

NAME # PAUER STODRIQUE

ID # 7863

SECTION # B

Semster # 6<sup>th</sup>

SUBJECT # HIGHWAY & Traffic

" MID - EXAM "

Q.No.1

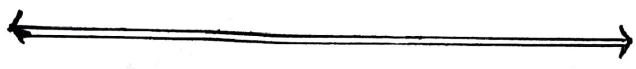
⇒ Keeping in view modes of transportation Compare Railway with highway.

⇒ RAILWAYS:

- \* The load carrying capacity is more.
- \* It is suitable for long distance.
- \* The maintenance cost is more -
- \* Door to Door Service is not available.
- \* In Railway the frequency of accident is less.

⇒ HIGHWAYS:

- The road carrying capacity is less.
- It is suitable for short distance.
- The maintenance cost is less.
- Door to Door Service is available.
- The frequency of accident is less.



Q.No.2

(3)

⇒ You are a transportation Engineer. You have been tasked office study conduction a preliminary step for design of new highway. What reference material you will study and what data will you extract?

ANSWER:

Being a transportation engineer I will consider the following steps office study for highway.

⇒ DATA EXAMINATION:

→ It is the first step in which we examine all available data in which the road is to be constructed.

→ There is no use of photogrammetric investigation in this phase.

⇒ DATA SOURCES:

\* The DATA sources are majorly available with national and provincial departments.

→ Mostly the data is collected in form of;

→ Maps → Aerial photographs → charts

→ CAD visuals → Existing engg. projects e.g. DARRS.

④  
⇒ The type of data to be collected is dependent in the highway type.

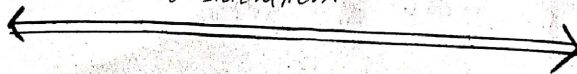
### ⇒ Topography of DATA COLLECTIONS

- Engineering includes Geology, climatic & traffic.
- Social Demographic includes land use and zoning patterns.
- Economic including unit cost for construction and the trend of agricultural and commercial and industrial activity.
- Environmental include location of recreational and historical sites effect the air, noise and water pollution.

### ⇒ Preliminary Analysis of DATA

It will indicate if any specific site should be excluded from consideration. At the completion of this phase the engineer will be able to select generally areas through which highway can transverse.

On the presence of any historical, archeological sites the route that transverse it is excluded from their consideration.



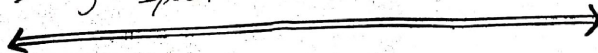
Q.No.3

⇒ What is the importance of vehicle performance in highway design?

ANSWERS

The vehicle performance in highway design is very important because of following parts.

- Adequate passing and stopping sight distance.
- Maximum grades
- Acceleration & deceleration lanes.
- Timing of signalized intersection.
- Braking characteristic also affects vehicle performance.
- Climbing or passing lane.
- Freeway Ramps
- Setting speed limits.



Q No. 4 :-

(6)

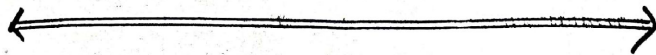
⇒ Write a short note on Directional Distribution in Design of highway?

ANSWERS Directional Distributions :-

Highway must be design adequate serve the peak-hour traffic volume in the peak direction of flow. In directional Distribution the total traffic hourly ~~Distribution~~ in both directions is used to be designed two lane roads in the design of highway with more than two lanes and on two one roads where "additional" important intersections are encorted or where additional lanes are to be provided better knowledge of the hourly traffic volume for each direction of travel is essential.

⇒ EXAMPLES

If 80% of the Dhu is in One direction at least three lanes in each direction would be needed for the 3200 vph.



Q.No. 5:

(7)

⇒ Explain broad classification of Surface Distress mode?

ANSWER:

Following are the classification of Surface Distress mode.

(i) Disintegrations

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

(ii) FRACTURE

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

(iii) Distortions

This could be in the form of, <sup>result</sup> Deformation, which can result from such things as excessive loading, densification or subgrade issue.



Q No. 6 is

8

⇒ Explain Alligator cracks, block cracking longitudinal cracking & transverse cracks.

ANSWER: (i) Alligator cracking :-

Alligator cracking is a series of interconnection 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 highest under a wheel load.

(ii) Block cracking :-

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



(iii)

### LONGITUDINAL CRACKING

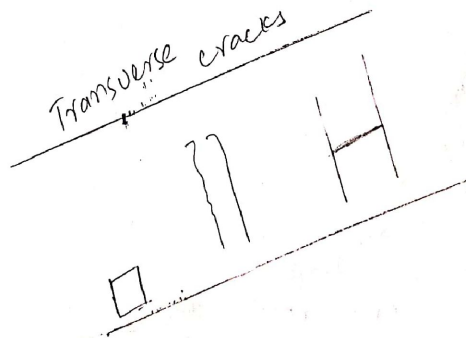
(9)

longitudinal cracks are parallel to the pavement centre line or lay down direction caused by poorly constructed paving joint the shrinkage of the AC surface due to low temp. of asphalt surface.

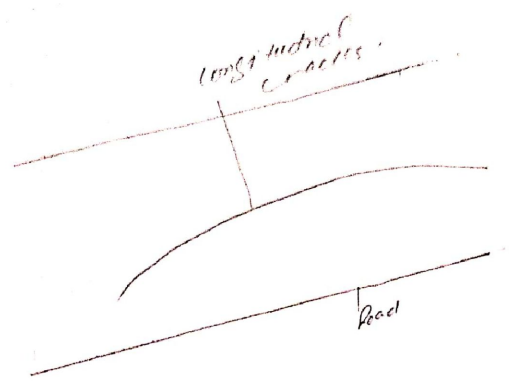
(iv)

### Transverse Cracking

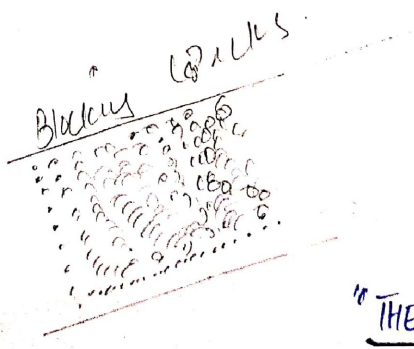
Transverse cracks extend across; the pavement at approximate right angles to the pavement centre line direction of laydown these type of cracks are not usually load associated.



⇒ Longitudinal cracking is



⇒ Blocking cracks



"THE END"