



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF TECHNOLOGY EDUCATION  
IN  
BUILDING AND CIVIL ENGINEERING**

**COURSE CODE: TEB 342**

**COURSE TITLE: ENGINEERING SURVEYING II**

**DATE: MONDAY 9<sup>TH</sup> NOVEMBER 2020 TIME: 9.00 – 11.00 AM**

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**INSTRUCTIONS:**

1. Answer Question ONE and any other TWO Questions
2. Marks for each question are indicated in the parenthesis.
3. It is in the best interest of the student to write legibly
4. Examination duration is **2 Hours**

MMUST observes ZERO tolerance to examination cheating

*This Paper Consists of 2 Printed Pages. Please Turn Over.*

**QUESTION ONE (COMPULSORY -40MKS)**

- a) What is Compass surveying? Discuss its advantages and its advantages over other method of surveying. (6mks)
- b) Differentiate between the true meridian and magnetic meridian (4mks)
- c) Distinguish between the total station and the theodolite (4mks)
- d) What are the merits of the total station over conventional instruments of surveying? (4mks)
- e) What is tacheometric surveying? Describe the conditions under which it is advantageous over other methods of surveying. (6mks)
- f) Explain the aims of setting out works in surveying? (4mks)
- g) Classify the common sources of errors in plane table surveying. Give an account how the board is test and adjusted during the field work activities. (4mks)
- h) With aid of neat sketch(es), discuss the following
  - i) Fore bearing and back bearing (4mks)
  - ii) Reduced bearing (2mks)

**Attempt ANY 2 Questions from this section (30MKS)****QUESTION TWO**

- a) Illustrate how traverse system of plane tabling is carried out (6mks)
- b) In setting up the plane table at station P, the corresponding point on the plan was not accurately centred above P. If the displacement of P was 30cm in a direction at right angles to the ray, how much on the plan was the consequent displacement of a point from its true position given the following scales; 1cm=100m and 1cm=2m (2mks)
- c) A closed traverse is carried with five stations, A, B, C, D and E in anticlockwise direction in the form of a regular pentagon. If the fore bearing of AB is  $30^\circ$ , find the fore bearings of other sides. (6mks)

**QUESTION THREE**

- a) With the aid of a neat sketch describe the elements of a curve (3mks)
- b) Given the following information  $\Delta=12^\circ 51'$ ,  $R=400M$ ,  $P=0 +241.782$  calculate the stations on the curve BC (Beginning of Curve) and EC (End of the Curve) (4mks)
- c) Give an account for electronic theodolite (3mks)
- d) After a total station has been set up over a control station, describe what actions and entries must then be completed before the beginning of topographic surveying (5 marks)

**QUESTION FOUR**

- a) Discuss the two systems of tacheometric surveying. (4mks)
- b) State the procedure for tacheometric surveying (4mks)
- c) A series of offsets were taken from a chain line to a curved boundary line at intervals of 15metres in the following order. 0, 2.65, 3.80, 3.75, 4.65, 3.60, 4.95, 5.85 m. Compute the area between the chain line, the curved boundary and end offsets by
  - (i) average ordinate rule (2mks)
  - (ii) Trapezoidal rule (2mks)
  - (iii) Simpson's rule (3mks)