



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND YEAR TERM 1 EXAMINATION FOR

DIPLOMA IN BUILDING TECHNOLOGY AND CIVIL ENGINEERING

SURVEYING II

DATE: 8/6/2021

TIME: 2:30 – 5:30 PM

INSTRUCTIONS

ANSWER ALL QUESTIONS

1. With the aid of diagrams, describe the five types of horizontal curves (20 marks)
2.
 - a) With the aid of a diagram, describe the two types of vertical curves (6 marks)
 - b) With the aid of a diagram, explain the following types of traverses
 - i) Open traverse
 - ii) Loop traverse
 - iii) On point traverse (12 marks)
 - c) Give two obstacles in curve ranging (2 marks)
3. With the aid of a diagram, outline all the elements of a simple circular curve (18 marks)
4. Explain the following terms as applied in a simple circular curve giving the formula for each
 - i) Tangent length
 - ii) length of curve
 - iii) Long chord
 - iv) External distance
 - v) Mid-ordinate
 - vi) Tangent length
 - vii) Intersection point (20 marks)

5. The observation below were made during a theodolite traverse exercise. Compute the adjusted co-ordinates of the new station given that the co-ordinate of station A are as follows:

E (M) N (M)

+500 +500

FROM	TO	ADJUSTED BEARING W.C.B	REDUCED DISTANCES	
A	B	136°28'00"	76.28	
B	C	347°21'00"	38.07	
C	D	76°33'40"	42.53	
D	E	316°50'20"	51.36	
E	A	240°00'00"	58.32	(20 marks)