UGANDA MARTYRS UNIVERSITY
FORT PORTAL CAMPUS

FACULTY: ENGINEERING AND APPLIED SCIENCE

DEPARTMENT: DEPARTMENT OF CIVIL ENGINEERING

COURSE CODE: **DCE1103** COURSE NAME: **ENGINEERING SURVEYING I**

FINAL ASSESSMENT

ACADEMIC YEAR 2023/2024 SEMESTER I

DIPLOMA IN CIVIL ENGINEERING

Date of Examination: 12TH DECEMBER 2023

Time allowed: 3 hours (9:00Am – 12:00Pm)

Instructions to Candidates:

Read the following before answering the examination questions.

1) This Exam contains **six (6)** questions.
2) Attempt any **four (4)** questions of your choice.
3) All Questions carry equal marks.
4) Show all the necessary workings.
5) Start each question on a fresh page.
6) Read other instructions on the answer booklet.
7) Do **NOT** write anything on this question paper.

You should have the following in this Examination.

Answer Booklet, Drawing instruments, graph papers, non-programmable calculator and IEE Tables for the current ratings and voltage drops, 17th edition.

Question one

a) What is meant by the term surveying? (02 marks)
b) Explain the three stages involved in the process of surveying. (06 marks)
c) Describe the four main branches of surveying. (12 marks)

Question two

a) Define the following terms as applied to surveying. (20 marks)

I. Surveying station
II. Details
III. well-conditioned triangle
IV. Base line
V. Ranging
VI. Ties triangle
VII. Setting out
VIII. preliminary inspection
IX. In-set
X. Back sight.

Question three

a) What is levelling? (02 marks)
b) Give three reasons of levelling operations in surveying. (03 marks)
c) The table below shows height of Collimation method in levelling.

Bs	Is	Fs	Hoc	RL	REMARKS
2.191			52.063		BM (49.872)
	2.507				A
	2.325				B
3.019		1.496			C (CP)
	2.513				D
1.752		2.811			E (CP)
		3.817			TBM

(i) Complete the table (10mks)
(ii) Carryout the arithmetic check(5mks)

(i) in measurements(3mks)

Question four

a) Explain the seven factors governing the choice of survey station. (14 marks)
b) A straight line ABCD has three distinct changes of gradient along its length. Each length was obtained by Abney level. Calculate the plan length of AD given the field results(6mks)

Line	Section	Slope length	Inclination
	AB	84.40m	-5.0^0
AD	BC	47.21m	$+2.0^0$
	CD	39.47m	$+6.5^0$

Question five

a) What is meant by the term error? (02 marks).
b) Explain the occurrence of the three types of errors in surveying (12 marks)
c) After completing a survey, a 30m tape used was checked and found to be 30.025m long.
(ii) What is the length of the line AB observed to be 125.57m long.(3mks)
(iii) The area of the site was calculated from the observed measurement at 1.762ha. what is the true are

Question six

a) Define the following terms as applied to contouring (6mks)

i. Spot level

ii. A contour line

iii. Vertical internal

b) State five characteristics of contours (5mks)

c) Differentiate between direct levelling for contours and indirect levelling of contours (4mks)

d) Use figure 1 above to accuratelly interpolate mathematically the plan position of the 110m contourline ,given that the reduced levels were taken at 10m intervals (5mks)

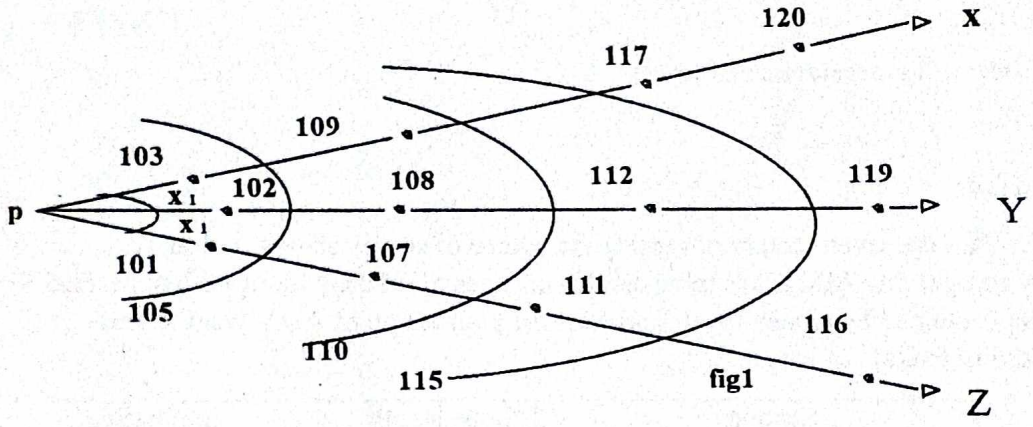

fig1

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