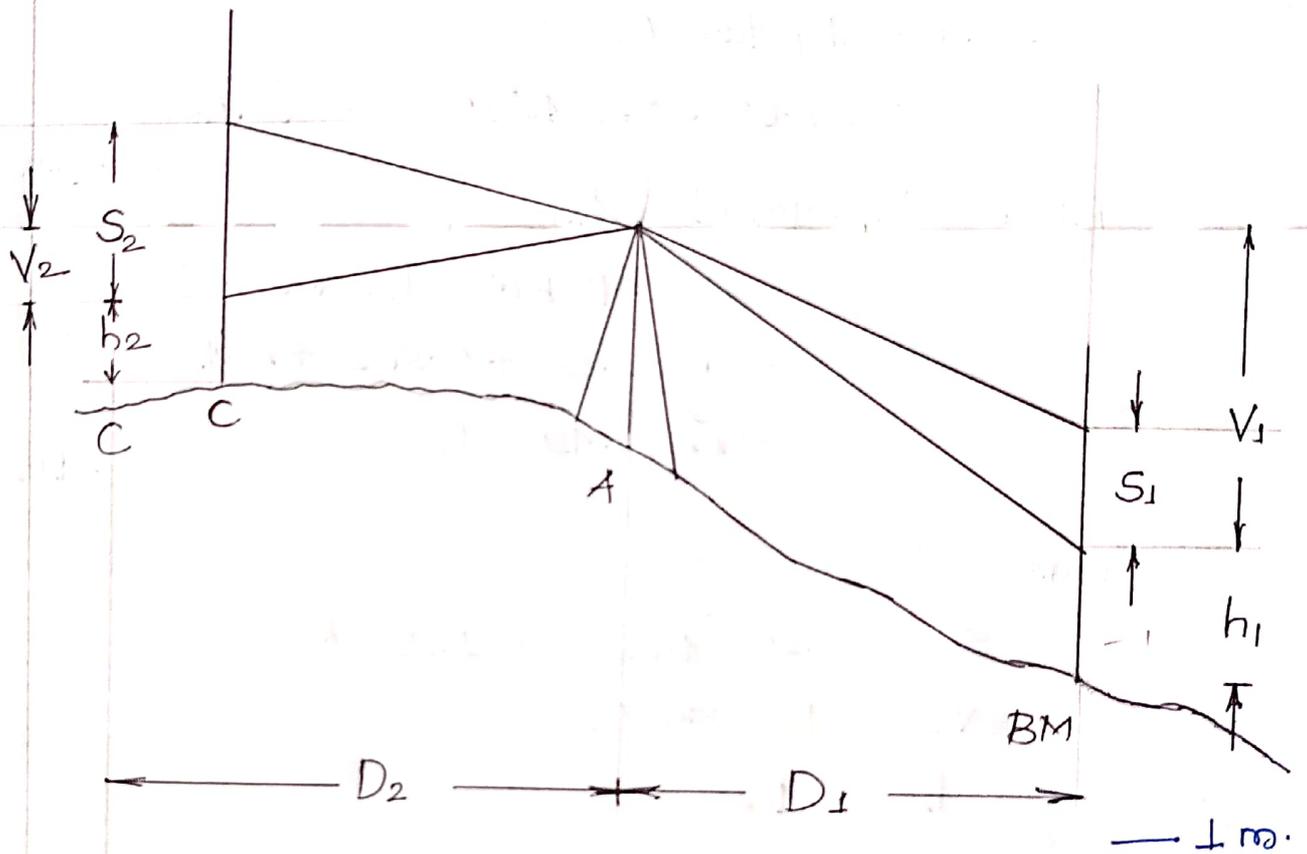


Set-II

Q.1 a



Case I -

$$\text{Staff intercept } S_1 = 2.565 - 0.565 = 2.0 \text{ m}$$

$$h_1 = 0.565 \text{ m}$$

$$V_1 = D_1 \tan \theta_2$$

$$V_1 - S_1 = D_1 \tan \theta_1$$

$$S_1 = -D_1 \tan \theta_1 + V_1$$

$$S_1 = D_1 (\tan \theta_2 - \tan \theta_1)$$

$$D_1 = \frac{S_1}{(\tan \theta_2 - \tan \theta_1)}$$

$$D_1 = \frac{2.0}{(\tan 12^\circ 30' - \tan 8^\circ 30')} = 27.68 \text{ m.}$$

— 1 m.

