UNIVERSITY
OF
JOHANNESBURG

PROGRAM	**:**	BACHELOR OF MINE SURVEYING MINING ENGINEERING AND MINE SURVEYING
SUBJECT	**:**	**SITE SURVEYING 2A**
CODE	**:**	**SSVMSA2**
DATE	**:**	FINAL EXAMINATION 23 MAY 2019
DURATION	**:**	08h30 – 11h30
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 Discuss the impact(s) technology has had on the mine surveying profession and how the 4th industrial revolution fits in with such technology advancements.
N.B: Your answer should include what the 4th industrial revolution entails. (15)

1.2 Answer True of False to the following:
(a) A secant cuts a circle at more than 2 points.
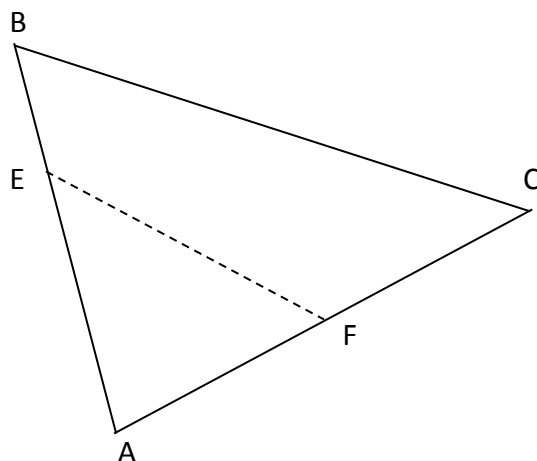(b) The perimeter of a rectangle = 2 * (Length *Width)
(c) Angle on the circumference is double the angle at the centre of the circle.
(d) MPRDA stands for Mine Petroleum and Resources Development Act.
(e) Area of a circle with a diameter of 50m = 1963.495m (5)

[20]

Question 2

It is required to divide the triangular area ABC into 2 equal areas by a straight line drawn from the given point E on the side AB to a point on F on the side AC.

Given the following information:

[A] + 3 210.400   +680.300
[B] +3 466.540   +727.770
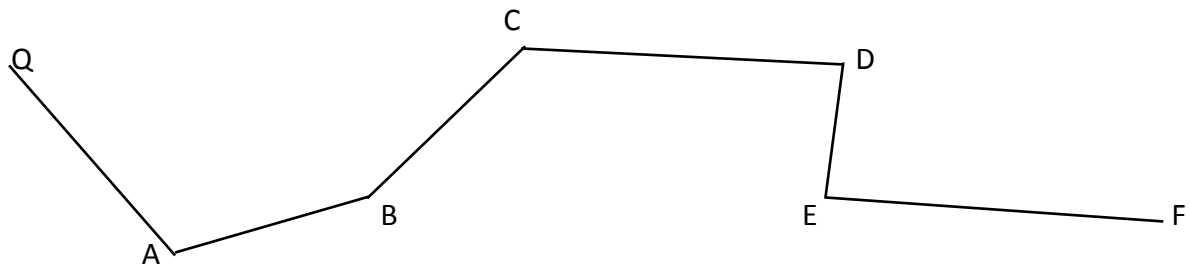[C] +3 455.270   -641.260
[E] +3 408.580   +717.030

Calculate the co-ordinates of point F.

[25]

Question 3

Given the following **known** co-ordinates and information below:

Sketch N.T.S

[Q] **+134.123** ; **-89.098**
[A] **+99.676** ; **-65.987**
[F] **-15.633** ; **-56.053**

Horizontal clockwise angle Q-A-B = 102:40:10
Horizontal anticlockwise angle A-B-C = 189:50:30
Horizontal clockwise angle B-C-D = 256:00:25
Horizontal clockwise angle C-D-E = 271:51:50
Horizontal clockwise angle D-E-F = 89:40:00

LINE	HD (m)
A-B	25.001
B-C	30.140
C-D	45.229
D- E	15.551
E-F	48.187

Calculate the traverse A to F, and adjust using the Bowditch method of adjustment if necessary.
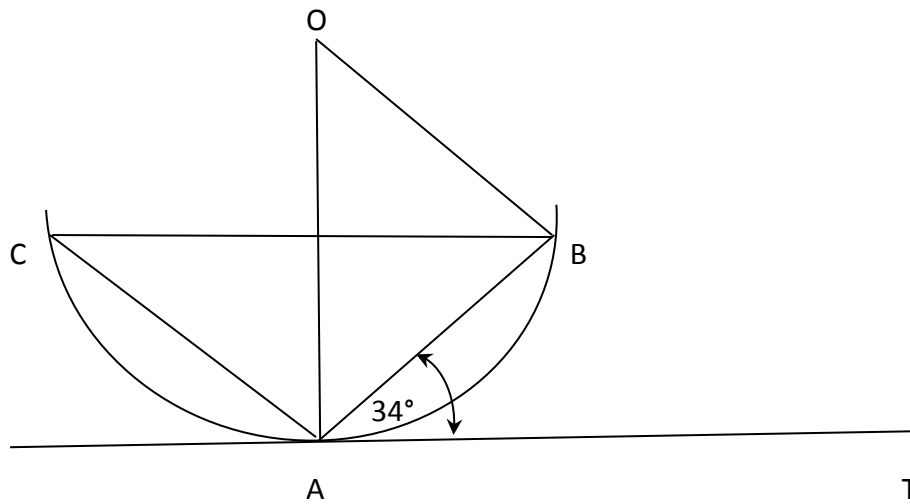**NB: The traverse starts at A and ends at F.**
Answer the rest of the question using the attached sheet, clearly showing your Surname, Initials and student number.

[34]

Question 4

Sketch N.T.S


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        Y(m)         X(m)
[A] -15 068.543   -10 142.097
[B] -15 111.044   -10 202.671
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4.1 Calculate the Radius of the curve.

4.2 Calculate the co-ordinates of the centre of the circle.

4.3 Calculate the arc length A-B

4.4 Calculate the area of sector A-B-O

[21]

TOTAL [100]

QUESTION 3 (ATTACHMENT)

SURNAME & INITIALS.................

STUDENT NUMBER.................

QUESTION 3 (ATTACHMENT)

SURNAME & INITIALS................................

STUDENT NUMBER.................................