ELIZADE UNIVERSITY, ILARA-MOKIN
FACULTY OF ENGINEERING
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

COURSE CODE: CVE 305
SESSION/SEMESTER: FIRST SEMESTER/ 2020/2021
COURSE TITLE: ENGR. SURVEY AND PHOTOGRAMMETRY I **LEVEL:** 300L
TIME ALLOWED: 3 HOURS

HOD'S SIGNATURE

INSTRUCTION: ATTEMPT QUESTION 1, AND ANY OTHER THREE

Question 1 (15 marks)

(1a) The data from a survey, are shown in Table 1. Use both the Height of instrument and the Rise/Fall method to compute the reduced levels. The Datum reduced level is given as 50m. Use arithmetic checks to support your answer. Include comment in the results if there are any errors? **(10 marks)**

Table 1: Survey readings

Station	Observations				Datum RL – 50m
	Back Sight	Intermediate Sight	Fore Sight	Height of Instrument	
	2.554			52.642	
A		1.786			
B		0.927			
C		1.983			
D	1.305		3.589	50.358	
E		1.422			
F	3.250		0.571	53.037	
G		1.925			
H	3.015		0.462	55.590	
I			0.780		

(1b) Explain the term contouring as related to surveying and explain in details the direct and Indirect methods of contouring listing the methods used for selecting points in contouring. **(5 marks)**

Question 2 (15 marks)

(2a) With the aid of a table, explain five difference between longitude and latitude using the basis for comparison. **(5 marks)**

(2b) The following perpendicular offsets were taken at 20m intervals from a base line to an irregular boundary line: 5.9, 12.4, 16.5, 15.3, 18.4, 20.9, 24.2, 21.8 and 19.2 meters. Calculate the area enclosed between the base line, the irregular boundary line and the first and last offsets by (i) Trapezoidal rule (ii) Simpson's rule. **(5 marks)**

(2c) Explain in details the term surveying and the 5 phases of a surveyor's work **(5 marks)**

Question 3 (15 marks)

(3a) Explain with the aid of diagram the following types of direct leveling: (i) Simple levelling (ii) Differential levelling (iii) Fly leveling (iv) Profile leveling **(8 marks)**

(3b) With the aid of a table, show a comparison between Trapezoidal and Simpson rule **(3 marks)**

(3c) Explain the following methods of selecting points in contouring: (i) Method of squares (ii) Method of Cross-section **(4 marks)**

Question 4 (15 marks)

(4a) The fundamental principles of surveying are (i) Location of a point by measurement from two points of reference (ii) Working from whole to part. Explain these fundamental principles with the aid of diagrams **(8 marks)**

(4b) Define the term leveling and state the types of leveling in surveying **(4 marks)**

(4c) Explain 6 importance of surveying as a course of study **(3 marks)**

Question 5 (15 marks)

(5a) Explain the following types of Surveying based on the nature of surveying **(i)** Topographic surveying **(ii)** Hydrographic/ Bathymetric Surveying **(iii)** Construction Surveying **(iv)** Photographic Surveying **(8 marks)**

(5b) Define the following terms with the use of appropriate diagrams as related to surveying: **(i)** Back sight (BS) **(ii)** Fore sight (FS) **(iii)** Intermediate Sight (IS) **(iv)** Reference Datum **(7 marks)**

Question 6 (15 marks)

(6a) Explain the following surveying instruments, their uses and the principle on which they work (i) Theodolite (ii) Total station (iii) Global Positioning System (GPS) **(9 marks)**

(6b) The following offsets were taken from a chain line to a hedge:

Distance (m)	0	20	40	60	80	120	160	200	240	270	300
Offset (m)	24	20	16	12	8	10	14	16	20	22	26

Calculate the area enclosed by the chain line, the hedge and the end offsets by (a) Simpson's Rule (b) Trapezoidal Rule. **(6 marks)**