



TECHNICAL UNIVERSITY OF MOMBASA
SCHOOL OF ENGINEERING AND TECHNOLOGY
Department of architecture and built environment
UNIVERSITY EXAMINATION FOR:

DIPLOMA IN QUANTITY SURVEYING
EBC 2102 : ENGINEERING SURVEYING I

END OF SEMESTER EXAMINATION
SERIES: APRIL 2025
TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** questions. Attempt any **THREE** questions.

Do not write on the question paper.

QUESTION ONE (20 Marks)

- (a) State the Principle of Chain Surveying practice. (4 Marks)
- (b) Briefly explain the use of the following Chain Surveying equipment
- i) Cross staff
 - ii) Drop arrows
 - iii) Peg
 - iv) Ranging rods
 - v) Surveyors Chain (10 Marks)
- (c) Briefly state FOUR classification of surveying based on the application or purpose of the survey. (6 Marks)

QUESTION TWO (20 Marks)

- (a) A chain of nominal length 30m measures 30.35 m when compared with standard length. If an area of 12.5 Ha was computed with measurements taken using this chain, determine the true area (4 Marks)
- (b) By means of sketches, briefly describe Two (2) methods of setting out a right angle in Chain Surveying. (8 Marks)
- (c) Illustrate Two (2) methods that you would use to carry out chain survey around an obstacle that prevents chaining but not vision. (8 Marks)

QUESTION THREE (20 Marks)

- a) Briefly explain the following terms as used in levelling
- i) Vertical levelling.
 - ii) level surface
 - iii) reduced level
 - iv) Level line
 - v) Horizontal line (10 Marks)
- b) Briefly describe the procedure of carrying out “temporary adjustment” of the dumpy level. (6 Marks)
- c) State the reasons for carrying out permanent adjustment in levelling instruments. (4 Marks)

QUESTION FOUR (20 Marks)

- a) Figure 4a shows a series of points A to F, the levels of which have to be determined with reference to the OBM of height 50.0m. Prepare a table and determine the reduced levels of the various points using the height of Instrument method to book the readings and carry out the necessary Arithmetic checks

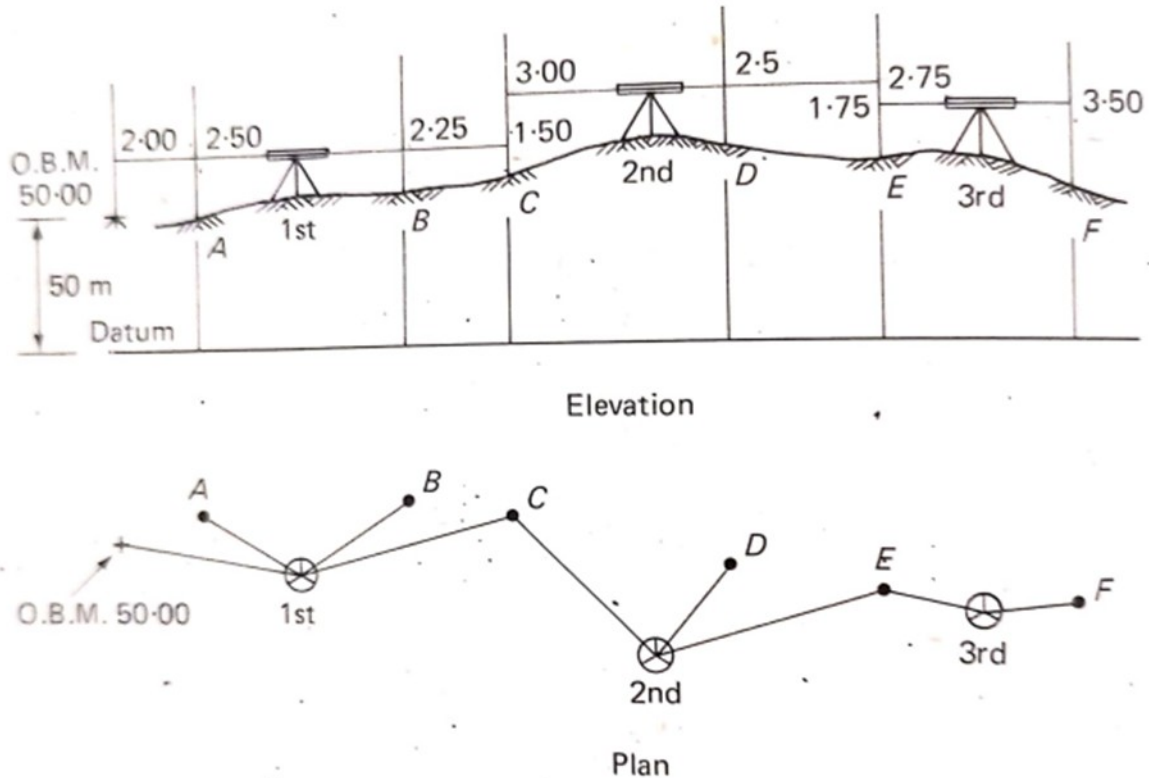


Fig 4a

(12 Marks)

b) Define the following terms as applied in contouring

- i) Vertical interval
- ii) Horizontal equivalent

(4 Marks)

c) State the FOUR main characteristics of contours.

(4 Marks)

QUESTION FIVE (20 Marks)

a) Describe the process of establishing a Temporary Bench mark (TBM) from a local surveyor's Ordnance Datum (ODM).

(5 Marks)

b) With the aid of a sketch, describe the Chaining on a sloppy ground.

(6 Marks)

c) Describe the **THREE** (3) types of Obstacles in chain surveying.

(9 Marks)