$$\begin{aligned} \therefore V_1 &= D_1 \tan \theta_2 \\ &= 27.68 \cdot \tan 12^\circ 30' = 6.13 \text{ m} \end{aligned}$$

— 1 m.

RL of instrument Axis

$$\begin{aligned} &= \text{RL of BM} + h_1 + V_1 \\ &= 655.5 + 0.565 + 6.13 \\ &= 662.195 \text{ m} \end{aligned}$$

— 1 m.

Case - II.

$$S_2 = 3.20 - 1.25 = 1.95 \text{ m}$$

$$V_2 = D_2 \tan \theta_2$$

$$h_2 = 1.25 \text{ m}$$

$$S_2 - V_2 = D_2 \tan \theta_1$$

$$S_2 = D_2 (\tan \theta_1 + \tan \theta_2)$$

$$D_2 = \frac{S_2}{\tan \theta_1 + \tan \theta_2}$$

$$= \frac{1.95}{\tan 3^\circ 12' + \tan 7^\circ 30'}$$

$$D_2 = 10.39 \text{ m.}$$

— 1 m.

$$\begin{aligned}
 V_2 &= D_2 \tan \theta_2 \\
 &= 10.39 \tan 7^\circ 30' \\
 &= 1.368 \text{ m} \qquad \qquad \qquad \text{--- 1 m.}
 \end{aligned}$$

$$\begin{aligned}
 \text{RL of point B} &= \text{RL of instrument Axis} - V_2 - S_2 \\
 &= 662.195 - 1.368 - 1.95 \\
 &= 658.877 \text{ m.} \qquad \qquad \qquad \text{--- 1 m}
 \end{aligned}$$

- Q.1 b. definition of satellite station - 1 m. Total.  
 Description with neat sketch - 2 m.  
 Description & detailed explanation - 2 m 5 m

- Q.1 C Given data  
 scale of photograph = 1 : 10,000  
 size of photograph = 200 mm x 200 mm  
 Area = 8 km<sup>2</sup>  
 longitudinal overlap ( $P_l$ ) = 60%.  
 side overlap ( $P_w$ ) = 30%.

Number of photograph in each strip.

$$N_1 = \frac{L_1}{(1 - P_1) \times S \times l} + 1$$

$$= \frac{12.5 \times 1000}{(1 - 0.6) \times 10000 \times 0.2} + 1$$

$$= 17$$

Number of flight line required

$$N_2 = \frac{W_1}{P \cdot (1 - P_w) \cdot S \cdot w} + 1$$

$$= \frac{8000}{(1 - 0.3) \times 10000 \times 0.2} + 1$$

$$= 7$$

Number of photographs required

$$N = N_1 \times N_2$$

$$= 17 \times 7$$

$$= 119 \text{ Numbers.}$$

Total.

Q. 2 a Definition of GIS - 1 m.  
 Application - 3 expected - 1 each 4 m.

b. GIS mapping explanation - 2 m.  
 Advantages of mapping  
 (4 expected) - 1 m each 6 m.

Q. 3 a describe Remote sensing system - 2 m.  
 - " - Idealized - " - 2 m 4 m.

b) detailed application - 1 each.  
 4 expected

define Remote sensing system - 2 m. 6 m.

Q. 4 a Explain GNSS - 1 m.  
 define Waypoint - 2 m  
 Route - 2 m 5 m.

b sketch - 2 m.  
 description - 3 m 5 m.

c define GNSS - 2 m.  
 Note on Application - 1 each 5 m.  
 (min. 3)