FEDERAL UNIVERSITY OF TECHNOLOGY MINNA (B. Tech. Surveying & Geoinformatics Examination)

Second Semester 2018/2019

SVG 221: ENGINEERING SURVEYING 1

TIME: $1^{1/2}$ Hours (90 Minutes)

INSTRUCTIONS: Answer ALL Questions

1. (a) Why is it recommended that the chord should not exceed R/20 in length? (R being the radius of the circular curve) (2 marks).

(b) How may a circular curve be defined by its degree? (2 marks).

(c) What is the relationship between radius and degree of curve? (6 marks).

2. (a) Distinguish between longitudinal-section and cross-section (4 marks).

(b) A road has a formation width 12.50m and side slopes of 1 in 2 in cut and 1 in 5 in fill. The original ground has cross-fall of 1 vertical to 7 horizontal. If the depth of excavation at the centre line is 0.5m. Calculate:

(i) The side widths (2 marks)

(ii) Areas of cut and fill (4 marks)

3. (a) State Simpson's Rule for the determination of area (2 marks)

(b) In a chain survey the following offsets were taken to a curvilinear boundary from a chain line:

Chainage (m)	0	20	40	60	80	100	120	140	160	180
Offset (m)	0	6.10	8.72	8.11	10.51	12.70	9.75	4.23	1.27	0

Calculate the area by:

(i) Trapezoidal Rule (3 marks)

(ii) Simpson's Rule (3 marks).

Explain the difference in values obtained (2 marks).

Best Wishes!