

Paper :- HIGHWAY & TRAFFIC ENGINEERING ①

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Q1 keep in view different modes of transportation compare railways with Highways.

Ans :- MODES OF TRANSPORTATION COMPARE with ~~Different~~ Railway & Highways.

There are different modes of transportation. A human being has always remained surrounded by three basic medium known as land, water, air. The modes of transportation are also connected to these three mediums. The land used for the development of road & rail transport, while water & air have developed water ways & air ways respectively. Thus there are four different modes of transportation are follow.

① Road ways ③ water ways

② Rail ways ④ Air ways

- ① The steel rail are laid along the route.
- ② They are more suitable for long distance journeys.
- ③ They can transport heavy & bulky loads.
- ④ They are supposed to be the safe comfortable & cheapest ways of transportation.

- ① These are the primary & early modes of communication on the land.
- ② They are use full for long as well as short distance.
- ③ They are most suitable for light loads & small values.
- ④ They link up the trade centers & other communication such as railways, sea way & airways.

Q No 2 You are ----- you will extract

Ans STEP FOR DESIGN HIGHWAYS :-

① Collect Basic data :-

The basic data that we need topographic map of the area that we build roads.

② IDENTIFICATION location of the roads :-

we identify the class of road that we will create from the starting points to end point of road construction plan.

③ Determine road criteria :-

We need to classified our road based on the road function vehicles Plan VLR & VSR & our design speed.

4) Determine optimal road alignments :-

We can determine over road alignments base on basic data Alignments have few types such as horizontal & vertical alignments.

The main product used in the construction of a highway pavement are aggregates asphalt concrete & other hydraulic bond material & small element pavers blocks, slab & bricks.

Traffic volume when the road open

Traffic volume at the end of the project life

Q3 what is the importance of vehicle performance in highway design

Ans: → VEHICLE PERFORMANCE IN HIGHWAY DESIGN: →

In sight into highway design & traffic operation. To be able to accommodate a large variety of vehicles. The basic to understanding vehicle designs & their impact on performance of road vehicles forms the basic for road ways design guide lines such as

- 1) length of acceleration / deceleration lanes
- 2) maximum grades.
- 3) stopping - sight distance.
- 4) Passing - sight distance.
- 5) setting speed limits.
- 6) timing of signalized intersections.

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Q4. write short note on directional distribution in design of highways.

Ans: → Directional Distribution :

The directional distribution is defined as the percentage of heavier volume over the total highway volume.

Accounts for the directional distribution of traffic.

Used to convert average daily traffic to directional peak hour traffic

For example, consider a rural road with a design volume of 4000 vehicle per hour (vph) for both direction of travel combined. If during the design hour the directional distribution is equally split or 2000 vph in one direction, two lanes in each direction may be adequate. If 80 percent of DHV is in one direction, at least three lanes in each direction would be needed for the 3,200 vph.

Q5. Explain broad classification of surface distress modes.

Ans Classification of surface distress modes:

These are three classification of surface distress modes are given below:

- 1) Fracture
- 2) Distortion
- 3) Disintegration.

FRACTURE :-

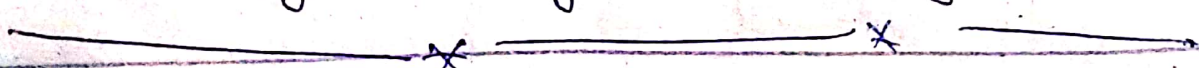
This could be in form of cracking. in flexible & rigid pavements.

2) Distortion :-

This is in the form of deformation. (rutting, corrugation & shoving).

3) Disintegration :-

This is in the form of stripping, raveling or spalling.



Q6 - Explain Alligator cracking, block cracking, longitudinal crack & transverse cracking.

Ans 1) ALLIGATOR CRACKING :-

Alligator cracking refers to a surface damaged in such a way that the cracks form a pattern that look like reptiles scales most notably those on an alligator crocodile's back. The pattern usually begins with longitudinal cracks, which are then connected by transverse cracks.

2) BLOCK CRACKING :-

Block cracking is a series of large (typically one foot or more rectangular cracks) on an asphalt pavement's surface. This type of cracking typically covers large area & may occur in area where there is no traffic. Block cracking is typically caused by shrinkage of the

asphalt pavement due to temperature cycles

3) LONGITUDINAL CRACKING: -

Longitudinal cracks occur parallel to the centerline of the pavements. They can be caused by a poorly constructed joint shrinkage of the asphalt layer cracks reflecting up from an underlying layer & longitudinal segregation due to improper paving operation.

4) TRANSVERSE CRACKING: -

Transverse cracking is an unconnected crack that runs across a road pavement, perpendicular to the direction of road.

