



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF SOCIAL SCIENCES

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (ARTS)

BACHELOR OF ARTS

AGE 402: SURVEYING

DATE: 8/12/2021

TIME: 2.00-4.00 PM

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## INSTRUCTIONS:

Answer Question One and Any Other Two Questions.

### QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Examine the main purpose of surveying (4 marks)
- b) Explain four types of measurements made in surveying (8 marks)
- c) Using examples, distinguish between plane and geodetic survey (4 marks)
- d) Pacing was done several times along a known length of 30 m, and the following paces were obtained: - 36- 36 -35- 37-35-36. What is the average pace length? (4 marks)
- e) Describe a level rod surveying instrument and its function (4 marks)
- f) Explain the common sources of error in surveying (6 marks)

### QUESTION TWO (20 MARKS)

- a) Measurement of a road was recorded as 171.278 meters with a steel tape that was only 29.996 meters under standard conditions.
  - i. What is the correction per tape length (4 marks)
  - ii. What is the total correction? (4 marks)
  - iii. What is the corrected measurement? (4 marks)
- b) Define the term traversing and explain how it is done in surveying work (8 marks)

**QUESTION THREE (20 MARKS)**

- a) What is a transit in surveying (4 marks)
- b) Describe the three major parts of a transit (6 marks)
- c) Explain why a Theodolite is equipped with a level (4 marks)
- d) Highlight any three functions of a prismatic compass in surveying work (6 marks)

**QUESTION FOUR (20 MARKS)**

- a) Using a diagram, explain how distance between two points on the ground can have horizontal, slope, or vertical dimensions (9 marks)
- b) Describe three methods of linear measurement in survey work (6 marks)
- c) Examine the reasons why vertical angles are required in survey (5 marks)

**QUESTION FIVE (20 MARKS)**

- a) Using an illustration, describe how Abney level is used to measure height of objects in an accessible area (10 marks)
- b) Explain the basic operating principles of EDM class of surveying instruments. (10 marks)