

Name : Kashif Khan

ID : 7846

Sec : "B"

Subject : Highway & Traffic eng

Submitted To : Dr Nadeem

Q1: Keeping in view modes of transportation
Compare railway's with highway's

Highway:

- (1) In highway The frequency of accident are more.
- (2) The maintenance cost is less.
- (3) less load carry capacity
- (4) easily door to door service.
- (5) make life easy. For any distance used.

⇒ Railway:-

- (1) The maintenance cost is more.
- (2) Not available for door to door service.
- (3) more load carrying by railway
- (4) mostly used for long distance.
- (5) less accident chances.

Q2 You are a transportation engineering - You have tasked to conduct office study as a Preliminary step for design of new highway. What reference material you will study and what data you will ~~exta~~ extract?

Ans As a transportation engineer. I will consider following points for office study of highway.

Data Examination :->

- > 1st step in which we look all the available information of which road is to be constructed.
- > No use of any photogramatic technology.

Data Sources :->

Data is collected in form of

- > Maps, Charts, Aerial Photograph, CAD Visuals,
- > Existing Engineering Projects e.g dams.
- > The data sources are majorly available with national and provincial departments.
- > The type of data to collected is dependant on the highway type.

Topography of Data Collection :-

- > Social & Demographic includes land use and zoning pattern.
- > Environmental includes type of wild life historical sites, location of Recreational area about the water pollution.
- > Economic including unit cost for Construction and the trend of agricultural -structure, Commercial and Industrial Activities.
- > Engineering include geology, Climate & traffic volumes.

Preliminary Analysis of Data :-

- > It will indicate if any specific sites should be excluded from consideration.
- > In the presence of any historical, Archeological sites the routes the routes that transverse it is excluded from further consideration.

Q3: What is the importance of vehicles (4)

Performance in highway design :->

Ans Vehicle performance is important in highway design because.

- (1) Adequate passing and stopping sight distance.
- (2) maximum grade.
- (3) timing of signalized intersection.
- (4) Climbing & passing lanes.
- (5) Freeway ramps.
- (6) setting speed limit.
- (7) Acceleration and deceleration lanes.
- (8) Braking characteristic also affects vehicle performance.

Q4) Write short Note on Directional Distribution in design of highway?

=> Directional Distribution :-> Highway must be design adequate

serve the peak hour, traffic volume in the peak direction of flow - In directional distribution the total traffic hourly in both direction is used to design two lane roads.

for the design of highway having more than two lanes $\frac{1}{2}$ on two lanes road. if any important Intersection are needed. or need to provided additional lanes later.

Knowledge of hourly traffic volume for each direction of travel is essential.

e.g

if 80% of the DHV in one direction at least three lanes in each direction would be provided for the 3200 UPH.

Q5 Explain broad classification of surface distress modes.

Ans Below are the classification of surface distress mode.

(1) Fracture :->

This could be in the form of cracking or breaking, generally due to excessive loading and thermal changes.

(2) Disintegration:

This is in the form of stripping or removal of paving materials which can result from such things as loss of bonding and chemical reactivity - traffic abrasion, aggregate degradation or binder aging.

(3) Distortion :->

This is in the form of deformation which can result from such things as excessive loading densification or subgrade.

Q6: Explain Alligator Cracking, block Cracking, Longitudinal cracking & Transverse Cracking? (7)

Ans Alligator Cracking :->

Alligator cracking is a series of interconnecting cracks caused by fatigue failure of a asphalt surface under repeated traffic loading. The cracks initiate from the bottom of the asphalt surface where tensile stress and strain is highest under a wheel load.

(2) Block Cracking :->

Block cracks are interconnected cracks that divide the pavement into approximate rectangular pieces. Block Range in size 1 by 1 foot to 10 by 10 feet. It is concrete caused by shrinkage of the asphalt concrete and daily temperature.

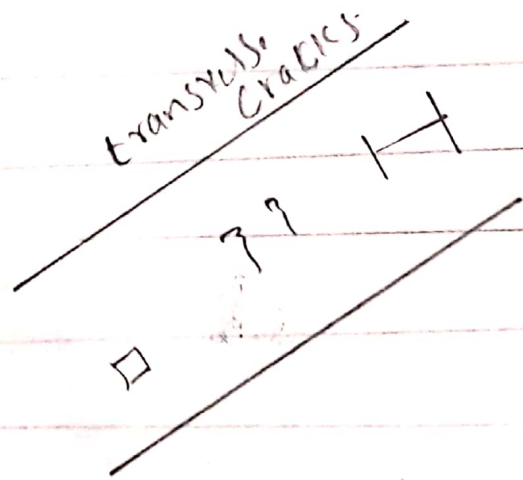
(3) Longitudinal Cracking :->

Longitudinal cracks are parallel to the pavement's center line or lay down direction caused by poorly constructed

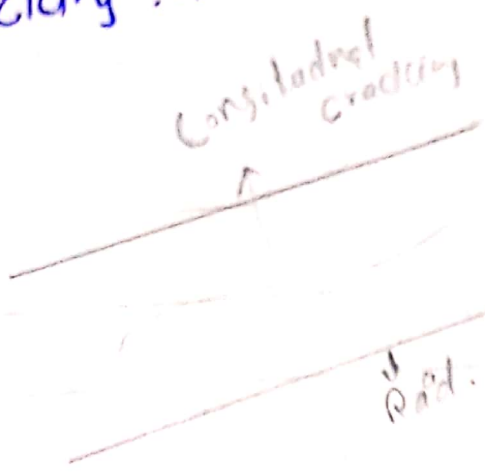
Paving lane joint . the shrinkage of Ac surface due to low temperature of the asphalt.

(4) Transverse Cracking :-

Transverse cracks extend across the pavement at approximate right angles to the pavement center line or direction of lay down. These type of cracks are not usually load associated.



Longitudinal Cracking :->



Block Cracking :->

