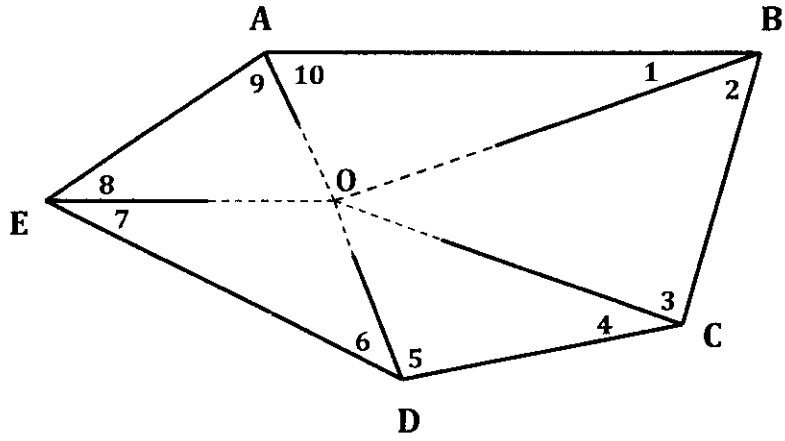
Menoufiya University		**Department: Civil Engineering**
Faculty of Engineering		**Subject & Code: Adjustment, CVE 734**
Shebin El-Kom		**Time Allowed: 3 hours**
Academic Year: 2019-2020		**Date: 18 /08 / 2020**

Question (1) **(30 marks)**

In a centered polygon ABCDE with central station O, the observed angles are as follows :

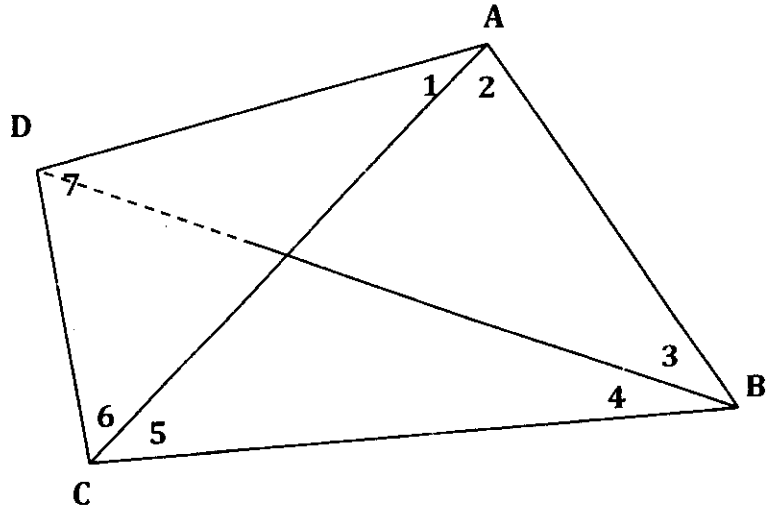
Angle	Observed value	Angle	Observed value
O_1	54° 28′ 54″	O_2	38° 10′ 00″
O_3	44° 29′ 00″	O_4	64° 25′ 40″
O_5	42° 06′ 12″	O_6	58° 26′ 52″
O_7	74° 45′ 20″	O_8	47° 17′ 58″
O_9	55° 24′ 20″	O_{10}	60° 25′ 04″



Using this data, tabulated the corrected angles?

Question (2) **(30 marks)**

It is required to adjustment the following braced quadrilateral by Correlative method ?



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Angle	Observed value	Angle	Observed value
O_1	55° 54\ 42\\	O_2	40° 50\ 45\\
O_3	59° 50\ 11\\	O_4	27° 13\ 14\\
O_5	52° 06\ 01\\	O_6	88° 32\ 39\\
O_7	35° 32\ 54\\	-----	----------

Question (3) **(40 marks)**

The following figure shows a precise levelling network, where the arrows indicate the direction of elevation increase. In this network, the benchmark A has fixed elevation of (- 3.315 m).

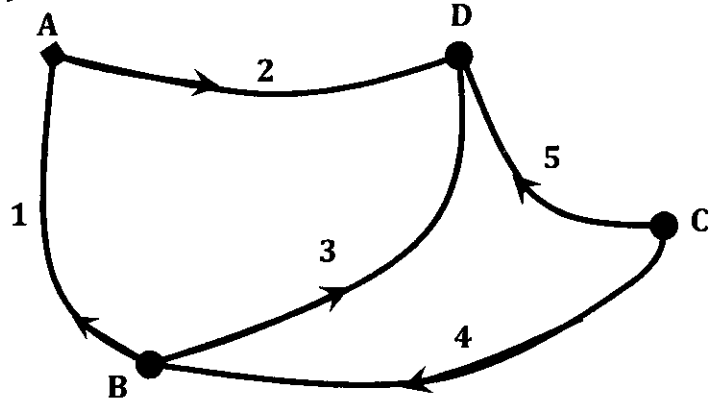

Table gives the details of the observed height differences and lengths of the levelling routes, assuming that, the given observations are corrected for all possible systematic errors. Compute the adjusted elevations of the new points using precise method ?

No.	Levelling Line		Height Difference (m)	Route Length (km)
	From	To		
1	B	A	2.1341	5.31
2	A	D	3.1793	4.18
3	B	D	5.3205	10.17
4	C	B	1.4687	6.67
5	C	D	6.7809	8.33

With my best wishes ..... Prof. Dr / Mohamed Ismail Doma