ALL hidden detail.
- Show ALL construction.

[35]





	ASSESSMENT CRITERIA						
1	FRONT VIEW	4					
2	SECTIONAL TOP VIEW	9½					
3	SECTIONAL LEFT VIEW	10½					
4	TRUE SHAPE	6					
5	HATCHING	5					
PEI	NALTIES (-)						
	TOTAL 35						
	EXAMINATION NUMBER						

SCE Engineering Graphics and Design/P1 DBE/2017

QUESTION 2: TRANSITION PIECE

Given:

The front view and top view of a regular hexagonal to rectangular transition piece

Instructions:

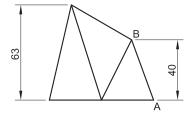
Draw, to scale 1:1, the following views of the transition piece:

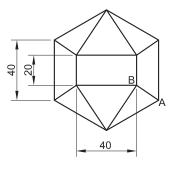
- 2.1 The given top view2.2 The given front view
- 2.3 The development

NOTE:

- Make AB the seam.
- Show ALL construction.

[38]





AB -	SEAM
------	------

	ASSESSMENT CRITERIA						
1	TOP VIEW	8					
2	FRONT VIEW	3					
3	TRUE LENGTH	8					
4	DEVELOPMENT	19					
PEI	NALTIES (-)						
	TOTAL 38						
	EXAMINATION NUMBER						

Engineering Graphics and Design/P1 NSC

 \wedge

QUESTION 2: DEVELOPMENT

Given:

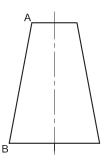
- The front view, top view and left view of a rectangular to round transition piece with seam AB
- The position of point P on the drawing sheet

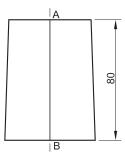
Instructions:

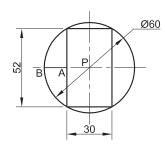
Draw, to scale 1: 1, the following views of the transition piece:

- 2.1 The given front view and top view
- 2.2 The development of the transition piece
- Make AB the seam.
- Show ALL construction.

[36]







	ASSESSMENT CRITERIA					
1	TOP VIEW	4 ½				
2	FRONT VIEW	2 ½				
3	TL CONSTRUCTION	6				
4	DEVELOPMENT	23				
PEI	NALTIES (-)					
TOTAL 36						
	EXAMINATION NUMBER					

EXAMINATION NUMBER

 P_{\perp}



Engineering Graphics and Design/P1 NSC

^

QUESTION 2: SOLID GEOMETRY

Given:

- The front view and the top view of a right regular hexagonal pyramid and a right equilateral triangular prism. The axes of both solids lie in a common vertical plane
- An auxiliary view of the triangular prism

Specifications:

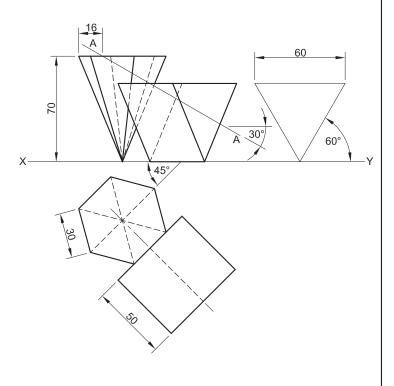
- The two solids do not touch.
- Both solids are cut by cutting plane AA.

Instructions:

Draw, to scale 1: 1, the following views of the TWO solids:

- 2.1 The given front view
- 2.2 The sectional top view
- 2.3 The sectional right view
- Planning is essential.
- Show ALL necessary construction.
- Show ALL hidden detail on all three views.

[37]



	ASSESSMENT	CRITE	RIA		
1	CONSTRUCTION	3			
2	FRONT VIEW	9			
3	SECTIONAL TOP VIEW	11			
4	SECTIONAL RIGHT VIEW	14			
PE	NALTIES (-)				
	TOTAL	37			
	EXAMINATION	NUMBE	R		
				_	
	EXAMINATION	NUMBE	R		3

Engineering Graphics and Design/P1 NSC DBE/Feb.-Mar. 2016

QUESTION 2: SOLID GEOMETRY

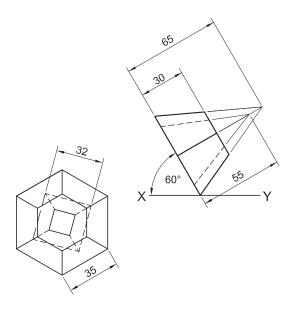
Given:

The front view and an auxiliary view of a truncated right regular hexagonal pyramid with a centrally placed right square pyramidal hole.

