REVIEW TOPICS CEEN 2320 TEST 1

3.1 INTRODUCTION

Be familiar with the use of Figures, Tables and equations (attention to units in equations).

Which publication (title, author) is the source of information on highway design used in the class?

What do the initials AASHTO mean?

3.2 SIGHT DISTANCE

What sight distance characteristics should the highway designer strive to provide for drivers? What driver actions should the provided sight distance be adequate for?

What sight distance provision is specific to two-lane, two-way roadways? What driver actions should this provided sight distance be adequate for?

Know all five aspects of sight distance considered in design and be able to provide an example and explain each (not just list definitions).

Know the sight distance definition provided in section 3.2.2 (full sentences)

Know the components of the stopping sight distance (SSD) – explain each in full sentences.

What factors influence how long driver reaction time is? Know at least five factors that may contribute to longer driver reaction times.

Be able to provide an approximate average reaction time to an expected situation. Know how much additional reaction time is typical for unexpected situations. Be able to give two examples of unexpected situations mentioned in class.

What is the AASHTO-recommended driver reaction time? What percent of drivers is expected to react faster/slower (choose the correct option) that this time?

Know how to apply the equations mentioned in class.

Know the recommended typical deceleration value (in ft/s^2) for wet pavements by heart.

Know how to apply the deceleration formula for any given grade.

Know what is the Decision Sight Distance, when it is applicable (in what situations-with specific examples), what driver actions are expected within this distance, and how it relates to the length of the SSD.

Where is passing sight distance applicable (what types of roads?)

What goals should be accomplished through the proper design of a passing zone, if the passing driver is to avoid interfering with an opposing vehicle?

What assumptions do theoretical passing maneuver models make about passing drivers?

What should the **minimum** passing sight distance allow drivers to do?

Passing sight distance with two or more lanes in each direction—discuss.

3.3 HORIZONTAL ALNIGNMENT

"The design of roadway curves should be based on an appropriate relationship between…" (Provide which highway design elements and how they relate to each-other.)

Know how to use the equations relating e_{max}, $f_{s\ max}$, R_{min}, $V_{design.}$ Know the ranges of each of these variables in highway design.

Know the difference between f_f and $f_{s\ max}$.

What considerations limit the values of superelevation (explain in full sentences). Be able to provide a full explanation for each consideration.

What is the concern about superelevation when there is snow or ice on the pavement?

What concern about superelevation exists in relation to heavy vehicles?

What is the designer's goal when deciding the magnitude (value) of the radius of a horizontal curve? What motivates the designer to strive for this goal?

Know the typical ways that tangents connect to horizontal curves. Be able to demonstrate with a clear figure.

Know the terms for all elements of horizontal curves, their symbols and /or abbreviations (for example, PC, PI, PT)

Know the definition of Degree of curve-be able to apply it in a simple problem.