Mid Term

Exame Online

Name M. Mansoor

ID No 7810

Section "A"

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Subject Highway And Traffic Engineering

Submitted To Dr. Nadeem

Q#01 Keeping in view different Mode of Transportation compare railway with Highway

Railway	Highway
→ The transportation along the railway track could be advantageous by railways b/w the station	→ it gives maximum flexibility for travel with refrence to route choice direc-ion time and traveling speed.
→ it depend upon the road transport	→ Others Modes are depend on it.
→ Do not provide door to door Service	→ it provide door to door service.
→ Save time for long distance	→ Save time for short distance
→ it require large invesment for the goverment	→ it require small invesment for the goverment
→ Minimum crash rate occure if handled carefully	→ High degree of accedent due to flexibility of Movement

Q No 02 you have a Transportation Engineer you have been tasked to conduct office study as a preliminary step for the design of New highway what refrence material you will study and what data you will extract

As a transportation Engineer I have been design a new highway the following Material I will study and data I will extract as preliminary step of office study.

-> The position of the feasible routes are set as closly as possible by

1) Establishing all the control Point

2) Determine Preliminary vertical and horizental for each

-> Economic Evaluation:-

Economic evaluation of each alternative route is Carried out.

→ The following factor considered in economic ~~eval~~ evaluation
- * Road user costs
- * Construction costs
- * Maintenance costs
- * Road User benifits

Envirmental Evaluation:-
Higway Construct at any location. Significant impact on Surrounding

→ The Construction of a highway at a given location may result in significant change in one ase more variable

→ Essential to evaluate environmental of alignment selected.

→ In Case Envirmental Impact Study (EIS) is required it is conducted it this Stage to determine The Envirmental impact of each alternative route.

→ EIS will determine the negative and/or positive effect The higway facilety will have no enviroment.

Q No 03 What is the importance of vehicle performance in Highway design

Importance of vehicle performance in Highway design are.

- Static
- Dynamic
- Kinematic

⇒ Statics:

The weight and size of vehicle is important in determine. The physical component of Highway such as

- lane width
- shoulder width
- length and width of parking bays
- length of vertical curve
- pavement depth

⇒ Dynamics:-

Force that act on vehical while it is an motion.

1) Air Resistance
2) Grade Resistance
3) Rolling Resistance
4) Curve Resistance

Kinematic importance

primary element is the accelaration and deaccelaration capability of vehicale.

→ Accelaration is important in operation of passing and gap acceptance.

→ involve the study how ~~atcelor~~ accelaration rate influence the element of motion such as velocity distance and time.

Q NO 4 Write short Note on Directional distribution in Design of Highway

Directional Distribution :-

Directional distribution is simply the distribution or split of the total trafic volume in two opposite direction of trafic flow

-> Highway must be design to adequate serve the Peak hour trafic volume in Peak direction of flow

-> Two line road design for total hourly trafic in both direction.

-> In the design of higway with more then two line where importance intersection are encountered or where additional lines are to be provided latter.

-> Directional traffic is used for Multilane road or streets

→ Mostly one direction contributes by 55-70% in total trafic although occansionally 80% observed.

QNO 05 Explain broad classification of surface distress Modes

Distress :-

Distress is a condition of a pavement structure that reduce serviceability or lead to reduction in service life.

→ Distress is any indication of poor or unfavorable pavement

Classification of Surface Distress Mode :-

Surface Distress mode can be broadly classified into Three group.

1) Fracture
2) Distortion
3) Disintegration.

1) => Fracture :-

Fracture can occure in the form of cracking or breaking, genrally due to high loading, fatigue, Thermal changes

2) => Distortion :-

Distortion occure in the form of deformation which are reason due to high loading, densification consolidation or Sub grade issue

3) => Disintegration :-

Disintegration occure in the form of stripping or raveling or removal of paving material. which can result from such thing loss of bonding, chemical reactivity etc.

Q No 06 Explain Alligator cracking, block cracking, longituding cracking and Transverse cracking.

Alligator Cracking:

Alligator cracking is the combination of fatigue and block cracking

→ Alligator crack is the series of interconnected crack at various stage of development.

→ Alligator cracke is one of the most series issue that can effect an asphalt surface in Austin

→ it is one of the most costly problm to repair

→ Alligator crack occure in those area subjected to repeated traffic loadings.

Block Cracking:-

→ Block cracking are those cracking that the crack aq pattern divide pavement

into approximatly Rectangular pieces with side generally longer then one feet.

-> The size of the Rectangular block is from approximatly $0.1m^2$ to $10m^2$

-> The Block cracking mainly occure due shrinkage of asphalt.

Longitudinal Cracking:-

Longitudinal craeking occure in pavement parallel to the pavement center line.

-> longitudinal crack occure on the location of with in the line is significant.

-> Causes of the longitudinal cracking mainly expansion and contraction of pavement Material, road bed settelment poorly constructed paving joint.

Transverse Cracking:-

Transverse cracking are occure across to the centerline which are not due to the reflection cracking.

→ The causes of Transverse Cracke are also expansion and contraction of pavement material, road bed settelment poorly constructed paving joint-