



MACHAKOS UNIVERSITY

University Examinations 2016/2017

**SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING**

**FIRST YEAR SECOND SEMESTER SUPPLEMENTARY EXAMINATION FOR
DIPLOMA IN CIVIL ENGINEERING**

BCE CD 115: ENGINEERING SURVEYING I

DATE:

TIME:

INSTRUCTIONS:

This paper consists of five questions

Answer question one and any other two questions in this paper.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) State and briefly describe four types of levels (8 marks)
- b) Define the term leveling (2 marks)
- c) Explain the three main obstacles in chain surveying (6 marks)
- d) Outline two branches of surveying (4 marks)
- e) State four purposes of surveying (8 marks)
- f) Define the term surveying (2 marks)

QUESTION TWO (20 MARKS)

- a) Briefly explain a procedure of measuring a line across a tall building without setting out right angles (10 marks)
- b) Make a neat diagrammatic sketch to show the basic optical principle of telescope. (10 marks)

QUESTION THREE (20 MARKS)

- a) Name five types of surveyors outlining their duties. (10 marks)
- b) Show a method of measuring a line over a small hill. (10 marks)

QUESTION FOUR (20 MARKS)

- a) State five types of errors which may be encountered in ordinary leveling (10 marks)
- b) Briefly outline a suitable method of measuring a line across a wide river without setting out right angles. (10 marks)

QUESTION FIVE (20 MARKS)

Briefly explain the following terms as applied in leveling:

- a) Level line
- b) Reference plane
- c) Reduced level
- d) Bench mark
- e) Temporary bench mark
- f) Line of collimation
- g) Spot height
- h) Back sight
- i) Fore sight
- j) Intermediate sight (20 marks)