Instructions:

Draw, to scale 1:1, the following views of the

- 2.1 The given front view2.2 The top view
- 2.3 The left view
- Show ALL hidden detail.
- Show ALL necessary construction. [40]



	ASSESSMENT CRITERIA						
1	FRONT AND AUX. VIEW	7 <u>1</u>					
2	TOP VIEW	15					
3	LEFT VIEW	17 ¹ / ₂					
PEI	NALTIES (-)						
	TOTAL	40					
	EXAMINATION NUMB	ER					
	EXAMINATION NUMB	ER			3		

Engineering Graphics and Design/P1 NSC DBE/November 2015

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

- The incomplete front view and top view of an equilateral triangular prism that has been shaped to fit around a right regular hexagonal prism. The axes of both prisms lie in a common vertical plane.
- An auxiliary view of the triangular prism.

Instructions:

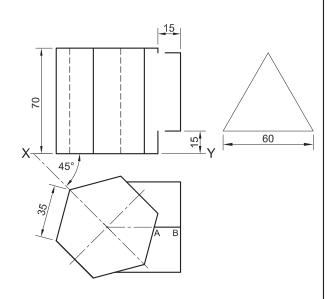
Draw, to scale 1:1, the following:

- 2.1 The given top view
- 2.2 The complete front view clearly showing the curve of interpenetration
- 2.3 The complete right view
- 2.4 The development of the surface of the triangular prism

 Make **AB** the seam.
- Show ALL hidden detail.

AB IS THE SEAM.

• Show ALL necessary construction. [35]



ASSESSMENT CRITERIA					
1	TOP VIEW	6			
2	FRONT VIEW	11			
3	RIGHT VIEW	7			
4	DEVELOPMENT	11			
PEI	NALTIES (-)				
	TOTAL	35			
	EXAMINATION	NUMBE	R		



QUESTION 2: TRANSITION PIECE

Given:

The front view and the top view of a squareto-irregular four-sided transition piece.

Instructions:

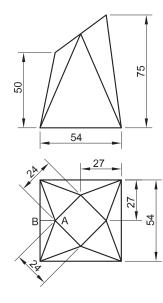
Draw, to scale 1:1, the following views of the transition piece:

- 2.1 The given top view
- 2.2 The given front view2.3 The development of the transition piece

NOTE:

AB is the seam.

[36]



	ASSESSMENT CRITERIA						
1	FRONT AND TOP VIEW	11					
2	TL CONSTRUCTION	8					
3	DEVELOPMENT	17					
PE	NALTIES (-)						
	TOTAL 36						
	EXAMINATION NUMBER						

Engineering Graphics and Design/P1 NSC DBE/November 2014

QUESTION 2: SOLID GEOMETRY

Given:

The front view and the top view of a right regular hexagonal prism with a right square hole and a right regular pentagonal pyramid

Specifications:

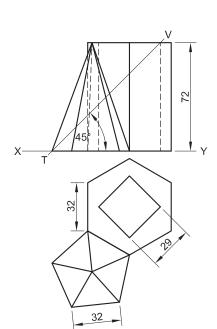
- One base edge of the hexagonal prism is in contact with one base edge of the pentagonal pyramid.
- Both solids are cut by a cutting plane VT.

Instructions:

Draw, to scale 1:1, the following views of the TWO solids:

- 2.1 The given front view
- 2.2 The sectional top view
- 2.3 The sectional left view. Show ALL hidden detail.

