PROGRAM	:	NATIONAL DIPLOMA *MINING ENGINEERING*
SUBJECT	:	**MINE SURVEY AND VALUATION III**
CODE	:	**MSV 3211**
DATE	:	SUPPLEMENTARY EXAMS 2020 08 JANUARY 2020
DURATION	:	(SESSION 2) 11:30 - 14:30
WEIGHT	:	40: 60
TOTAL MARKS	:	100

ASSESSOR	:	MR K S PHOGOLE
MODERATOR	:	MS Z MDLULI
NUMBER OF PAGES	:	6 PAGES

INSTRUCTIONS	:	1. ANY CALCULATOR IS ALLOWED. 2. SKETCHES ARE NOT DRAWN TO SCALE. 3. DRAWING INSTRUMENTS ARE ALLOWED.

INSTRUCTIONS TO CANDIDATES:

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

Question 1

Calculate the co-ordinates of P, given the following information:-

	Y	**X**
R]	+ 5 690. 200	+ 8 421. 720
S]	+ 4 284. 200	+ 8 481. 720
T]	+ 5 690. 200	+ 10 809. 420

The instrument was set up at point P and the following readings were observed:-

Observation P – R = 142° 37′ 20″

Observation P – S = 198° 53′ 44″

Observation P – T = 31° 53′ 41″

Hint: Draw your circle through points PRS

(25)

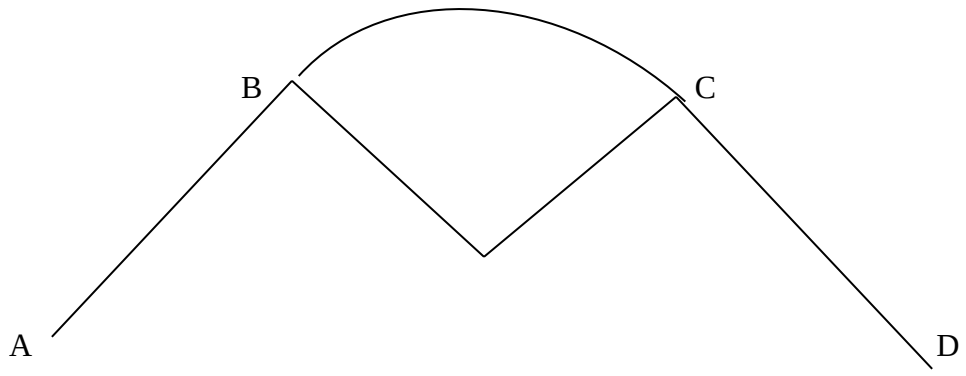
Question 2

AB and CD are two railway straights to be joined by using a circular curve of 146.000m radius.

Direction A to B = 260° 00' 00"
Direction D to C = 113° 00' 00"
Horizontal distance A to D = 462.742m
Direction A to D = 277° 30' 00"

NB the curve does not necessarily start and end at B and C.

Calculate the total distance A to D along the proposed curve.



(15)

