



**mineral resources**

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

## **MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION**

### **SURVEY III**

**DATE: 03 May 2017**

**TOTAL MARKS: 100**

**TO PASS: 50**

**TIME ALLOWED: 3 HOURS  
(12h30 to 15h30)**

**NOTE:**

- This question paper consists of **THREE** pages including cover page.
- All questions must be answered.
- All answers and sketches to be presented in a neat and decipherable manner. Papers will not be marked if not decipherable.
- Restrict the use of highlighters.
- Do not use a red pen.
- Read the instructions on the front page of your answer book carefully.
- No cellular phones shall be allowed in the examination venue.
- The use of computers, laptops and palmtops is prohibited.
- All steps and CHECKS must be done.
- The make and model number of your calculator must be written on the front cover of your answer book

**B** and **C** are points on the outcrop of a quarry. At point **C** a fault is mapped dipping in a Southerly direction. **D** is a point on the intersection of the footwall and the highwall of the quarry. **A** is a point on the intersection of the surface and the highwall of the quarry.

Beacon	Y	X	Elevation
A	- 682,955	+ 172,614	+ 1 798,694
B	+ 1 728,998	+ 634,517	+ 1 849,726
C	+ 1 477,029	- 2 245,484	+ 1 805,298
D	+ 685,007	- 325,484	+ 1 665,641

Direction of True dip of diagonal fault at C =  $30^{\circ} 00' 00''$

True dip of the diagonal fault at C =  $75^{\circ} 00' 00''$

Angle HFG =  $45^{\circ} 00' 00''$

One can assume that:

- The reef and surface planes are even and evenly dipping.
- The highwall height has been maintained throughout the area.
- Section line **EDFG** is a straight line on the true dip of the reef.
- CH is the line of intersection between the reef and the diagonal fault.

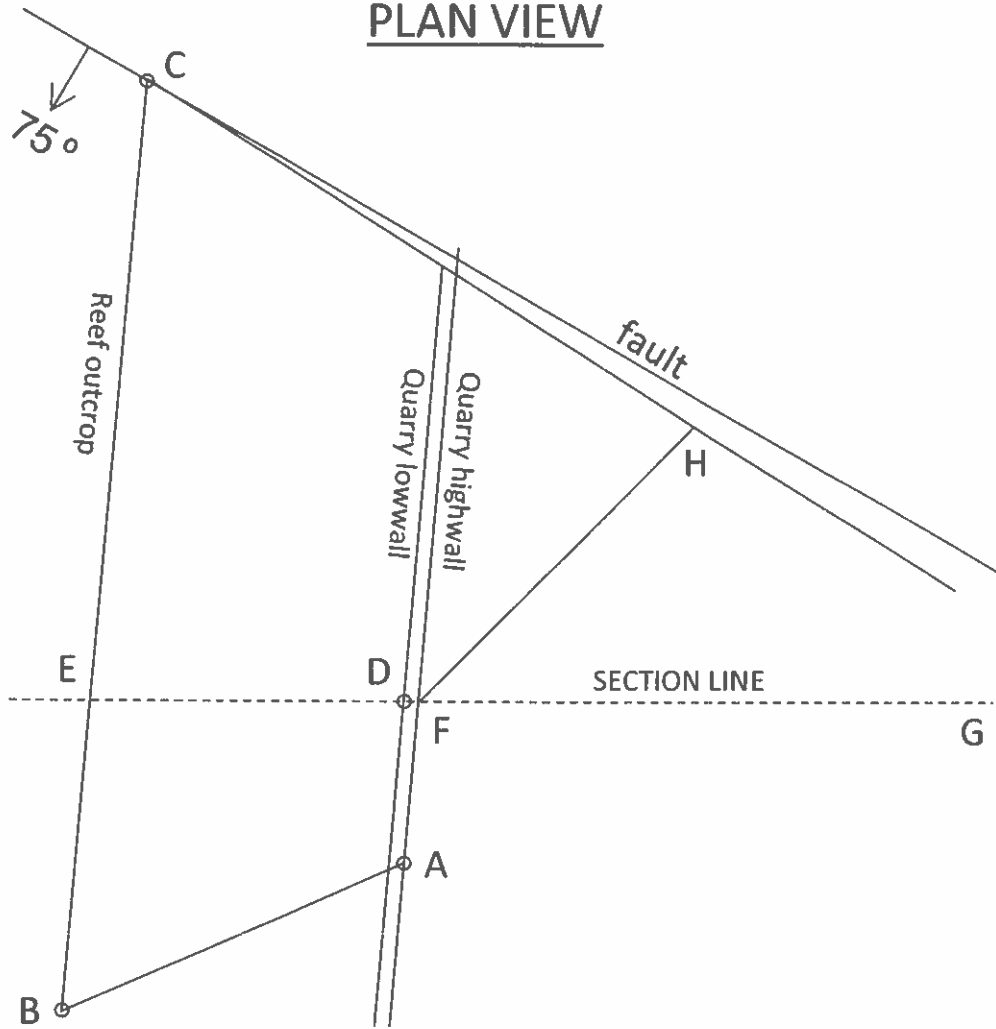
From the information given, calculate

- a) The coordinates and elevations of **E** and **F** on the section **EDFG** along the direction of the true dip, intersecting the outcrop and highwall respectively.
- b) The coordinates and elevation of point **H** at the reef intersection with the diagonal fault.
- c) Area **ABECHFA** in hectares.

[100 Marks]

Drawing not to scale

PLAN VIEW



SECTION VIEW

