***Iqra national university Peshawar***

***Subjects : SURVEYING 1***

***B,TECH SECOND SEMESTER***

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***Q(4)…….***

 ***TRAVERSE,,,,***

*\*) Traverse is a method in the field of surveying to established control network. It is also used geodesy traverse network involve placing survey station a line or path travel and used the previously surveyed points is a based for absorb the next point .*

*Traverse network have many advantage including.*

*Less reconnaissance and organization needed.*

*While in the other system which many require the survey to be perform a long rigid polygon shape the traverse can be change to any shape and thus can accommodate a great deal of different terrains.*

*Only a few abservations need to be taken each station where in other survey network a grfeat deal of angular and linear abservation need to be made and consederd .*

*Traverse network are free of the strength of figure consideration that hippen in triangular system .*

*Scale error does not add up is the traverse is perform a azimuth swing error can also be reduce by increasing the distance between station .*

*The traverse is more accurate than triangulateration a combine of triangulation and trilateration .*

***OPEN TRAVERSE ….***

*\*) A traverse is said to be open or unclosed when it does not form a closed polygon.*

*\*) it consist of connecting lines extending as the same general direction and not returning starting point.*

*\*) similarly it does not start and end is [point whose position on plane are know .*

*\*) it is suitable for the survey of long narrow strip eg .river coast line road railway etc.*

*\*) when the lines form a circuit ends else where accept starting point at is said to be an open traverse.*

***CLOSED TRAVERSE…***

*\*) A traverse is said to be closed when a complete circuit is made ie when it returns to the starting point forming a closed polygon OR when it begins and ends it points whose position on plane or known.*

*\*) the worked may be checked are balanced .*

*\*) suitable for locating bounders of lake wood etc and for the survey of moderately large area .*

***Q3)……..***

***!) BASE LINE,,,,***

*It the main in longest line which passes approximately through the center of the field all the other measurement to show the detail of the work are taken with respect to this line ..*

***2) CHECK LINE…***

*A check line also termed as proof line as a joining the apex of a triangle to some fixed point on any two side of a triangle a check line as measured to check the occuracy of the frame work .the length of a checking line as measure as on the ground should agree with it length on the plane .*

***3) TIE LINE…..***

*A tie line joints to fixed point on the main survey lines. It help to check the accuracy of surveying into locate the interior the position of each tie line should be closed to some future such as path building etc.*

***4) TIE STATION……***

*Any point select on the main survey line where it is necessary to run the auxiliary lines to locate interior detail such as fences hedges building etc when they are it some distance from the main survey line are known is subsidiary or tie station.*

***5) WEL CONDITIONED TRIANGLE..***

*A well condition triangle is a triangle in which no angle as less than 30 degrees .*

*One of the way to survey the area is to divide to entire area is smaller triangle and then take the measurement of sides of the triangles.*

***Q no 1 Ans***

*Cosin formula* $BD^{2}-CB^{2}+CD^{2}-2CB x CD x COSθ $

$BD^{2} - CB^{2}$ *= 2CB X CD X COS*

*COS*$θ$$\frac{BD^{2 }- CB^{2 }-CD^{2}}{-2CB X CD}$

*COS*$θ$ *=*$\frac{(215)^{2 }–(180)^{2 }–(290)^{2}}{-\left(180\right)(290)}$

*46225.0-32400.0-84100.0 =-70275*

$$\frac{-70275}{-104400}$$

*COS*$θ=0.7$

$$COS^{-1}\left(0.7\right)=\left(45° .57\right)$$

*Now I find AB* $∆ABC$

$$AB^{2}= CB^{2}+CA^{2}-2 X CB X CA COSθ$$

$$AB^{2}=\left(180\right)^{2 }+\left(126\right)^{2}- 2\left(180\right)\left(126\right)\left(COS 45.57\right)$$

$$AB^{2}=\left(32400\right)+\left(15876\right)-\left(45360\right)$$

$$AB^{2}=43746$$

$$AB^{2}=43746$$

$$\sqrt{AB^{2}}= \sqrt{43746}$$

*AB = 209.15*

***Q NO 2 Ans***

*CD =60*$°$

*DG = 45*$°$

*Length of DF =?*

*Length of DG = ?*

*Sol* $ ∆DFC$

*COS*$θ=\frac{Base}{hyp}$

*COS*$θ=\frac{CD}{DF}$

*DF*$=\frac{CD}{cosθ}$

*DF =* $\frac{CD}{cos60°}$

*DF =* $\frac{110}{0.5}$

*DF = 220m*

*From* $∆DGC$

*Tan*$θ=\frac{prep}{base}= \frac{CF}{\begin{array}{c}CD\\\end{array}}$

*Tan45*$°=\frac{CF}{CD} $

*CF = Tan45*$°$ *CD*

*CF = 120( 1)*

*CF = 120m*

*Cos45*$°=\frac{CD}{DG}$

*DG =* $\frac{CD}{cos45°}$

*DG =* $\frac{110}{0.7}$

*DG =157.14m* ***ans***