Question 3

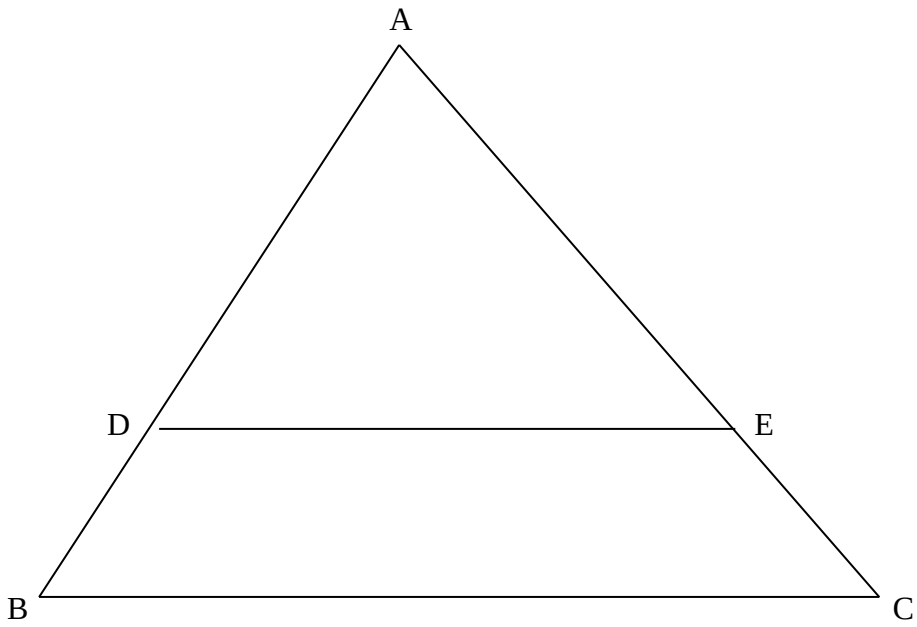
AB = 82.404m BC = 116.000m AC = 108.256m

The line DE is parallel to side BC and the perpendicular distance between DE and BC is 24.000m. ADB and AEC are straight lines)

Calculate:

1.1 Internal angles at A, B and C.
1.2 Distances AD, DE and AE.
1.3 Areas of ΔABC, ΔADE and figure DEBC.

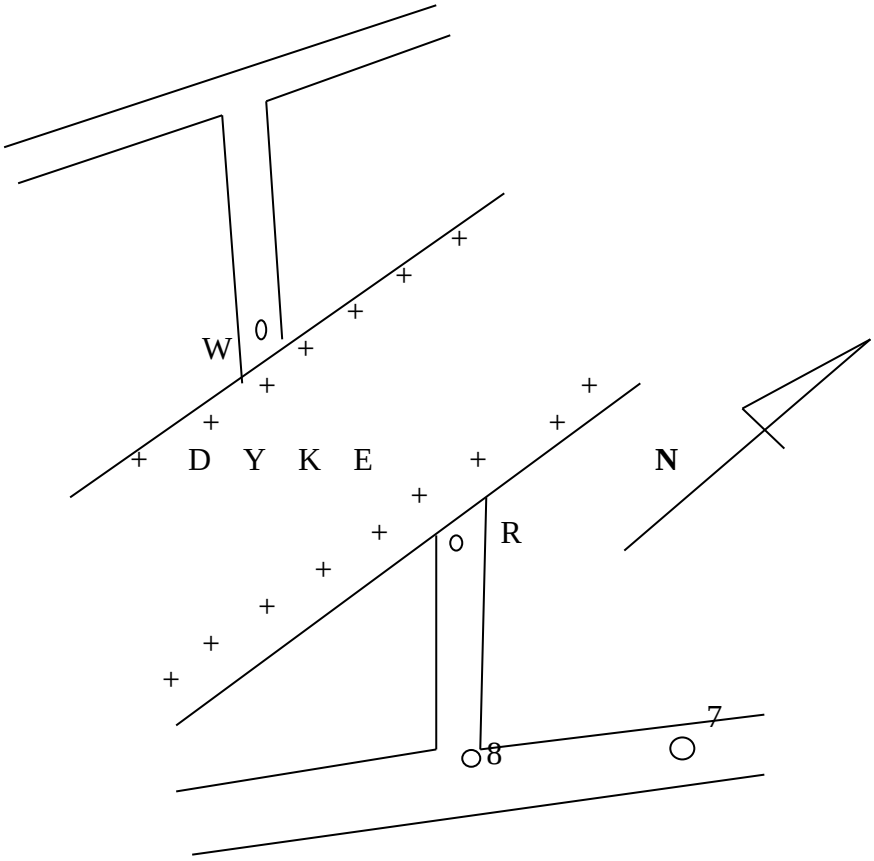
Note: All calculations must be fully checked.



(20)

Question 4

In the sketch below, W is a survey peg at the bottom of a winze on the western contact of a dyke. R is a survey peg in the raise on the eastern contact of the same dyke. A connection must be developed from R to survey peg W.



