

SAMPLE PROBLEMS FOR THE CVL735 MIDTERM EXAM

NOTE: Some of these questions may actually be included in the mid-term exam

The objective in providing these is to guide your review of important course material concepts. Thus, solutions are not available and help in answering these questions directly would be very limited.

1. In one short sentence, explain why sight distance is important on sag vertical curves.
2. Identify three road design elements that might be affected by a driver's perception-reaction time.
3. In one short sentence, explain why the spiral length for a horizontal curve on a four lane road might be longer than that required for a two lane road.
4. Identify three advantages and/or trade-offs of a roundabout approach centerline alignment offset left of center of the inscribed circle of a roundabout/
5. In selecting the configuration for a passing lane, explain why placing adjoining passing lane tail-to-tail might be preferable to placing them head to head.
6. Identify three key characteristics of a diverging diamond interchange
7. Identify three key elements used in estimating minimum passing sight distance on two-lane roads.
8. Identify three road design elements that might be affected by a driver's perception-reaction time.
9. In the design of a vertical curve to connect two tangents, explain the relationship between the "K-values" and the rate of change of grade.
10. Identify 3 factors that should be considered in classifying a road as freeway, arterial, collector or local.
11. In two short sentences, explain why there are limits to the maximum side friction factor and superelevation rates for designing horizontal curves.
12. Identify three key lessons learned about designing roads in general from the Highway 407 safety review.
13. Identify three "traffic factors" that need to be considered in the design of an intersection?
14. Identify 3 factors (other than grade and length of grade) that should be considered in determining whether or not a climbing lane is required on an upgrade two-lane road section.
15. Identify two aspects of road design that might be affected by the characteristics of a design vehicle.
16. In one or two short sentences explain the differences between design speed, posted speed and operating speed.