

ASSIGNMENT

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B-Tech Civil

Subject

Highway and Transportation

(Q NO:1)

in terms of movement of people.
Which mode of transportation is most common
in Pakistan? What can be done to improve the
standard of transportation in Pakistan?

Transportation

Transport, or transportation, is the movement
of humans, animals, and goods from one
location to another.

Types of Transportation

- 1: Road Transportation
- 2: Rail Transportation
- 3: Maritime Transportation
- 4: Air Transportation

Transportation in Pakistan

Transportation in Pakistan is extensive and varied, and service of population of over 191 million people. In recent years, new national highways have been built, with the addition of motorways which have improved trade and logistics within the country. Pakistan's rail network owned by Pakistan Railways is also undergoing expansion in recent years. Airports and seaports have been built with the addition of foreign and domestic funding.

Improvement of the standard transportation in Pakistan.

In recent years, new national highways have been built with the addition of motorways which have improved trade and logistics within the country. Pakistan.

- (1) Govt must recognise that improving mobility requires transcending. Point to a failure of urban transport planning across Pakistan.
- (2) Growth of Roads and Road Transport in Pakistan; Road transport plays an important role in development of an economy.
- (3) Update all traffic signals in Pakistan to include 21st century traffic system architecture.
- (4) Banned all the old and unregistered local vehicle.
- (5) We need to improved online taxi system this will reduce our traffic problem.
- (6) Design streets for each mode of transportation.

(Q2)

Find the steepest gradient on a curve for meter gauge line with a ruling of 1 in 200. Also briefly describe the step by step process of building a railway track in your own words?

Solution:-

$$\text{Ruling gradient} = 1 \text{ in } 200 = 0.5\%$$

$$\text{Compensation of a } 2 \text{ degree curve} = 0.03 \times 2 = 0.06\%$$

$$\text{Compensated gradient} = 0.5 - 0.06 = 0.04$$

How to build a Railway track

- (1) Spread ballast to the track.
- (2) Track lifting. Lifting each rail up to right place and bedded with ballast.

- (3) Track lining. Switch road to the centerline, make straight line and curve smooth.
- (4) Tamping. once the top ballast is ready, the tamping machine starts to work.
- (5) Filling ballast, filling crib with ballast.

(Q 3)

For a runway to be constructed at Bacha Khan international airport. the following data was given:

Airport elevation ... R.L = 100

Airport reference temperature ... 30 degree

Basic length of the runway ... = 668

Highest point along the length ... R.L = 98.2

Lowest point along length ... R.L = 95.2

Calculate the actual length of runway.

Solution:-

Correction of elevation

The basic length is to be increased at rate of 7% per 300m elevation above mean sea level.

$$\text{Correction of elevation} = 668 \times \frac{7}{100} \times \frac{100}{300} = 15.5$$

Length of runway after correction (for elevation) =

$$(668 + 15.5) = 683.5 \text{m}$$

Correction of temperature:-

Standard atmosphere temperature at mean sea level = 15°C .

Taking the temperature gradient as equal to 6.5°C per 1000m rise in elevation, the standard temperature at the airport site will be;

$$\text{Temperature at R.L } 100 = 15 - \left[6.5 \times \frac{100}{1000} \right] = 14.35^{\circ}\text{C}.$$

Difference b/w airport reference temperature and standard atmospheric temperature = $(30 - 14.35) = 15.65^{\circ}\text{C}$.

APPLYING Correction at rate of 1%

For every 1°C,

$$\text{Correction of temperature} = \left[\frac{1}{100} \times 683.5 \right] \times 15.65^\circ\text{C}$$
$$= 106.6$$

$$\text{Correct runway length} = (683.5 + 106) = 789.5\text{m}$$

$$\text{effect gradient} = \frac{R.L 98.2 - R.L 95.2}{668}$$

$$= 0.04$$

Applying correction for the effective gradient.
at the rate of 20% for each 1%
effective gradient.

$$\text{Correction for gradient} = \left[\frac{20}{100} \times 789.5 \right] \times \frac{0.04}{1}$$
$$= 772\text{m}$$

$$\text{Actual length of runway} = (789.5 + 772)$$

$$= 6.3\text{ Ans}$$