

1a. The geometric design of highways encompasses the design of features of the roadway associated with _____, _____ and _____ travel.

The design process takes into account the range of different _____ and _____ types that are likely to use the facility, the topographic and land use characteristics of the area that surrounds it, and the costs involved in _____ and _____ the highway. In addition, highway also requires a balance between many overlapping and often competing functions and needs that will affect the _____, _____ and _____ of the roadway.

If the illumination in a transportation system is not proper, then it will fail. So, given below few important quantitative terms needed for the evaluation of light measurements. Luminous intensity (I) measured in _____ or international candles, and luminous flux (F), measured in _____, are related terms defining the emission of light from a particular source. They can be considered broadly as referring to _____ in a particular _____ and the rate of _____ of light. Illumination (E) is measured in terms of _____ received by a _____ per unit _____ and is measured in _____ per _____.

2. The light from a source received on a road surface (say a plane) normal to the incident light will be proportional to the _____ of the _____ of the plane from the source. Tell it will be proportional to which form. Fill up the gap and prove it with fundamental principle of geometry.

3. In geometric design we not only deals with straight roads but also with various types of curves. Develop a formula applying to a moving car around a bend (use the symbol like: v, θ, r, t, a, F , etc to represent the appropriate attributes). Start from the first principle of the phenomena.

4a. Draw the following showing all details (including traffic circulation)

i) round about ii) clover leaf interchanges.

b. Discuss where and why we will use these.

5.a) what is the use of cul-de-sac? Do you think this is a good measure in traffic calming? What are the other methods we can use for traffic calming? Explain their functions