Show ALL necessary construction. [38]



	ASSESSMENT CRITERIA					
1	CONST. + FRONT VIEW	7				
2	SECTIONAL TOP VIEW	12½				
3	SECTIONAL LEFT VIEW	15				
4	HATCHING	3½				
PEI	NALTIES (-)					
	TOTAL	38				
	EXAMINATION NUMBER					
	EXAMINATION NUMBER					3

NSC Engineering Graphics and Design/P1 EXEMPLAR 2014

QUESTION 2: SOLID GEOMETRY

Given:

- The front view and the top view of a right equilateral triangular prism and a right regular octagonal pyramid
- The auxiliary view of the triangular prism
- The position of base edge 'A-B' on the answer sheet

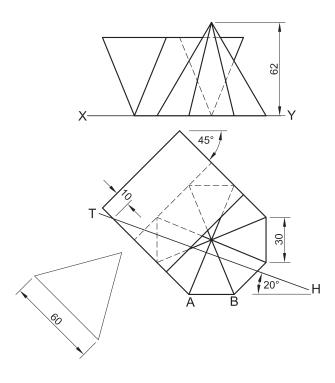
Specifications:

One face of the triangular prism is in contact with one face of the octagonal pyramid. Both solids are cut by a cutting plane HT.

Instructions:

Draw, to scale 1:1, the following views of the TWO solids:

- 2.1 The given top view
- 2.2 A sectional front view on cutting place HT2.3 The true shape of the cut surfaces
- Show ALL necessary construction and projection. [38]
- Show ALL hidden detail.



	ASSESSMENT CRITERIA					
1	GIVEN TOP VIEW	7				
2	FRONT VIEW	21				
3	TRUE SHAPE	10				
	TOTAL	38				
	EXAMINATION NUMBER					

EXAMINATION NUMBER Please turn over Engineering Graphics and Design/P1 NSC NSC

QUESTION 2: TRANSITION PIECE

Given:

The front view and top view of a square-to-round transition piece.

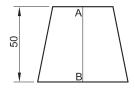
Instructions:

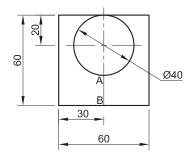
Draw, to scale 1:1, the following:

- 2.1 The given front view and top view
- 2.2 The development of the surface of the transition piece. Make **AB** the seam.

[35]

Show ALL necessary construction.





AB IS THE SEAM.

	ASSESSMENT CRITERIA						
1	GIVEN	5					
2	CONSTRUCTION	4					
3	TRUE LENGTHS	8					
4	DEVELOPMENT	18					
	TOTAL 35						
	EXAMINATION	NUMBE	R				

EXAMINATION NUMBER

Engineering Graphics and Design/P1 NSC



QUESTION 2: INTERPENETRATION AND DEVELOPMENT

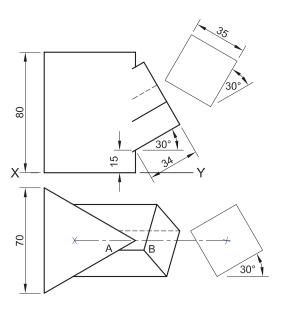
Given:

- The incomplete front view and top view of a right square prism that has been shaped to fit around a right equilateral triangular prism. The axes of both prisms lie in a common vertical plane.
- The auxiliary views of the square prism.

Instructions:

Draw, to scale 1:1, the following:

- 2.1 The given top view
- 2.2 The complete front view clearly showing the curve of interpenetration
- 2.3 The development of the surface of the square prism. Make **AB** the seam.
- Show ALL hidden detail.
- Show ALL necessary construction and fold lines. [33]



AB IS THE SEAM.

	ASSESSMENT CRITERIA					
1	TOP VIEW	7½				
2	FRONT VIEW	14				
3	DEVELOPMENT	11½				
	TOTAL	33				
	EXAMINATION NUMBER					

EXAMINATION NUMBER

EXAMINATION NUMBER

Engineering Graphics and Design/P1 NSC DBE/Feb.-Mar. 2013

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

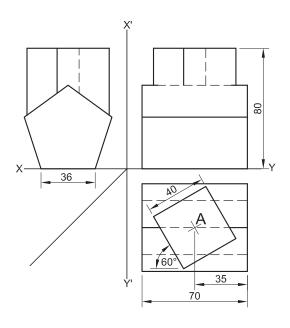
- The incomplete front view, right view and top view of a regular square prism that has been shaped to fit around a right regular pentagonal prism. The axes of both prisms lie in a common vertical plane.
- The position of point A.

