



**Department of Surveying and Geoinformatics**  
**School of Environmental Technology**  
**Federal University of Technology**  
**Minna, Nigeria**

**SVG317: Engineering Surveying**  
**First Semester Examination, 2018/2019 Session**

**DURATION: 2 Hours.**  
**Answer any 3 Questions**

- 1a. Define the following terms: (i) Modulation (ii) Frequency Modulation (iii) Amplitude Modulation
- 1b. Describe the different types of errors in EDM instruments.
- 1ci State Simpson's Rule.
- 1cii. The areas of ground within contour lines at the site of a reservoir are as follows:

Contour in (M) above Datum	Area (M <sup>2</sup> )
40.0	5056.02
39.5	4421.04
39.0	3016.35
38.5	2322.03
38.0	940.56
37.5	568.21
37.0	341.07
36.5	158.34
36.0	4.72

Taking 36.0m AOD as the level of the bottom of the reservoir and 40.0m AOD as the water level estimate the quantity of water in (m<sup>3</sup>) contained in the reservoir. (Use Simpson's rule).

2. The whole circle bearings of the straight sides of a plot of land ABCD are:

AB = 352° 26', BC = 111° 04', CD = 195° 56', DA = 242° 15'

The side CD is 175.82m long and the area of the plot is 8.094 hectares. Calculate the length of side AB.

3. Two straight line AB and BC intersect at chainage (276+15), the angle of intersection being 110°. Calculate the chainages of the tangent points of a circular curve of 200m radius. Assuming that a chainage is 30 m.

4. Calculate the volume of the earthwork in a road cutting 100m in length from the following data. Formation width 8 metres; sides 2 to 1 average depth of cutting along the centre line = 0.6 metres, traverse cross-section of the ground 8 to 1.