



mineral resources  
Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

# MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

## MINING ECONOMICS I

DATE: 09 OCTOBER 2014  
TOTAL MARKS: 100  
TO PASS: 50

TIME ALLOWED: 3 HOURS  
(08h30 to 11h30)

NOTE:

- This question paper consists of **FOUR** 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

**Question 1**

a) What is the function of the sampling department ? [4]

b) Name 6 factors that must be taken into consideration to work out the basic complement of samplers required for development [6]

c) Name 6 factors that must be taken into consideration to work out the basic complement of samplers required for stopping. [6]

d) What is the fundamental principle of representative sampling? [3]

[19]

**Question 2**

a) Define Pay Limit. [5]

b) What basic information is required to determine pay limit? [6]

c) The following information was extracted from the annual report of a Gold mine:

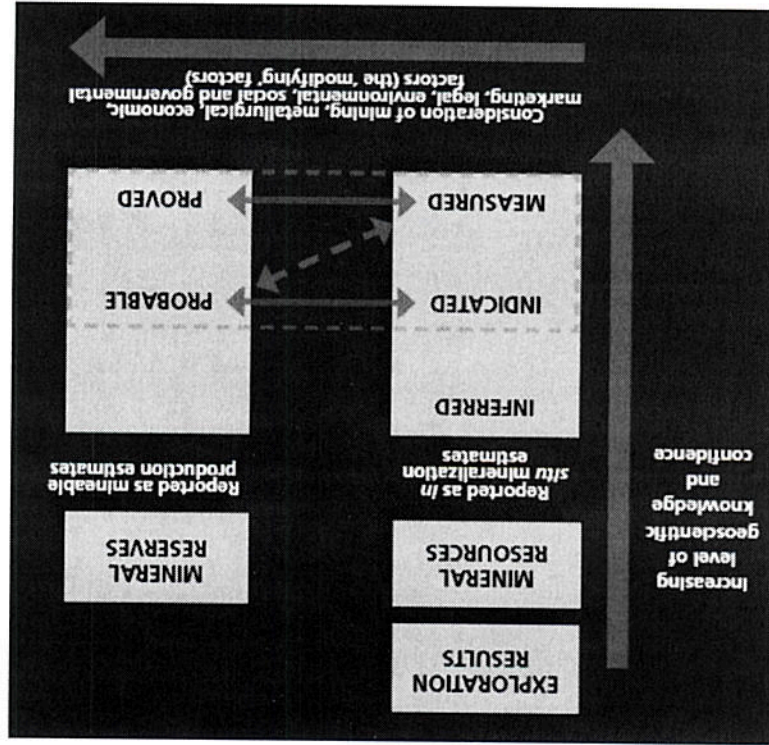
Price of Gold	R 2 500 /kg
Working costs (including development costs)	R 15,50 /t milled
Development costs	R 2,50 /t milled
Waste sorted	8 %
Value of waste sorted	0,80 g /t
Value of residue	0,35 g /t
Mine Call Factor	92,5 %

Calculate a pay limit giving reasons for including or excluding the cost of development.

[15]

Question 3

a) Explain the relationship between Exploration results, Mineral resources and Mineral reserves by making use of the sketch below



[15] b) Define Mineral Resource as per SAMREC code [5]

[5] c) Define Inferred Mineral Resource [5]

[5] d) Define Mineral Reserve as per Samrec Code [5]

[5] e) Define Proved Ore Reserves [5]

[5] f) Define Life of Mine Plan [5]

[5] g) Define an Indicated Coal Resource [5]

[45]

**Question 4**

The following tabulation represents details of the development sampling of a mine where the pay limit is 8,5 g /ft mined.

Section	Dev advance (m)	Distance Sampled (m)	Average RW (cm)	Average RV (g /ft)	Estimated SW (cm)
A	381	249	41	34,3	127
B	127	122	38	8,6	122
C	91	61	71	6,0	157
D	262	183	48	30,0	145
E	204	183	64	13,7	152
F	73	61	66	25,7	155
		859	x	x	x

Calculate:

- The average Reef Width and Reef Value of the combined pay and unpay development.
- The average Stopping Width and stopping Value of the pay and unpay development (separately).
- The percentage of payability of the total distance sampled.

[10]

Total Marks [100]