PROGRAM	:	BACHELOR OF MINE SURVEYING MINING ENGINEERING AND MINE SURVEYING
SUBJECT	:	**SITE SURVEYING 2A**
CODE	:	**SSVMSA2**
DATE	:	SUPPLEMENTARY EXAMINATION 15 JULY 2019
DURATION	:	08h00 – 11h00
TOTAL MARKS	:	100
EXAMINER	:	Ms R Mukwevho
NUMBER OF PAGES	:	6 PAGES (INCLUDES 2 ATTACHMENTS)

INSTRUCTIONS TO CANDIDATES:

1. PLEASE ANSWER ALL THE QUESTIONS.
2. MARKS WILL BE ALLOCATED FOR NEATNESS AND CHECKS.
3. NUMBER THE QUESTIONS CLEARLY.

2/…

Question 1

1.1 Define Surveying. (2)

1.2 What are the objectives of Surveying? (4)

1.3 Name and briefly discuss four methods in Surveying. (8)

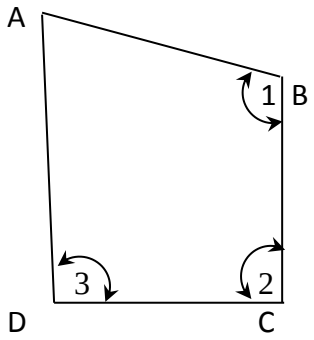
1.4 What is a benchmark? (2)

1.5 Define contour. (2)

1.6 Name two methods, other than levelling, used in Surveying. (2)

[20]

Question 2



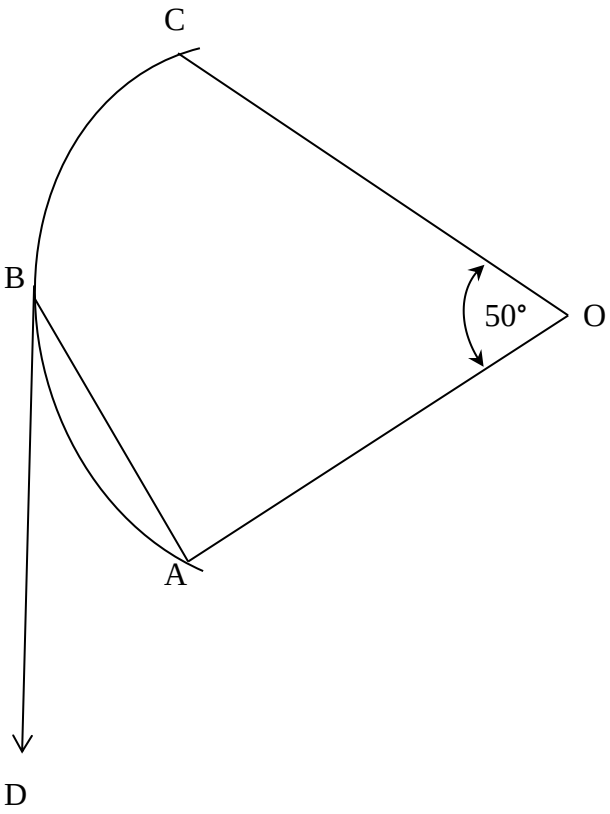
The following information is given in figure ABCD:
<1 = <ABC = 120:35:00
<2 = <BCD = 85:20:05
<3 = <CDA = 100:15:00
HD B to C = 152.400m
Area ABCD = 16 187.440 square meters.

Calculate:
2.1 HD A to B
2.2 HD C to D
2.3 HD D to A

[26]

Question 3

Sketch N.T.S



The figure above shows the position of pegs A, B and C on an existing railway curve.
It is required to establish a new straight from B, which will be tangential to the curve A-B-C at point B. O is the centre of the circular curve. The length of the chord AB is 75.608m.
Given the following:
[A] +1 293.500 +6 592.640
[C] +1 331.753 +6 473.218

Calculate:

3.1 The Radius of the curve.
3.2 The length of the chord B-C.
3.3 The direction of the straight B to D.
NB : All necessary checks must be shown.

[25]

Question 4

The following observations were taken over ground through which a furrow **2.0m** wide with vertical sides has to be cut. The gradient must be maintained at **0.4%** and starts at **1.000m** below A.
Given the following information:

STN	HD	B/S	I/S	F/S	ELEV
A	0	2.602			208.765
1	30		1.908		
2	60		1.888		
3	90	1.902		2.188	
4	120	2.543		1.522	
6	150	1.999		2.181	
7	180	2.002		1.876	
8	210		2.109		
J	240			1.999	

Calculate the volume that is to be excavated.
Answer using the attached sheet, clearly showing your Surname, Initials and student number.

[29]

TOTAL [100]

QUESTION 5 (ATTACHMENT)

SURNAME & INITIALS.....

STUDENT NUMBER:.....

STN	HD	B/S	I/S	F/S			ELEV					
A	0	2.602					208.765					
1	30		1.908									
2	60		1.888									
3	90	1.902		2.188								
4	120	2.543		1.522								
6	150	1.999		2.181								
7	180	2.002		1.876								
8	210		2.109									
J	240			1.999								

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SURNAME & INITIALS.....

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