



ELIZADE UNIVERSITY

Pragmatic Innovation for Development

FACULTY: ENGINEERING

DEPARTMENT: CIVIL ENGINEERING

**FIRST SEMESTER EXAMINATION (MARCH
2017)**

2016/2017 ACADEMIC SESSION

Course Title: Engineering Surveying and Photogrammetry I

Course Code: CVE 305



HOD'S SIGNATURE

Instructions:

- 1) Answer questions 1, 2 and any other two**
- 2) Time Allowed: 2.5 hours**
- 3) SEVERE PENALTIES APPLY FOR MISCONDUCT,
CHEATING, POSSESSION OF UNAUTHORIZED
MATERIALS DURING EXAM**



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Elizade University, Ilera-Mokin
Department of Civil Engineering.

First Semester 2016/2017 Examination
CVE 305: Engineering Surveying and Photogrammetry I

Instruction: Answer questions 1, 2 and any other two.
Time allowed: 2hrs 30 minutes

Question 1 (30 marks)

- (a) Define Surveying (2 marks).
- (b) List the stages in land surveying (3 marks)
- (c) Itemize the purposes of measurement (8 marks)
- (d) Briefly explain the following as used in land surveying
- (i) Triangulation. (ii) Levelling (iii) Land surveying (iv) Traversing
(v) Azimuth (5 marks).
- (e) State the principles of surveying? (3 marks).
- (f) Explain the following terms in contouring and aerial surveying
- (i) Contour (ii) Contour lines (iii) Photogrammetry (iv) Air photograph (v)
Scale (5 marks).
- (g) List the advantages and disadvantages of:
- (i) Vertical air photograph. (2 marks)
- (ii) Oblique air photograph . (2 marks)

Question 2 (30 marks)

- (a) Define is leveling (2 marks).
- (b) State sources of errors in leveling (3.5 marks)
- (c) The following levelling bookings were done by a non-professional surveyor.
Temporary Bench Mark (TBM) = 100.00m; Backsight1 =0.450m, Intermediate sight1
= 1.20m, Intermediate sight 2 =1.88m, Intermediate sight 3=2.91m, Intermediate
sight4=3.69m, Foresight1 = 4.50m, Back sight2 =0.52m, Intermediate sight 5=2.15m
and Fore sight 2 =4.49m.
- (i) Sketch the arrangement of the levelling operation (4.5 marks)

- (ii) Properly do the bookings and compute the spotheights of each station using Height of Instrument Method (10 marks).
- (d) Repeat the process in c (ii) using Rise and Fall Method (10 marks)

Question 3 (20 marks)

- (a) State two (2) methods of calculating areas and volumes (2 marks)
- (b) Calculate the area of a triangle with sides 64.7m, 85.2m and 101.7m (5 marks)
- (c) A series of perpendicular offsets are taken from a transit line to a curved boundary line. These offsets were at 7.62m apart and were taken in the following order: 0.6, 1.4, 2.7, 4.7, 3.2, 4.0, 5.6, 7.1, 5.4, 2.8, 1.0, 0.8 Find the area included between the transit line and the curved line by Trapezoidal rule and check by the Simpson's rule. (13 marks)

Question 4 (20 marks)

- (a) Define the following terms as they apply to compass surveying
- (i) Bearing (ii) Angle of declination (iii) Meridian (iv) Forward Bearing (v) Back Bearing. (5 marks)
- (b) State the relationship between:
- (i) Forward Bearing and Back Bearing (2 marks)
- (ii) True Bearing, Magnetic Bearing and Angle of declination (2 marks)
- (c) Itemize sources of errors in compass surveying. (5 marks)
- (d) List the merits and demerits of compass surveying. (6 marks)

Question 5 (20 marks)

- (a) What is chain surveying? (2 marks).
- (b) List the equipment used in chain surveying (4 marks)
- (c) State the errors in chaining and taping. (6 marks)
- (d) State three possible field problems in chain surveying and how each can be overcome. Illustrate with diagrams. (8 marks)