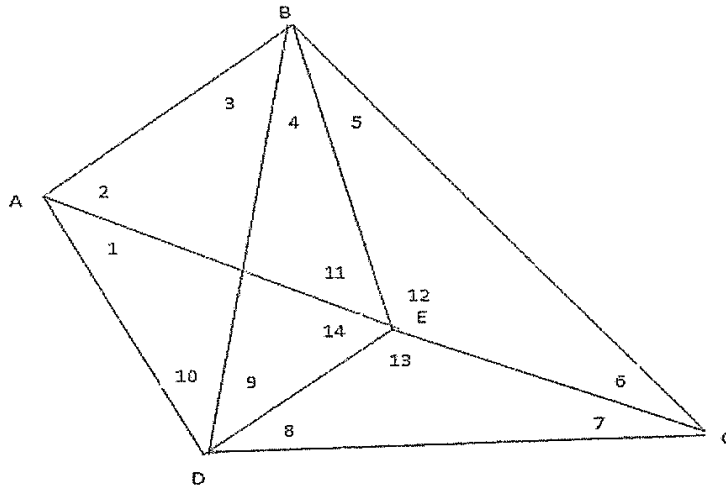


Question (50) (%)

(Answer by sketch as possible)

- a) The field abstract for a triangulation scheme established for a small construction site is shown in figure . Using this data ,
- 1- Estimate the number and types of conditions by two methods.
 - 2- Write the all conditions
 - 3- Calculate the adjusted angles by equal shift.
 - 4- Write the numbers and types of conditions if the point (E) is Unoccupied.



Angle	Observed	Angle	Observed	Angle	Observed
O1	54° 16' 58"	O6	54° 37' 25"	O11	85° 32' 12"
O2	35° 18' 22"	O7	24° 48' 45"	O12	73° 39' 57"
O3	40° 57' 05"	O8	17° 19' 24"	O13	137° 52' 06"
O4	18° 12' 37"	O9	13° 19' 15"	O14	65° 59' 37"
O5	51° 42' 50"	O10	49° 27' 39"		

- b) If the triangle DEB is adjusted , compute the number , types of condations and adjust the network in this case.

Question (25) (%)

- 1) Define the Global Positioning System (GPS) technique and compare between GPS and two others satellite systems
- 2) Write the types of global positioning systems observables and its applications.
- 3) Write and discuss the sources of GPS errors
- 4) Compare between two types of map projections.

Question (25) (%)

(A) and (B) are triangulation stations, the elevation of which are 1100m. and 2000m. respectively . An obstruction (C) is situated 40 km. and 20 km. from (A) and (B) respectively. The elevation of the obstruction is 1660m . Determine the height of the signal at station (B) in order that the line of sight may clear an obstruction (C) by McGraw's Formula. Assume : ($k = 0.07$ & $R = 6370$ km).

Good Luck