

**REPUBLIC OF SOUTH AFRICA
DEPARTMENT OF MINERALS AND ENERGY
EXAMINATION FOR THE MINE SURVEYORS CERTIFICATE OF COMPETENCY**

DATE: 14 October 2005
TIME: 12:30 to 15:30 (3 Hours)

TOTAL MARKS: 100
TO PASS: 50

SURVEY III

- Note:**
- (1) Work to 1 second of arc and 0.001m.
 - (2) Logs and functions must be shown to six (6) decimal places.
 - (3) All steps and checks must be shown.
 - (4) All calculations and answers to be shown clearly.
 - (5) Sketch are not drawn to scale and attached herewith.
 - (6) The make and model number of your calculator **must** be written on the front cover of your answer book.

QUESTION

A, B and C are points surveyed on ground elevation. Plan a Slimes Dam with the following information and calculate the sloping area:

Point	Co-ordinates		Elevation
	Y	X	
A	2 000,000	2 000,000	+1 002,000
B	1 937,008	1 280,000	+990,893
C	1 739,002	1 760,000	+955,979
Planned height elevation of Slimes Dam			+1 005,979

Assume the surface planes are even and evenly dipping.

DCG is in a straight line and on the same elevation.

CHI and GF are perpendicular to DCG.

AB is a vertical boundary wall of the Slimes Dam.

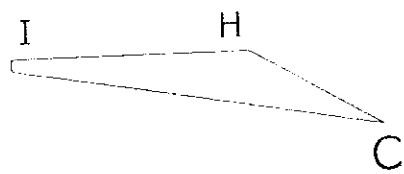
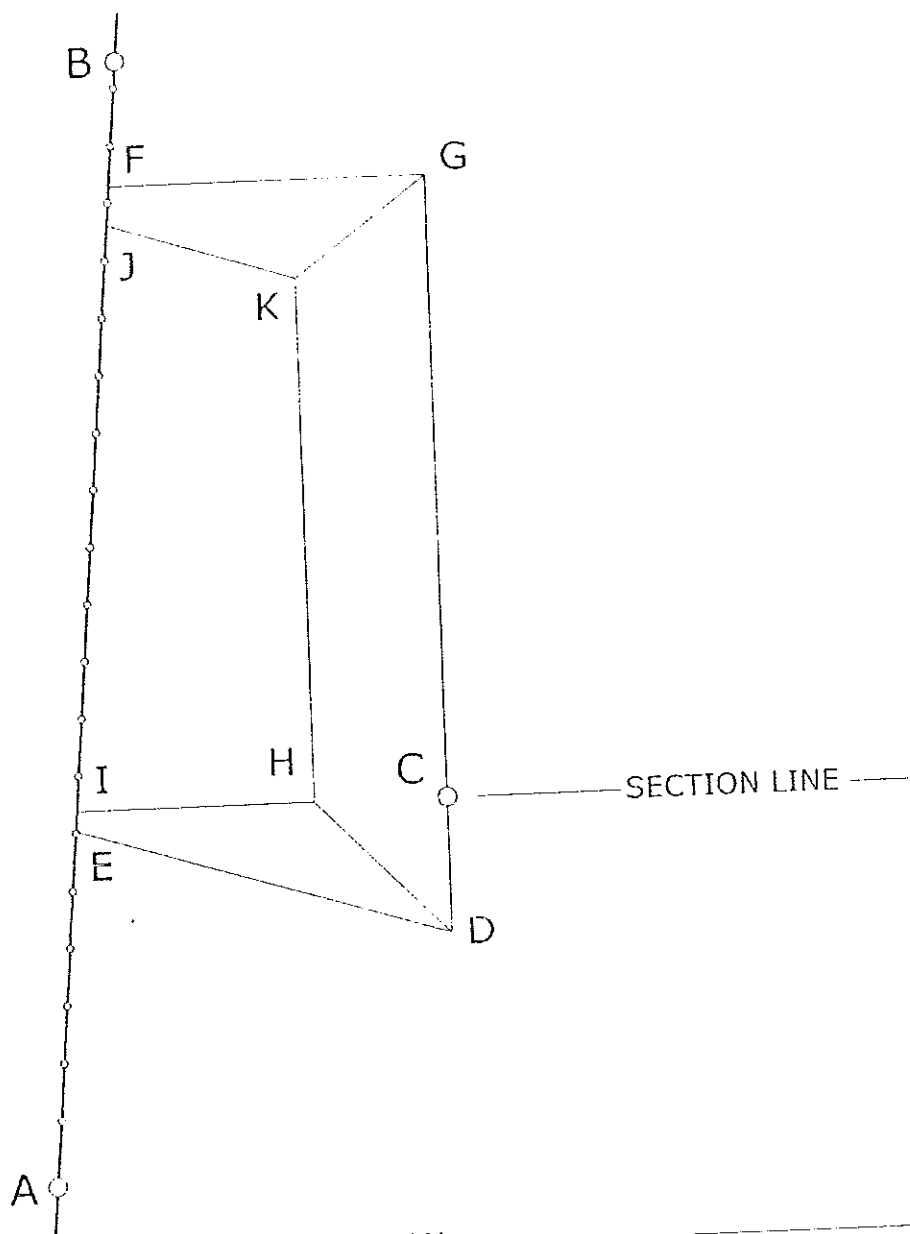
Distance CG = 400,000 metres

Slimes Dam wall slope to the horizontal = 30 degrees

- a) Calculate the co-ordinates and elevations of F, G, D and E on the bottom of the Slimes Dam.
- b) Calculate the co-ordinates of J, K, H and I on top at the planned elevation of the Slimes Dam.
- c) Calculate the area of FGDEIHKJ.

[100 marks]

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SECTION

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