Instructions:

Draw, to scale 1:1, the following views of the TWO prisms:

- 2.1 The given top view
- 2.2 The given right view
- 2.3 The complete front view, clearly showing the curve of interpenetration
- 2.4 Develop the surface of the square prism.

Show ALL hidden detail and fold lines. [37]



	ASSESSMENT	CRITE	ERIA		
1	TOP VIEW	7			
2	RIGHT VIEW	8			
3	FRONT VIEW	13			
4	DEVELOPMENT	9			
	TOTAL	37			
	EXAMINATION	NUMBE	R		
	EXAMINATION	NUMBE	R		3

*,

 \bigcirc .

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

- The incomplete front view and the top view of a regular square prism that has been shaped to fit around a right regular hexagonal prism. The axes of both prisms lie in a common vertical plane.
- The auxiliary view of the square prism
- The position of point O on the drawing sheet

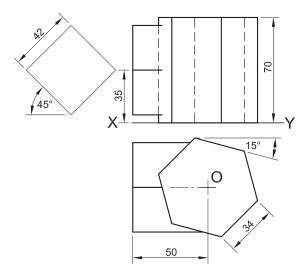
Instructions:

Draw, to scale 1:1, the following views of the TWO prisms:

- 2.1 The given top view
- 2.2 The left view
- 2.3 The complete front view, clearly showing the curve of interpenetration
- 2.4 Develop the surfaces of the square prism.

Show ALL hidden detail and fold lines.

[35]



	ASSESSMENT CRITERIA					
1	TOP VIEW	6				
2	LEFT VIEW	5				
3	FRONT VIEW	14				
4	DEVELOPMENT	10				
	TOTAL	35				
EXAMINATION NUMBER						

EXAMINATION NUMBER

+O



Engineering Graphics and Design/P1 NSC DBE/Feb.-Mar. 2012



QUESTION 2: DEVELOPMENT

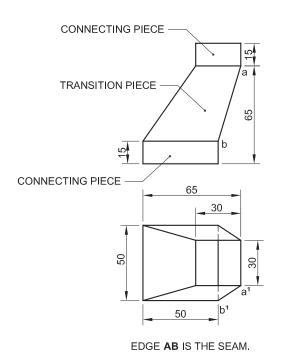
Given:

The front view and top view of a portion of a duct showing a square-to-square transition piece with two connecting pieces.

Instructions:

- 2.1 Draw, to scale 1 : 1, the given front view and top view of the portion of the duct.
- 2.2 Develop the surface of the transition piece ONLY. Make edge AB the seam.

Show ALL necessary construction and fold lines.



	ASSESSMENT CRITERIA					
1	FRONT VIEW + TOP VIEW	11				
2	TRUE LENGTH METHOD	10				
3	DEVELOPMENT	13				
	TOTAL	34				
	EXAMINATION NUMBER					
	-					

EXAMINATION NUMBER

Paper Compiled by SA Student, Copyright of Original Authors 2024 ©

[34]

Engineering Graphics and Design/P1 NSC DBE/November 2011



QUESTION 2: DEVELOPMENT

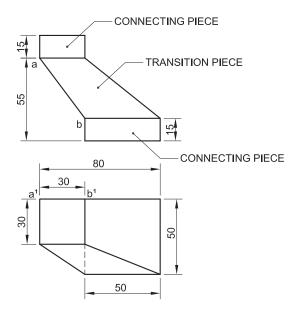
Given:

The front view and top view of a portion of a duct showing an offset square-to-square transition piece with two connecting pieces.

Instructions:

- 2.1 Draw, to scale 1 : 1, the given front view and top view of the given portion of the duct.
- 2.2 Develop the surface of the transition piece ONLY. Make edge AB the seam.

Show ALL necessary construction and fold lines. [34]



EDGE AB IS THE SEAM.

