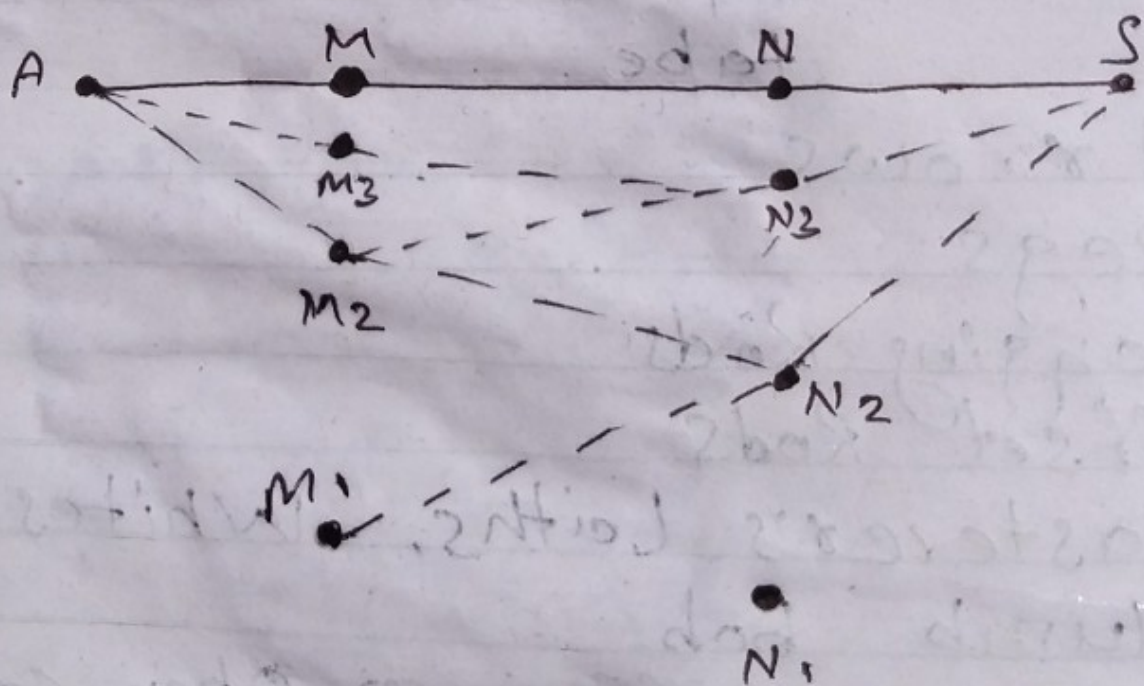
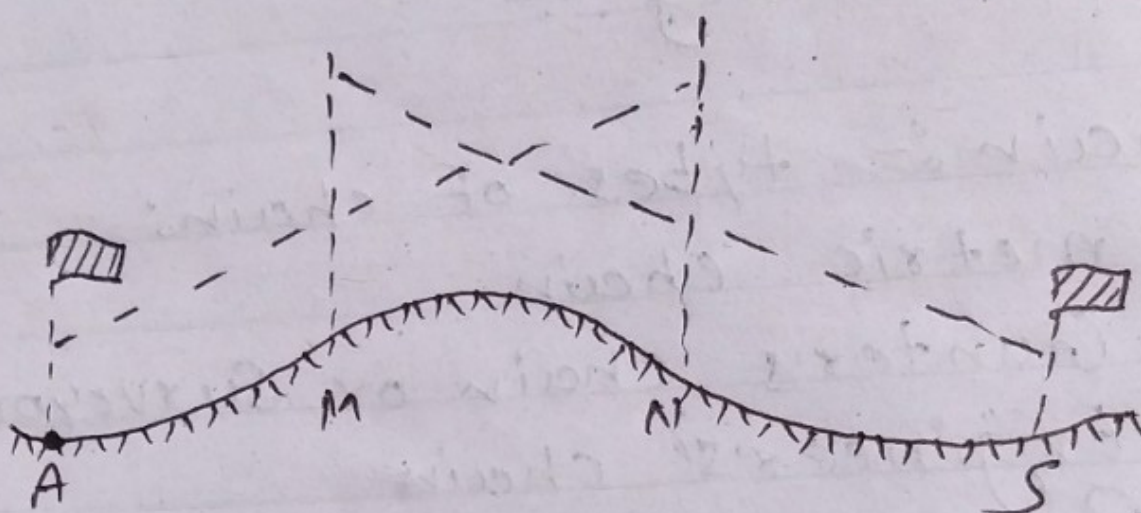


### Answer-3) "Indirect Ranging" For a

chain surveying work :-

Indirect ranging is resorted to when both the ends of the survey line are not intervisible either due to high intervening ground or due to long distance between them. In such a case, ranging is done directly by selecting by two intermediate points  $M_1$  and  $N_1$  very near to the chain line in such a way that from  $M_1$ , both  $N_1$  and  $B$  are visible and from  $N_1$ , both  $M_1$  and  $A$  are visible.

Two Surveyors station themselves at  $M_1$  and  $N_1$  with ranging rods. The person at  $M_1$  then directs the person at  $N_1$  to move to a new position  $N_2$  in line with  $A$ . Thus, the two persons is now at  $M_2$  and  $N_2$  which is nearer to the chain line than the positions  $M_1$  and  $N_1$ . The process is repeated till the points  $M$  and  $N$  are located in such a way that the person of  $M$  finds the person at  $N$  online with  $MB$  and person at  $N$  finds the person at  $M$  line with  $NA$ . After having established  $M \& N$ , other points can be fixed by direct ranging.



Indirect Ranging