



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ENGINEERING TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

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

UNIT CODE: SEB 1235

UNIT TITLE: SURVEY III

DURATION: 2 HOURS

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) Define the following terms (3marks)
- Traversing
 - Magnetic meridian
 - Mis- closure
- b) Using well illustrated sketches explain the two types of traversing (6marks)
- c) Differentiate between:
- Polar coordinates and rectangular coordinates
 - Angles and bearing
 - Whole order bearing and reduced bearing (6marks)
- d) State four functions of traversing (4marks)
- e) Convert the following quadrant bearing to whole corde bearings
- $N30^0 15' E$ (2marks)
 - $S 24^0 30' W$ (2marks)
- f) Convert the following WCB to RB (4marks)
- $127^0 30' 22''$
 - $275^0 20' 45''$

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a) Convert the following reduced bearings to whole circle bearing. (8marks)
- $N60^0 24' 40'' W$
 - $S 43^0 05' 30'' E$
 - $N 32^0 15' 52'' E$
 - $S 55^0 15' 52'' w$
- b) Differentiate between
- Compass traversing and theodolite traversing (4marks)
 - Plane table traversing and tachometric traversing (4marks)
- c) Explain the following terms as used in traversing. (4marks)
- Physical correction
 - Geometric correction

QUESTION THREE (20 MARKS)

- a) Convert the following WCB to quadrant beaming. (8marks)
- $127^0 15' 46''$
 - $249^0 27' 43''$
 - $20^0 45' 52''$
 - $98^0 30' 24''$

- b) E is a point on AB 100m from A and F is a point on CD 150m from C. The following are the observations made during traverse exercise (12marks)

LINE	BEARING	DISTANCE (M)
AB	$340^{\circ} 20' 00''$	120.00
BC	$15^{\circ} 50' 00''$	520.00
CD	$130^{\circ} 50' 00''$	260.30

Determine the distance EF (12marks)

QUESTION FOUR (20 MARKS)

- a) Explain two methods that can be used to measure angles during traversing exercise (4marks)
- b) Describe the term angle of declination (2marks)
- c) The following data relates to a traverse run from CAN 1 to CAN S

LINE	DISTANCE	BEARING
Can –can 2	142.42	$38^{\circ} 20' 30''$
Can 2-can3	211.20	$347^{\circ} 55' 15''$
Can 3-can 4	450.25	$298^{\circ} 12' 40''$
Can 4-can 5	153.43	$129^{\circ} 46' 50''$

REQUIRED

- i. Compute and adjust the traverse by Bowditch's method (10marks)
- ii. Evaluate the accuracy of the traverse (4marks)