



**MACHAKOS UNIVERSITY**

**UNIVERSITY EXAMINATIONS 2022/2023**

**EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION AND  
BACHELOR OF ARTS CONTINUING EDUCATION PROGRAM-SEPTEMBER –**

**REGULAR**

**MAIN EXAM**

**AGE 402 – SURVEYING**

**INSTRUCTIONS:**

**Answer Question ONE and any other TWO Questions. Use illustrations where appropriate**

**Instructions:** Answer Question 1 and any other TWO Questions

1. (a) Define the concepts :-precision, Accuracy, Error and mistakes in a survey measurements (8Mks)
2. b).Examine the main purpose of surveying (4 Mks)
- (c) Explain three types of measurements made in surveying (6 Mks)
- (d) Using examples, distinguish between plane and geodetic survey (4 Mks)
- (e) Pacing was done several times along a known length of 30 m ,and the following paces were obtained:- 36- 36 -35- 37-35-36 .Calculate the average pace length in meters (4Mks)
- (f) Explain two common sources of error in surveying (4 Mks)
2. (a) A measurement was recorded as 984.72ft with a 100ft steel tape that was only100.30ft under standard conditions. Calculate:-
  - i). The correction per tape length (4Mks)
  - ii).The total correction? (4Mks)
  - iii).The corrected measurement? (4Mks)
- (b) Define the term traversing and with illustrations explain how it is done in surveying work (8Mks)
- 3.a).What are offsets in surveying (3Mks)
- b). Use illustration to explain how offsets are measured in a chain survey technique (7Mks)
- c). Explain the role of level and theodolite in surveying (4Mks)

- d). Highlight any three functions of a prismatic compass in surveying work (6Mks)
4. (a) Using a diagram ,explain how distance between two points on the ground can have horizontal, slope, or vertical dimensions (9 Mks)
- (b) Describe three methods of linear measurement in survey work (6 Mks)
- (c) Examine the importance of vertical angles as used in survey (5 Mks)
5. (a) Using an illustration, describe how Abney level is used to measure height of objects in an accessible area (10Mks)
- (b) Explain the basic operating principles of EDM class of surveying instruments (10Mks)