



Homework Assignment No. 8
Longitudinal Section & Area and Volume Computation
Contouring & Volume Computation



Part A- Mark the correct answer for the following:

1. The next Figure indicates cross section of a road, Which type this section?

- a. cut section b. fill section c. fill and cut section d. none of these

2. Which of the following factors does not affect the choice of interval for longitudinal section? 1. Type of soil type 2. Topography 3. scale 4.time and cost.

- a. 1 b. 2 c. 3 d. 4

3. of the following, which one is not related to the purposes of longitudinal section: 1. to represent nature ground surface 2. to design grade line 3. to compute depth of cut and depth of fill 4. to compute volume of cut and volume of fill 5. to choose method of execution of construction.

- a. 1 b. 2 c. 3 d. 4 e. 5

4. Contour interval is:

- a. vertical distance between two contours b. horizontal distance between two contours
c. slope distance between two contours d. none of these

5. Surfer is software used for:

- a. reduction of horizontal distance b. gridding, contouring, volume computation, and sectioning
c. total station data handling d. none of these

6. The contour lines never do what?

- a. zig-zag b. cross c. run parallel d. end
b.

7. On a map of scale 1/1000 and CI 1m, the spacing between two contours is 1 cm. The slope of the ground is most nearly?

- a. 1% b. 5% c. 10% d. 20%

Part B- Answer the followings:

1. The reduced levels shown below were undertaken during the construction of a water pipe line

Distance (m.)	0	100	200	300	400	500	600
NGL (m.)	15.00	13.40	13.00	12.90	12.30	11.80	11.1
IL (m.)							
Cut (m.)							

If the pipe line diameter is 1.00 m. with a gradient of 1 in 200 downwards from the starting point and at depth of 2.5 m below the surface. Calculate volume of earthwork

2. The reduced levels given are taken from profile leveling along a proposed road:

Distance (m.)	0	50	100	150	200	250	300	350
Ground Level (m.)	8.2	7.9	7.7	7.5	7.6	8.0	7.8	8.1
Design Level (m.)								
Depth of fill (m.)								

Calculate the depth of fill at each distance station, if the road a gradient is 0.3% upwards and the depth of fill is 0.6 m from the ground level at first point at distance 0.0 m.

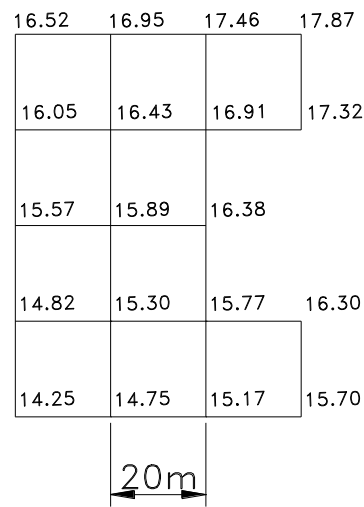
- ii. Calculate area of each cross section at every 50m if the proposed road is to have a formation width of 20 m, with side slopes of 2 in 3.
- iii. Calculate the volume of fill.

3. Stations M, N, O, P and Q form a closed traverse. The following coordinates refer to the stations.

Station	X (m)	Y (m)
M	2400	2500
N	3300	2000
O	4000	2750
P	3200	3000
Q	2300	3200

Calculate the area enclosed by the stations.

4. Fig. 1 shows a grid with levels at 20 m intervals. The whole area is to be excavated to form a car park formation level 12 m. Calculate the volume of material to be excavated, assuming the excavation has vertical sides.



5. Given below the area enclosed by each contour line which estimated from a contour map. If it is required to form the area to level 32.0 m, calculate the volume of material to be excavated.

Contour	32	33	34	35	36
Area (m ²)	395.0	290.0	140.0	40.0	10.0