

Q#1Compare Highway and RailwayHighway

- 1) It is any public or private road used to connect cities and towns.
- 2) It gives the maximum service to one and all.
- 3) It requires less/small investment for the government.
- 4) It saves time.
- 5) Higher degree of accident due to flexibility movement.

RAILWAY

Railway tracks are used only by railway locomotives.

a permanent track composed of line of parallel metal rails used for transporting goods & people.

It requires more investment for the government.

It does not save time.

less accident occur due to uniform movement.

Q#2 Office study as a preliminary step for design of new highway: what data or reference material you will study and what data you will extract.

⇒ REFERENCE MATERIAL

During this phase of the study, the position of the feasible routes are set as closely as possible by

- ⇒ Establishing all the control point.
- ⇒ Determining preliminary vertical and horizontal alignments for each.
- ⇒ Preliminary alignments are used to evaluate the economic and environmental feasibility of the alternative routes.

⇒ DATA EXTRACTED:

- Road user costs.
 - Construction costs.
 - Maintenance costs.
 - Road user benefits.
 - Road user dis-benefits, such as adverse impacts due to dislocation of families, businesses, and so forth.
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Q#3IMPORTANCE OF VEHICLE IN HIGHWAY DESIGN:

Following are the importance of vehicle in highway design.

- ⇒ Passing sight distance.
 - ⇒ Setting speed limit.
 - ⇒ Maximum grades.
 - ⇒ Turnout bays for buses.
 - ⇒ Acceleration and deceleration lanes.
 - ⇒ Timing of signalised intersection.
 - ⇒ Highway Alignment.
 - ⇒ Freeway Ramps.
 - ⇒ Length of Acceleration.
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Q#4:DIRECTIONAL DISTRIBUTION IN DESIGN OF HIGHWAY

Highway must be designed to adequately serve the peak-hour traffic volume in the peak directional flow.

The directional design hour volume (DDHV) is the one-way volume in the predominant direction of travel in the design hour, expressed as percentage of the two-way (DTHV).

For ~~rural~~ rural and suburban roads, the directional distribution factor (D) ranges from 55 to 80%.

A factor approximately 50% is used for urban highways. Directional distribution can change during the day for example:

Traffic volume heading into the central business district is usually higher than outbound traffic in the morning, but the reverse is true during the afternoon peak hour.

Q#5CLASSIFICATION OF SURFACE DISTRESS MODES:

Surface Distress Modes can be broadly classified into 3 groups.

1- Fracture:

This could be in the form of cracking, due to excessive loading.

2- Distortion:

This is in the form of deformation, due to creep, densification, consolidation, swelling or frost action.

3- Disintegration:

This is in the form of stripping or spalling, due to loss of bonding, chemical reactivity, or aggregate disgradation.

Q#6:Explain The Following:1- Alligator cracking:

Alligator cracking is a term commonly used to describe the distinctive appearance of an asphalt surface that has suffered fatigue damage. It is also known as crocodile cracking.

2- Block cracking:

Inter connected cracks that divide the pavement up into rectangular pieces. Block range in size from approximately 0.1m^2 (1ft^2) to 9m^2 (100ft^2). Block cracking normally occur over a large portion of pavement area but sometimes will occur only in non-traffic areas.

3- Longitudinal cracking:

Cracks parallel to the pavement's centerline or lay down direction. Can be type of fatigue cracking or top down cracking.

4- Transverse cracking:

Cracks perpendicular to the pavement's centerline or lay down direction. usually a type of thermal cracking.