



PROGRAM : BACHELOR OF MINE SURVEYING

SUBJECT : MINERALS RESOURCE EVALUATION 3A
FINAL EXAMINATION

CODE : MREMSA3

DATE : 03 JUNE 2019

DURATION : 3 HOURS (08:30 – 11:30)

TOTAL MARKS : 100 Marks

LECTURER : Mrs. M Mpanza

MODERATOR : Prof. H. Grobler

NUMBER OF PAGES : 4

INSTRUCTIONS :

- ANY CALCULATOR PERMITTED. MORE THAN ONE CALCULATOR PER CANDIDATE ALLOWED
 - FORMULAE AND STATISTICAL TABLES ALLOWED.
 - NO EXPLANATORY NOTES TO APPEAR IN THESE FILES.
 - NO MEMORY STICKS WILL BE ALLOWED
 - ANSWERS MUST BE COPIED INTO THE EXAM SCRIPTS, COMPUTERS MAY BE USED TO GENERATE CALCULATIONS, BUT NO PRINT-OUTS WILL BE ACCEPTED
 - GRAPH PAPER WILL BE SUPPLIED
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REQUIREMENTS : NONE.

INSTRUCTIONS TO STUDENTS:

1. ANSWER ALL THE QUESTIONS.
2. WORK NEATLY AND SYSTEMATICALLY. MARKS WILL BE GIVEN FOR WELL LAYED OUT ANSWERS.
3. STUDENTS TO ENSURE THAT THEIR NAME AND OR STUDENT NUMBER APPEARS ON EACH SHEET HANDED IN
4. STUDENTS MAY MAKE USE OF THE COMPUTERS, WITH ASSOCIATED FUNCTIONS ON EXCEL, AVAILABLE IN THE VENUE OR USE THEIR OWN CALCULATORS WITH STATISTICAL TABLES

Question 1**1.1**

A surface Coal deposit in the Mpumalanga Province has been sampled by extensive drilling.									
The results of the sampling program, based on some									
93 Samples									
indicates that the ore values are normally and randomly distributed with:									
a Population Mean Value (μ^*) of:									
18.260 Mega Joule									
and a Population Standard deviation (δ^*) of:									
1.938 Mega Joule									
<u>Calculate the following from the given information:</u>									
1	Determine the		90.00%	confidence limits for the mean value of the deposit					
2	Draw the grade tonnage curve for the cut-offs from				14.000	MJ to	24.000	Mega Joule	

[30]**Question 2**

2.1. What distributions (normal or lognormal) are the following deposits?

i) Gold

ii) Limestone

iii) Platinum

[6]

2.2. State and discuss three (3) graphical methods of describing statistical data (make use of sketches to illustrate your answer).

[4]

2.3. Define the following terms

2.3.1 Official paylimit

2.3.2 Effective paylimit

[4]

2.4. Discuss four main assumptions in Mining Statistics

[4]**[18]**

QUESTION 3.

3.1

The following values were obtained from 9 different boreholes							
	Borehole	Grade (g/t)	Width (cm)				
	1	4.0	81				
	2	5.4	79				
	3	2.3	101				
	4	19.7	66				
	5	15.6	75				
	6	4.2	89				
	7	3.9	84				
	8	6.2	63				
	9	5.8	82				
The additive constant (β^*)				120	cmg/t		
i Calculate the mean grade from the given information.							
ii Calculate the Pay Value at a paylimit of					6.0 g/t		
iii How much of the reserve will be payable at a paylimit of						6.0 g/t	

[12]

4.1

[illegible]

	Additive constant β^*	3.19 ppm
Mean for the Lognormal distribution	τ	11.60 ppm

[illegible]

TOTAL [100] MARKS