UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMME: DIPLOMA IN AGRICULTURE 2
DIPLOMA IN AGRICULTURAL EDUCATION 2

COURSE CODE: LUM 202

TITLE OF PAPER: LAND SURVEYING

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS.

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SECTION ONE: COMPULSORY

QUESTION ONE

A. In a traversing exercise the data below were collected.
i) Correct the effects of local attraction by completing the table. **[20 Marks]**

Line	Bearing (°)	Observed bearing (°)	Correction (°)	Corrected bearing (°)
AB	72.75			
BA	252			
BC	349			
CB	167.25			
CD	298.5			
DC	118.5			
DE	229			
ED	48			
EA	135.5			
AE	319			

ii) Plot the survey shown on the table above using the A4 paper provided. **[10 Marks]**
B. i) Define the term "photogrammetry" as used in land surveying. **[5 Marks]**
ii) Name the two (2) types of photogrammetry. **[5 Marrks]**

SECTION TWO: ANSWER ANY TWO QUESTIONS

QUESTION TWO

A. The following chain survey data were recorded in the field when chaining and measuring offsets of a proposed road from a nearby embarkment. Compute the area between the road and the embarkment using both the Simpson and the Trapezoidal rules.

Section	A	B	C	D	E	F	G	H	I	J	K	L
Chainage (m)	0	15	30	45	60	75	90	105	120	135	150	165
Offset (m)	6.3	4.2	3.8	2.1	8.2	9.3	6.7	4.6	3.2	1.2	0.2	1.0

[20 Marks]

B. Describe the planimeter and explain briefly how it is used to measure areas from plans. **[10 Marks]**

QUESTION THREE

The following are readings from a profile level survey. Note that all the readings are in meters. 0.599 (BS, OBM 558.031 AOD), 3.132 (FS), 2.587 (BS), 1.565(IS), 1.911(IS), 0.376(FS), 2.244(BS), 3.771(IS), 1.985(FS), 1.334(BS), 0.601(IS), 2.002(FS).

i) Book and reduce the levels using the **rise and fall** method. Remember to apply the appropriate checks. **[15 Marks]**

ii) Assuming the levels at **A** and **G** were correct, calculate the amount by which the rails would have to be lifted at the intermediate points to give a uniform gradient throughout. **[15 Marks]**

QUESTION FOUR

A. Name the three (3) methods of contouring and state the conditions in which each can be used. **[6 Marks]**

B. Name any two (2) characteristics of contour lines. **[4 Marks]**

C. Describe how you could collect data in the field to produce a plan using any two (2) of the methods mentioned in (**A**) above. **[20 Marks]**