



Topographic SURVEYING

Grid leveling and Contour lines (1/3)

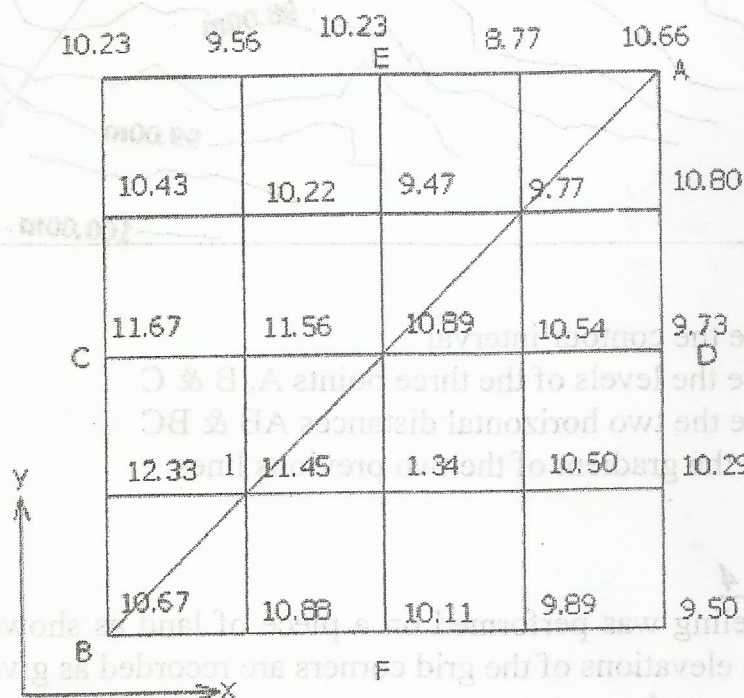
Question 1

a-mention the properties of contour lines

b-mention the factors must be taken into account in case of choosing grid and contour intervals.

Question 2

Given the following square grid with intervals $\Delta x=25.00\text{m}$ & $\Delta y=25.00\text{m}$



a-depending on the grid draw the contour lines of the area with interval 1.00m.

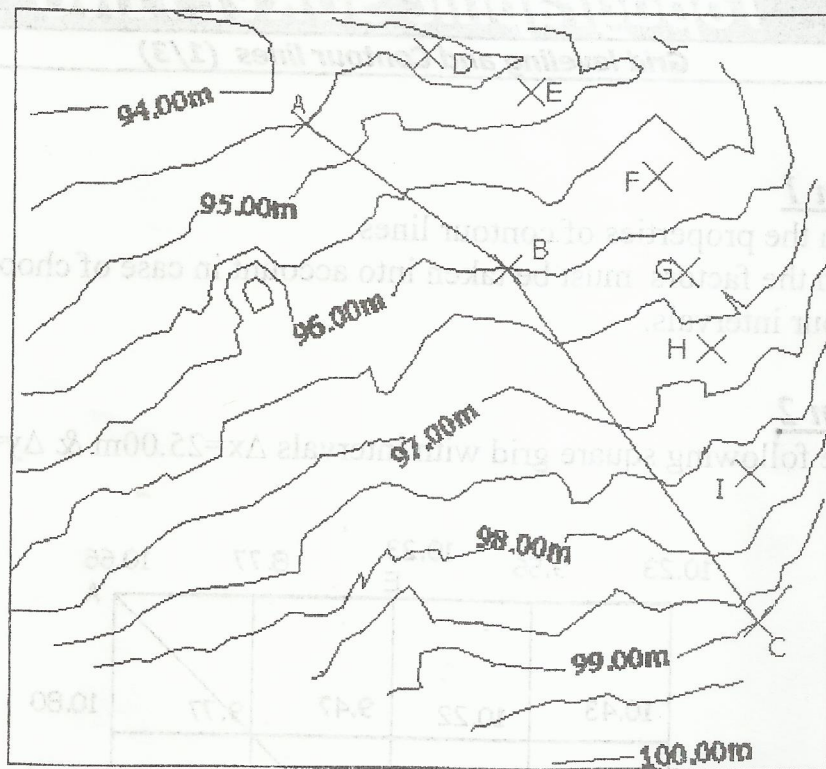
b-depending on the contour & the grid draw the x-sections AB, CD & EF.

c-calculate the volume of earth work given the design surface is horizontal with elevation of 8.00m.

d-show ONLY the regions of cut & fill given the design level is horizontal with elevation of 11.00m.

Question 3

The following contour map was constructed depending on a rectangular grid. The used scale is 1:2500



- a-determine the contour interval
- b-determine the levels of the three points A, B & C
- c-determine the two horizontal distances AB & BC
- d-calculate the gradient of the two previous lines

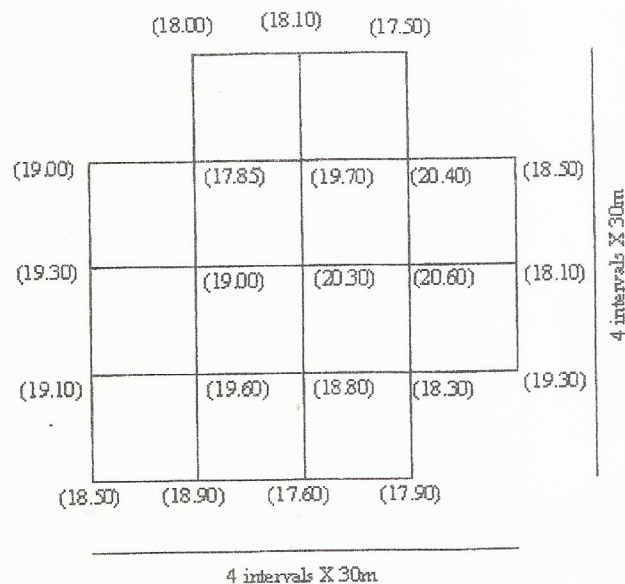
Question 4

A grid leveling was performed on a piece of land as shown in the next figure. The elevations of the grid corners are recorded as given.

You are asked to:-

- a-draw to a horizontal scale 1:1000 the piece of land and write the elevations of its corners. The grid size is 30m in both directions.
- b-draw contour lines with contour interval of 1.00m.
- c-compute the amount of earth work required to level the ground to a plane in the following two cases:
 - 1-horizontal plane with level 17.00m

2-inclined plane with downward slope -1.00% from the north to the south. The elevation of the northern edge is 17.50m.



Question 5:-

Given the design level of a project area is 30.00m at the north edge while the slope from north to south is -0.50%.

Distance	Left(m)				CL	Right(m)			
	80	60	40	20		20	40	60	80
0		31.51	31.88	32.13	32.12	32.89	33.51	33.87	34.13
20	31.41	31.92	32.17	32.98	33.00	33.17	33.75	34.25	35.25
40		32.17	32.71	33.02	33.51	33.88	34.25	34.75	35.55
60		32.77	33.29	33.88	34.22	34.51	35.10	35.25	36.45
80			33.77	33.88	34.12	34.75	35.25	35.55	
100			34.33	34.12	34.51	35.25	35.50	36.10	

from the previous table you are asked to:-

a-draw the grid with scale 1:1000 given the grid interval is 20.00m in both perpendicular directions.

b-draw the contour lines with contour interval 1.00m.

c-compute the amount of earth work.