ASSESSMENT CRITERIA				
FRONT VIEW + TOP VIEW	10			
TRUE LENGTH + METHOD	10			
DEVELOPMENT	14			
TOTAL	34			
EXAMINATION NUMBER				

Engineering Graphics and Design/P1 NSC DBE/Feb. - Mar. 2011

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

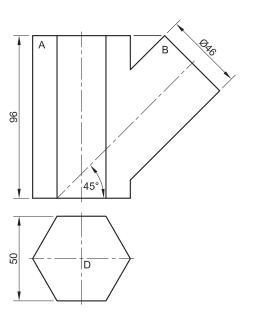
Given:

- 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 top view using point D as the reference point
 - 2.1.2 The complete front view clearly showing the curve of interpenetration
- 2.2 Develop the surface of the cylindrical branch pipe (B).
- Show ALL necessary construction and calculations.

[40]



ASSESSMENT CRITERIA				
1. GIVEN + CENTRE LINES	8			
2. AUX. CIRCLES	4			
3. PROJECTION	4			
4. INTERPENETRATION	5 1			
5. TOP VIEW OF CYLINDER	7			
6. DEVELOPMENT	11½			
TOTAL	40			
EXAMINATION	NUMBI	ΞR		
EXAMINATION	NUMBI	ΞR		3

Engineering Graphics and Design/P1 NSC DBE/November 2010

QUESTION 2: DEVELOPMENT

A company that installs extraction systems has designed an extraction unit for the kitchen of a restaurant. The unit consists of a transition piece (A), a cylindrical pipe (B) and a conical funnel (C).

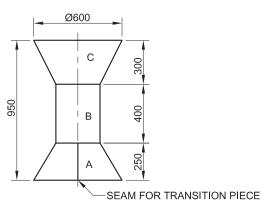
Given:

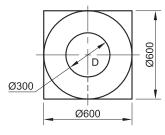
- The front view and top view of the extraction unit
- Centre point (D) as the reference point on the drawing sheet

Instructions:

- 2.1 Draw, to scale 1:10, the given views of the extraction unit using point (D) as the reference point.
- 2.2 Develop the surface of the transition piece (A).
- 2.3 Develop the surface of the cylindrical pipe (B).
- 2.4 Develop the surface of the conical funnel (C).
- Show ALL necessary construction and calculations.

[37]





ASSESSMEN ⁻	r CRIT	ERIA			
1. GIVEN	8				
2. TRUE LENGHTS	4				
3. DEVELOPMENT A	14				
4. DEVELOPMENT B	4				
5. DEVELOPMENT C	7				
TOTAL	37				
EXAMINATIO	NUN	IBER			
EXAMINATION NUMBER				3	

Copyright reserved

Engineering Graphics and Design/P1 NSC DoE/Feb. - March 2010

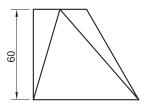
QUESTION 2: DEVELOPMENT

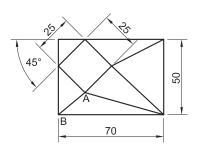
Given:

The front view and top view of a rectangular-to-square transition piece.

Instructions:

- 2.1 Draw, to scale 1:1 and in first-angle orthographic projection, the following views of the transition piece:
 - 2.1.1 The top view
 - 2.1.2 The front view
 - 2.1.3 The left view
- 2.2 Develop the surface of the transition piece. Make the edge marked AB the seam.
- 2.3 Show ALL necessary construction and fold lines. [34]





EDGE **AB** IS THE SEAM.

ASSESSMENT	CRITE	ERIA	
TOP + FRONT + LEFT VIEW	9		
TRUE LENGHTS	8		
DEVELOPMENT	17		
TOTAL	34		
EXAMINATION	NUMBE	R	

NSC Engineering Graphics and Design/P1 DoE/November 2009

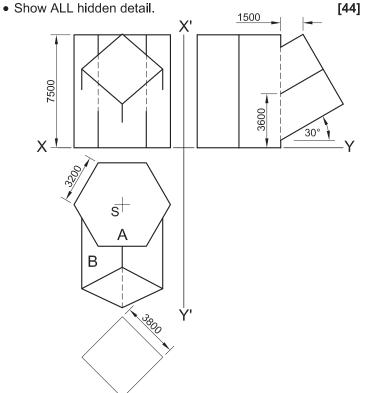
QUESTION 2: INTERPENETRATION AND **DEVELOPMENT**

Given:

The incomplete front view, top view and the incomplete left view of an anchor used to secure an arch over a stadium. The anchor is a concrete casting in the form of a hexagonal prismatic footing (A) and a square branch piece (B), that has been shaped to fit around the footing. The axes of both pieces lie in a common vertical plane. The branch piece will be cladded with stainless steel.

