

所有題目均可以用中文或英文作答。

1. Highway

CWR is favored in high quality railroad. Please answer the following questions.

- a. What does "CWR" mean? (5%)
- b. Please explain the problem of long rail with an equation. (10%)
- c. What are the key factors of preventing rail longitudinal movements? (5%)
- d. What kind of failure will happen to the rail laid in cold weather? (5%)

2. Airport

- a. What kind of analysis is required to determine the orientation of runways? (5%)
What is the general requirement for wind coverage of an airport? (5%)
- b. How would angle of runway exits affect airport capacity? (5%)
- c. What are the advantages and disadvantages of a terminal design with transporter concept? (5%)
- d. What role does noise prediction play in airport planning? (5%)

3. Highway

- a. Please state the key issues of construction procedures for high quality embankment/subgrade. (10%)
- b. What kind of test is usually conducted to ensure embankment compaction? (5%)
- c. Please derive the equation correlating vehicle speed, curve radius, and superelevation. (10%)
- d. What are the main purposes of a transition curve? (5%)
- e. Why does the design guide specify the minimum longitudinal slope? (5%)

4. Building a new international airport in central or southern Taiwan is a hot issue recently. Please write down your opinion from the global viewpoint of transportation engineering. (hint: feasibility, location selection) (15%)