

Federal University of Technology Minna.
 First Semester Examination.
 Department of surveying and Geoinformatics
 Course; SVG 213 (Survey Computation)

Answer only four questions

1. With the aid of diagram, explain the following
 - i. Open traverse
 - ii. Closed traverse
- b. Compute the consecutive coordinate of the following traverses stations whose reduced bearing is shown below

Line	LENGTH(M)	REDUCED BEARING
AB	305	$N30^{\circ} 30' E$
BC	500	$S42^{\circ} 30' E$
CD	810	$NS48^{\circ} 45' W$
DE	650	$N60^{\circ} 30' W$
EA	X	Y

2. During flying leveling, the following notes were made.

B.S; 0.62, 2.05, 1.42, 2.63 and 2.42(metre)

F.S; 2.44, 1.35, 0.53 and 2.41(metre)

The first **B.S** was taken on a **B.M. RL** 100.00(meters) from the last **B.S**. it is require to set 4 set peg of 30m on a rising gradient of 1 in 200. Enter those notes in a form of level. Compute the **R.L** of the top of each peg by rising and fall method and apply the usual check.

2b. Assuming the coordinate, A (N; 200, E; 100) the independent coordinate of each station. Compute the area using the following method

Side	Latitude	Departure	Stations	Northing	Easting
AB	220.5	120	A	200.5	100
BC	-240.5	200	B	420.	220
CD	-160	-100.5	C	180.5	420
DA	179.5	-220	D	20.5	320
			A	200.5	100

Using;

- i. Double meridian distance method
- ii. Coordinate method

3. write short notes on the following

- i. horizontal surface
- ii. horizontal line
- iii. Vertical plane
- iv. Vertical line

3b. the dimension of two embankment sections are given below

$\frac{2.07}{7.15}$	$\frac{2.54}{0.0}$	$\frac{3.15}{9.35}$
$\frac{2.16}{8.90}$	$\frac{3.47}{0.00}$	$\frac{3.81}{12.12}$

The distance between them being 30m. the formation with increase uniformly from 6m at the first section to 9m at the second. Compute the volume contain between these section by trapezoidal or Simpson's formulae

4. explain the following methods of plane surveying.

- i. Radiation
- ii. Intersection
- iii. Resection

4b. Compute latitude, departure and the closing error for the following traverse. Adjustment can be made using either Bowditch's or transit rule

Line	LENGTH (M)	REDUCED BEARING
AB	89.35	$N45^{\circ} 10' E$
BC	219.70	$N 72^{\circ} 10' E$
CD	151.20	$S18^{\circ} 08' E$
DE	160.0	$S48^{\circ} 43' W$
EA	232.23	$N59^{\circ} 20' W$

5. Define Triangulation and Explain the principle of triangulation

5b. list five purposes of triangulation

5c. The following observation were made from two inter-visible statins c and d to stations A (E; 15000, N; 8000) and B (E; 15600, N; 8800). $\Delta ACD = 50^{\circ} 26' 10''$ $\Delta CDA = 30^{\circ} 00' 00''$ $\Delta ABD = 15^{\circ} 00' 00''$. If the bearing of CA $63^{\circ} 26' 00''$ and D is roughly southeast from C. compute the distance CD and the coordinate of the point D.