Instructions:

- 2.1 Draw, to scale 1:100 and in first-angle orthographic projection, the following views of the complete anchor clearly showing the curve of interpenetration that will be formed between the two pieces:
 - 2.1.1 The top view using point S as a reference
 - 2.1.2 The complete front view
 - 2.1.3 The complete left view
- 2.2 Develop the surface of the stainless steel cladding that will cover the branch piece B. Label the development.
- Show ALL necessary constructions.



ASSESSMENT	CRITI	ERIA	
TOP VIEW & CONSTRUCTION	6½		
FRONT VIEW	17		
LEFT VIEW	10		
DEVELOPMENT	10½		
TOTAL	44		
EXAMINATION	NUMBE	R	
EVAMINATION		Ъ	

Engineering Graphics and Design/P1 NSC DoE/February/March 2009



QUESTION 2: INTERPENETRATION AND DEVELOPMENT

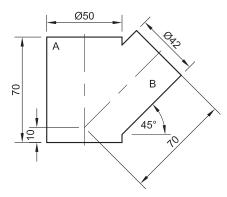
A company that installs ventilation systems in buildings, designed a pipe system to fit into an office block. The system consists of a main cylindrical pipe and smaller branch pipes.

Given:

The incomplete front view of a connecting piece for the ventilation system consisting of a cylindrical pipe (A) and a cylindrical branch pipe (B). The axes of both pipes lie in a common vertical plane.

Instructions:

- 2.1 Draw in first-angle orthographic projection the following views of the connecting piece clearly showing the curve of interpenetration:
 - 2.1.1 The front view
 - 2.1.2 The top view
- 2.2 Develop the surface of the branch pipe marked B.
- Show ALL necessary construction and calculations. [37]



ASSESSMENT CRITERIA

FRONT VIEW 10
TOP VIEW 6
CENTRE LINES (5x½) 2½
CONSTRUCTION 6
FORMULA 2
DEVELOPMENT 10½
TOTAL 37

EXAMINATION NUMBER

EXAMINATION NUMBER

3

Engineering Graphics and Design/P1 NSC DoE/November 2008



QUESTION 2: DEVELOPMENT

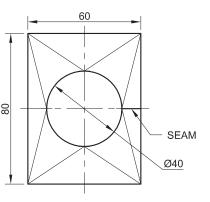
Given:

The front view and top view of a rectangle-to-round transition piece.

Instructions:

- Draw the given views of the transition piece.
- Develop the surface of the transition piece.
- Show ALL necessary construction and fold lines.

[35]





ASSESSMENT CRITERIA

FRONT VIEW 2
TOP VIEW 3
CENTRE LINES 2
TOP VIEW DIVISIONS 1
TRUE LENGTH x4 6
DEVELOPMENT 21
TOTAL 35

EXAMINATION NUMBER

EXAMINATION NUMBER 3

Engineering Graphics and Design/P1 NSC DoE/Exemplar 2008

QUESTION 2: DEVELOPMENT

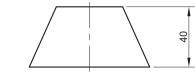
Given:

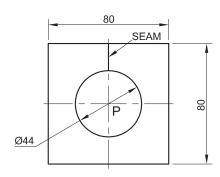
The front view and top view of a square to a round transition piece.

Instructions:

- Draw the given views of the transition piece.
- Develop the surface of the transition piece.
- Show ALL necessary construction and fold lines.

[35]







ASSESSMENT CRITERIA

 FRONT VIEW
 = 2

 TOP VIEW
 = 3

 CIRCLE DIVISION
 = 2

 TRUE LENGTH x2
 = 6

 DEVELOPMENT
 = 21

 CENTRE LINES
 = 1

 TOTAL
 = 35

EXAMINATION NUMBER	
EXAMINATION NUMBER	3