

Name Nauman Khan
ID 5856
Programme B.Tech (Civil)
Semester 14th
Instructor Engr. Atif Afridi
Subject: Highway and Transportation

Paper Solution:

Q No (02)

Given Data:

Gradient : = 2°

meter gauge line with ruling gradient of 1 in 200

Solution:

Now we 1st find ruling gradient.

Ruling gradient : 1 in 200

$$= \frac{1}{200} \times 100 = 0.5\%$$

As per railway recommendation the grade compensation for of M.G. Track is 0.03% per degree curve.

Now we find compensation for a
2° degree curve.

$$0.03 \times 2 = 0.06\%$$

Therefore required ruling gradient or
Actual gradient.

Ruling gradient - grad compensation

$$0.5 - 0.6$$

$$= \boxed{1 \text{ in } 250}$$

Ans

The steepest gradient on the
curve track is 1 in 250

xxx

xxx

xxx

#03

Given Data:

Airport Elevation = R.L = 100

Airport reference Temperature: 30°C

Basic lang of Runway : 856m

Highest point along the length: RL: 98.2

Lowest point along the length: RL: 95.2

Required:

Calculate the actual length of the
Runway.

(i) Now first we find the correction of Elevation.

The Basic length is to increased at the rate of 7% per 300m elevation above mean Sea level.

$$\Rightarrow \text{Correction for Elevation} = 856 \times \frac{7}{100} \times \frac{109}{300}$$

$$\text{Length of Runway after correction for Elevation} = 19.97 \text{ m}$$

$$= 856 + 19.97 = 875.97 \text{ m}$$

(ii) Now we find correction for Temperature standard atmosphere Temperature at mean Sea level: 30°C

\therefore Taking the Temperature gradient as equal to 6.5° per 1000m rise in elevation the standard temperature at the site will be.

$$\text{Temperature of R.L. } 100 =$$

$$15 - \left(6.5 \times \frac{100}{1000}\right) = 14.35^{\circ}\text{C}$$

Difference between airport reference Temperature and standard atmosphere Temperature.

$$(30 - 14.35) = 15.65^{\circ}\text{C}$$

Applying correction at the rate of 1% for every 1°C correction for Temperature

$$\left(\frac{1}{100} \times 875.97\right) \times 15.65$$

$$= 137.89 \text{ say } 138 \text{ m}$$

Corrected runway length =

$$(875.97 + 138)$$

$$= 1013.97 \text{ say } 1014 \text{ m}$$

Now we correction gradient.

$$\text{Effective gradient} = \frac{98.2 - 95.2}{856}$$

$$\Rightarrow \frac{3}{856}$$

$$= 0.0035 = 0.3\%$$

Correction for the effective gradient at the rate of 20%

$$= \left(\frac{20}{100} \times 1014\right) \times \frac{0.5}{1}$$

$$= 101.4 \text{ we can say}$$

$$= 102 \text{ m}$$

Actual length of runway =

$$\left(\overset{1014}{\cancel{1014}} + 102\right) = \boxed{1116 \text{ m}}$$

Ans.

xxx

Ans:

Pakistan transport is primarily dependent on road transport, which make up 90 percent of national passenger traffic and around 96% of freight movement. over the past several years, road traffic (both passenger and freight) has grown much faster than the country over all economic growth.

Most most popular type of transport car, most people use car daily for short and long Journey.

Number of cyclists are fast increasing as it is a cheap and Environmentally friendly method of transport.

To improve the standard of transportation in Pakistan road are most important segment of infrastructure in any developing

Country. The rapid development and economic well being is dependent on the road network. Government take action on old transport in the city to prohibited all type of old transport and make road strong and safe to improve the quality of transportation in Pakistan. Because the transportation is most important part of ~~our~~ any country.

End