



education

Department:
Education
Kwazulu - Natal

INSTRUCTIONS AND INFORMATION

1. The question paper consists of FOUR questions.
2. Answer ALL the questions.
3. All drawings are in third-angle orthographic projection unless otherwise stated.
4. All drawings must be drawn to scale 1:1, unless otherwise stated.
5. The questions must be answered on the answer sheets provided.
6. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
7. Careful time management is essential in order to complete all the questions.
8. Print your examination number in the block provided on every answer sheet.
9. All answers must be drawn accurately and neatly.
10. Any details or dimensions not given must be assumed in good proportion.

GRADE 12

**ENGINEERING GRAPHICS AND DESIGN P2
TRIAL EXAMINATION - 2010**

EXAMINERS V. GOUNDEN (WHSS) / P. MOODLEY (PTSS)
MODERATOR R. MOHUNLAL (SSS)
AFRIKAANS VAN VUUREN (WHS)

FOR OFFICIAL USE ONLY			
		MODERATED MARK	
ONE			
TWO			
THREE			
FOUR			
TOTAL		2	0 0

FINAL CONVERTED MARK	CHECKED BY
100	

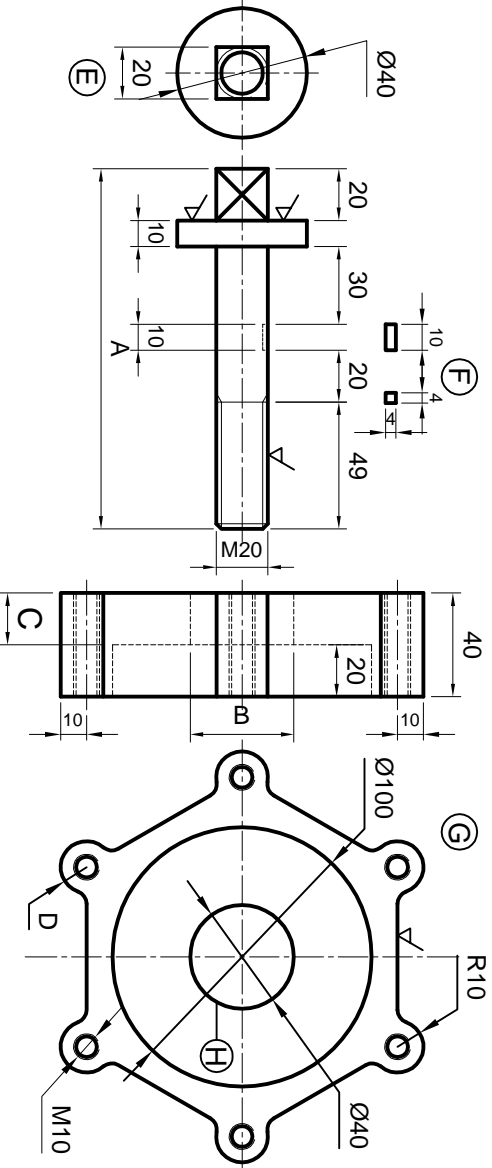
MARKS : 100
TIME : 3 HOURS
This question paper consists of 6 pages.

EKSAMENNOMMER

EXAMINATION NUMBER

STUDY THE INFORMATION GIVEN, THEN ANSWER THE QUESTIONS BELOW:

1.1. What is the dimension A?	
1.2. What is the dimension B?	
1.3. What is the dimension C?	
1.4. What is the dimension D?	
1.5. How many parts make up this assembly?	
1.6. What is the tolerance on all dimensions?	
1.7. Describe the machining lay?	
1.8. How many surfaces require machining?	
1.9. Where is this company situated?	
1.10. Identify PART E?	
1.11. Identify PART F?	
1.12. Identify PART G?	
1.13. Why was the drawing revised for a second time?	
1.14. When was the drawing revised for the first time?	
1.15. What material is being used?	
1.16. What is the drawing reference number?	
1.17. What is the world wide web address of this company?	
1.18. What tool can be used to turn PART E in PART G?	
1.19. How many holes must be tapped on PART G?	
1.20. What type of hole is shown by H?	
1.21. What does PCD stand for?	
1.22. List 1 career opportunity in this company for an EGD student?	
1.23. A mechanic who cuts himself while assembling these parts, must wipe away the blood and clean the working area. Why?	
1.24. List 1 way in which EGD has contributed to the technological development of this company?	



