

Mohamad Shannak

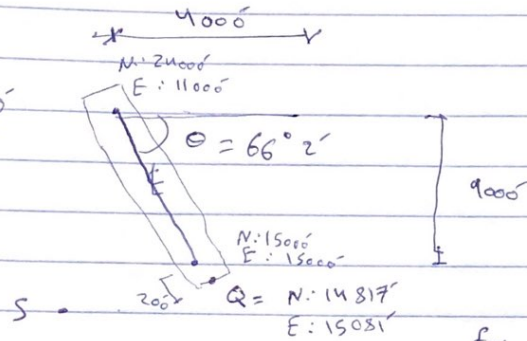
1181401

I PLEDGE NOT to use any help from anyone and not to communicate about the exam through any form or media.

- Q.1

elevation = $7.60'$
air port
above
msl

N
↙
E

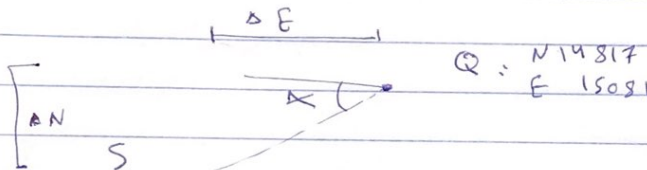


for Q: $N = 15000 - (200) \sin \theta$

$N = 14817'$

$E = 15000 + (200) \cos \theta$

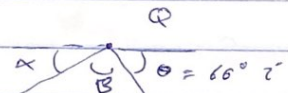
$E = 15081'$



$N: 9000$

$E: 9081$

$\alpha = \tan^{-1} \left(\frac{9000}{9081} \right) = 32.64^\circ$



$B = 180^\circ - \theta - \alpha = 81.3^\circ$

$\therefore B < 90^\circ$

check Group I is

Not in Primary.

because $S_c > 500'$

in next page.

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$$R = \sqrt{\Delta E^2 + \Delta N^2}$$

$$= \sqrt{(9081)^2 + (5817)^2}$$

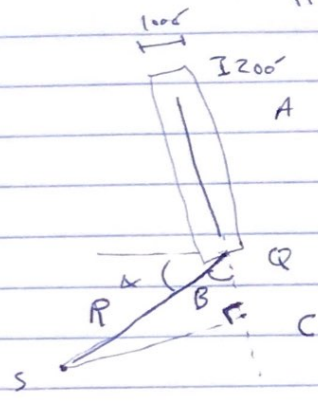
$$R = 10784'$$

$$B = 81.3^\circ$$

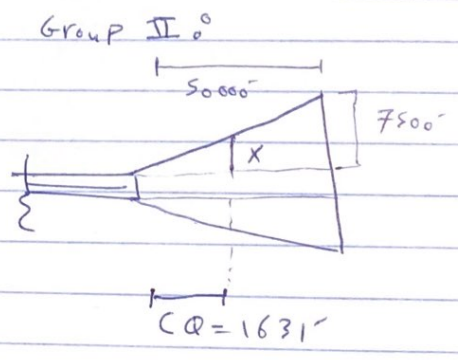
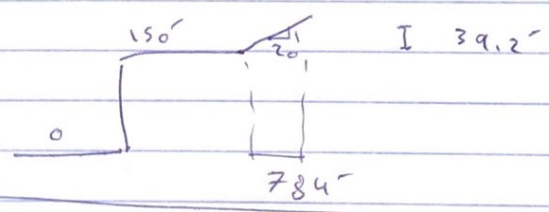
$$SC = R \sin B$$

$$SC = 10660'$$

$$CQ = 1631'$$



$10000 < R < 14000 \therefore$ within conical surface.
elevation allowed = $150' + \left(\frac{1}{20}\right)(10784 - 10000)$
 $= 189.2'$



Approach surface:

$$X = 7500 \left(\frac{1631}{50000} \right) = 244.65'$$

$$\approx 244.7'$$

$$h_{from \phi} = X + 500' = 744.7'$$

$$< SC$$

Transitional surface check

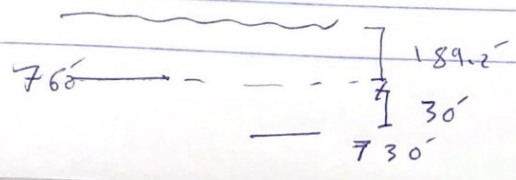
$$h_{from \phi} = 744.7' + 5000'$$

$$= 5744.7' < SC$$

\therefore not within Group II

Group I controlled.