Given:

Coordinates of peg W:	+3 606. 100	+1 786.105
Coordinates of peg 8:	+3 556.074	+1 801.602
Elevation of peg W:	-2 249.354	
Elevation of peg 8:	-2 283.461	
Direction peg 7 to peg 8:	41:07:30	

Observations

At survey peg 8

Instrument Height	=	1.492 m
Horizontal clockwise angle 7-8-R	=	268:47:50
Measured Inclined distance 8 – R	=	46.882 m @ +31:07:10

Measured Inclined distance 8 – R = 46.828 m @ +30:59:09

Bob length at peg R (top button) = 1.404 m

Bob length at peg R (bottom button) = 1.515 m

Calculate:

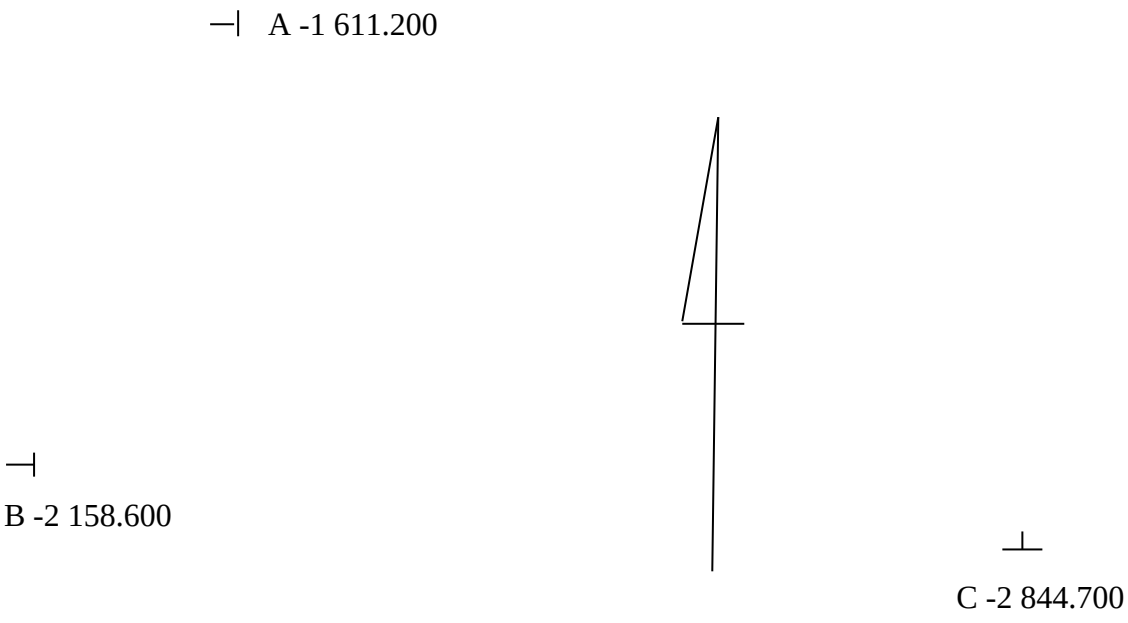
a) The coordinates and elevation of peg R

b) The direction, dip and inclined length of the connection from peg R to peg W

(20)

Question 5

An evenly dipping reef plane was intersected in three boreholes A, B and C at depths below datum plane as recorded on the sketch plan below.



Given the following information:

- Coordinates of Borehole A] - 5 754. 188 + 28 005. 088
  Borehole B] - 5 561.021 + 28 894. 787
  Borehole C] - 6 785. 342 + 29 510. 736
- Direction A – B = 12:14:59
- Distance A – B = 910.427 m

- Direction A – C = 325:35:40
- Distance A – C = 1 824.898 m

CALCULATE:

a) The direction of the strike of the reef plane

b) The direction of true dip of the reef plane

c) The amount of true dip of the reef plane

(20)

[Total Marks = 100]