TOTAL

24

QUESTION 1
TRIAL EXAMINATION 2010

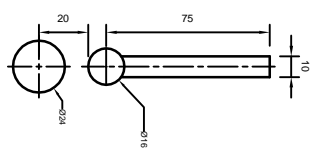
ENGINEERING GRAPHICS & DESIGN
ANALYTICAL

EKSAMENNOMMER
EXAMINATION NUMBER

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● SECTION	4
● POINTS	31
● FOLLOWER CAM SHAFT, DIRECT, DIVISIONS	5
● CLINES	2
● CURVE	4
TOTAL	42



QUESTION TWO
A plate cam rotates in an anti-clockwise direction and at constant velocity imparting the following motion to a roller-ended follower, which reciprocates along the vertical centre line that passes through the centre of the cam shaft as shown in the figure below.

- Over the first 120° the follower rises with uniform acceleration and retardation motion to a height of 48mm.
- The follower is then at rest for the next 50°.
- The follower then rises with uniform motion over the next 70° for a further 16mm.
- The follower returns to its original position with simple harmonic motion.

From the given information draw:

- The displacement graph with a horizontal scale of 6mm equals 20° and the vertical scale of 1:1.
- The cam shaft, the cam profile and the follower.

Add to the drawing all the labels and the direction of rotation of the cam.

QUESTION 2
TRIAL EXAMINATION 2010

ENGINEERING GRAPHICS & DESIGN
ADVANCED CAMS

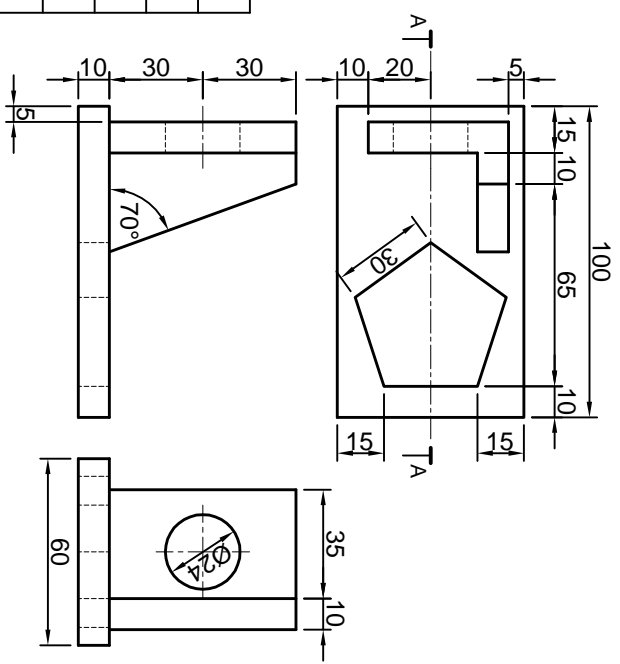
EKSAMENNUMMER
EXAMINATION NUMBER

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QUESTION THREE

The figure shows the front view, top view and right view of a **CASTING**, drawn in **Third Angle Orthographic Projection**. The casting has been cut by a cutting plane A-A. Draw a neat **Sectional Isometric View** of the casting. Show all necessary **construction**. Insert all **centre lines**.
NB. Plan your drawing so as to see the front, top & right views.

- ASSESSMENT CRITERIA**
- You will be assessed on your ability to:
- section and X-hatch the casting 4
 - draw the sectioned casting in Isometric 31
 - draw the isometric circle arcs 4
 - insert the necessary centre lines 2
 - draw the isometric circle construction 2
 - draw the pentagon construction 1
 - draw the angle construction 1



● SECTION	4
● POINTS	31
● CIRCLES	4
● C/LINES	2
● CONSTR.	4
TOTAL	45

QUESTION 3
TRIAL EXAMINATION 2010

ENGINEERING GRAPHICS & DESIGN
ISOMETRIC DRAWING

EKSAMENNOMMER
EXAMINATION NUMBER

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MEMORANDUM

SECTIONAL FV

Assembly	10
Shaft support	4
Pulley	4
Shaft Ø12	3
Shaft Ø30	2
Spacer	2
Spacer	2
Washer	2
Nut M12	3
Bolt M10	4
Locking pin	2
Sectioning	14
Non-Sectioned	11
Total	63

RIGHT VIEW

Shaft support	5
Pulley	2
Bolt M10	3
Nut M12	3
Total	13
Titles, scales, symbol	7
Centre Lines	6

TOTAL	89
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QUESTION 4
TRIAL EXAMINATION 2010ENGINEERING GRAPHICS & DESIGN
MACHINE ASSEMBLYEKSAMENNOMMER
EXAMINATION NUMBER

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