elev. allowed = $189.2'$ from Airport level.
max. height of structure = $189.2' + 30'$
 $= 219.2'$



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1181401

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Question 20

Group B

$n = \#$ of req. gates (European traffic) = ?

	arrivals/hr	%	Mean time	(%) * Mean time
A	20	0.286	45 min	12.86
B	22	0.314	55	17.3
C	18	0.257	65	16.7
D	10	0.143	75	10.7
	$\overline{70}$			

$$\Sigma (\%) * \text{Mean time} = 57.57 \text{ min.}$$

$$t: \text{weighted mean} = \frac{57.57}{60}$$

$$t = 0.96 \text{ hr}$$

$$m = \frac{70}{24} = \frac{\text{air/hr}}{\text{hr}}$$

assume aircrafts arrivals = departures

$$g = 0.5$$

$$m = \frac{70 \text{ arrivals} + 70 \text{ departures}}{24 \frac{\text{hr}}{\text{day}}} = 5.83 \frac{\text{aircraft}}{\text{hr}}$$

$$n = mgt = (5.83)(0.5)(0.96)$$

$$n = 2.8 \approx 3 \text{ gates required.}$$

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1181401.

Question 3°

B757

$$\text{elevation} = 1000 \text{ meters} = 3300 \text{ Ft.}$$

$$\text{normal max. temp. of hoeset month} = 32^\circ$$

$$W_{\text{take off}} = 95\,000 \text{ Kg}$$

$$W_{\text{land.}} = 175\,000 \text{ lb} = 79\,440 \text{ Kg.}$$

Δ = diff. between highest and lowest point in RW $\Delta = 9.5 \text{ m}$

RW Length = ?

Table 18-1° temp. = 32° , elev. = 1000 m.

$$\text{Max. Allowable Landing weight} = 89.8 (10^3) \text{ Kg.}$$

$$= 89\,800 \text{ Kg.}$$

$$(W_{\text{land}} = 175\,000 \text{ lb} , \text{elev.} = 3300 \text{ ft.})$$

\leftarrow $\overset{\Delta}{W}_{\text{max. land.}}$

elevation between $\left(\begin{array}{ccc} 5.42 & \overset{x}{\Delta} & 5.57 \\ & \uparrow & \\ & 3000 & 4000 \\ & & 3300 \end{array} \right)$

$$x = 5.465$$

$$\boxed{\text{RW Length} = 5\,465}$$

Table 18-2°

$$\text{max. } W_{\text{take off}} = 105.5 (10^3) \text{ Kg.}$$

$$\Rightarrow R = 67.1$$

$$= 109\,500 \text{ Kg.}$$

\rightarrow $\overset{\Delta}{W}_{\text{take off}}$ in airport.

$$\left[\begin{array}{ccc} 2205 & \overset{x}{\Delta} & 2599 \\ & \uparrow & \\ & 60 & 70 \end{array} \right] \Rightarrow x = 2484.74 \text{ m}$$

$$(9.5)(10)$$

$$\text{RW Length} = 2484.74 \text{ m} + (9.5)(10)$$

$$\boxed{\text{RW length} = 2580 \text{ m} = 8513}$$

$$\boxed{\text{RW Length} = 8513}$$

This

\leftarrow Control.

\rightarrow 5465 from land.

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Q. 40

Group A

$$S.M = 5280'$$

$$\text{fetch} = 10 \text{ Km} = 10,000 \text{ m} = 33,000' = 6.25 \text{ s.mile}$$

$$W = 10 \text{ Km/h} = \frac{10,000 \text{ m}}{\text{h}} = \frac{33,000'}{\text{hr}} = 6.25 \text{ m.mph} < 20$$

$d = 6 \text{ m}$
inland lake.

$$h_{\text{max}} = ?$$

$U = \text{wind velocity S.MPH.}$

$$H_{\text{max}} = 0.17 \sqrt{UF} + 2.5 - \sqrt[4]{F}$$

~~Equation~~

$$H_{\text{max}} = 0.17 \sqrt{(6.25)^2} + 2.5 - \sqrt[4]{6.25}$$

$$h_{\text{max}} = 1.98'$$