



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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**SECOND YEAR FIRST SEMESTER EXAMINATIONS
FOR THE DEGREE
OF
BACHELLOR OF SCIENCE IN GEOSPATIAL INFORMATION
SCIENCE (GIS)**

COURSE CODE: DPG 208

COURSE TITLE: ENGINEERING SURVEY II

DATE: 21/04/2022

TIME: 12 - 2PM

INSTRUCTIONS TO CANDIDATES

Answer Question 1(ONE) and any other TWO Questions

MMUST observes ZERO tolerance to examination cheating

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

QUESTION ONE (COMPULSORY - 40MKS)

- k) What is plane table surveying? Discuss its advantages and its disadvantages over other method of surveying. (6mks)
- l) 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. (6mks)
- m) What is the general principle for magnetic compass? State the essential features of the magnetic compass. (4mks)
- n) Explain with the help of neat sketches, the graduation of a prismatic compass and a surveyor's compass. (4mks)
- o) Distinguish between the total station and the theodolite. (4mks)
- p) What are the merits of the total station over conventional instruments of surveying? (6mks)
- q) What is tacheometric surveying? Describe the conditions under which it is advantageous over other methods of surveying. (6mks)
- r) Explain the aims of setting out works in surveying? (4mks)

Attempt ANY 2 Questions from this section (30MKS)

QUESTION TWO

- e) Illustrate how intersection system of plane tabling is carried out. (3mks)
- f) 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. (4mks)
- g) With the aid of a neat sketch describe the elements of a curve. (4mks)
- h) 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)

QUESTION THREE

- d) Give an account for electronic theodolite. (3mks)
- e) 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. (4mks)
- f) The elevation of a point P is to be determined by observations from two adjacent stations of a tacheometric survey. The staff was held vertically upon the point and the instrument is fitted within anallactic lens, the constant of the instrument

being 100. Compute the elevation of the point P from the following data, taking both observations as equality trustworthy. (8mks)

Instr. Station	Height of axis	Staff point	Vertical angle	Staff reading	Elevation of station
A	1.42	P	+2°24'	1.230, 2.055, 2.880	77.750M
B	1.40	P	-3°36'	0.785, 1.800, 2.815	97.135M

QUESTION FOUR

- 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 (3mks)
 - (ii) Trapezoidal rule (3mks)
 - (iii) Simpson's rule (3mks)
- d) The following notes refer to three level cross-sections at two sections 50 metres apart.

Station	Cross-section		
O1	1.7/7.7	2.8/0	4.6/10.6
O2	2.9/8.9	3.7/0	6.9/12.9

Calculate the volume of cutting between two stations given the width of cutting at formation as 12metres. Use prismoidal rule. (6mks)

