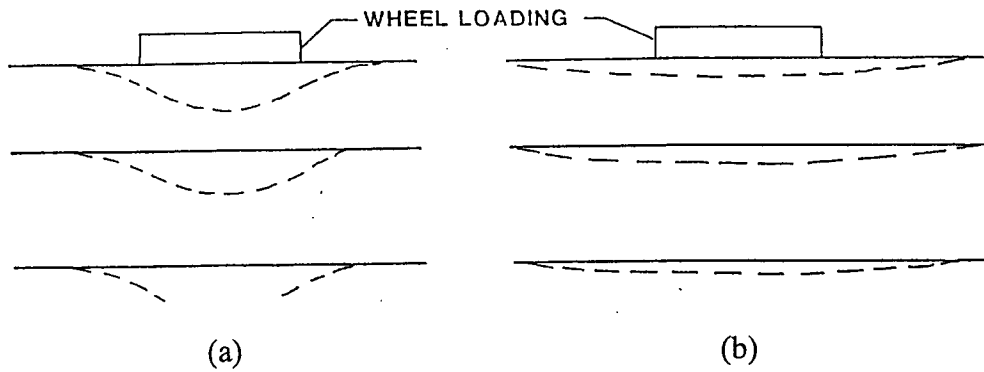


所有題目均可以用中文或英文作答。

1. (20%) The braking distance is a very important factor in highway geometric design. Given the percentage of grade G , coefficient of friction between tires and roadway f , and vehicle speed V , please derive the braking distance d as a function of G , f , and V .
2. (20%) An important part of a highway system is the intersection. There are several general types of intersections, namely, simple intersections at grade, rotary intersections, grade separations without ramps, and interchanges. Please explain these intersection types and comment on the advantages and disadvantages of each type.
3. (15%) Please derive the overturning force of a vehicle traveling at v (km/h) on a curve with R (m) of radius. The mass of the vehicle is m (kg) and the superelevation of the curve is e (degree). [centrifugal force $F = \frac{mv^2}{R}$]
4. (5%) How would you determine the design traffic volume for a highway?
(5%) What parameters would you need to determine number of lanes of a highway?
5. (10%) Please compare satellite terminals to pier-finger terminals for an airport.

(背面仍有題目,請繼續作答)

6. (10%) In the figure shown below, which one represents deformation and stress distributions of rigid pavements? Please explain why you choose it.



7. (15%) Please explain in detail the figure shown below about designing the length of sleeper (tie) of railway.

