

所有題目均可以用中文或英文作答

1. (15%) Vertical curves are an essential part of the highway profile. Please explain what is a vertical curve, and specify how to determine the length of a vertical curve.
2. (20%) List some of the most important factors that should be taken into consideration when designing the orientation of an airport runway. It is common for airports to have multiple runways. Explain why some airports have parallel runways, while others have non-parallel runways.
3. (15%) Merging of airline companies have happened many times in the past. Please explain why from an economic point of view.
4. (10%) Please compare the mechanisms of rigid pavement and flexible pavement in supporting wheel loading.
5. (10%) How would the length of sleeper affect its loading capacity?
6. (10%) 請以 $e = \frac{v^2}{127R} - f$ 公式說明免設超高彎道半徑之原理與計算

以下文字係摘錄自高速公路局中山高速公路拓建工程(重要計畫)簡介說明

「中山高速公路台南都會區拓寬工程及增建小東路交流道工程：台南都會區路段自南二高系統交流道至關廟系統交流道(約 15.2 公里)，規劃方案為主線雙向各拓寬一車道，於主線二旁增設側車道，以疏導短程地區性交通，增設單向二車道之主線高架橋，並增設小東路交流道銜接高架橋，另仁德及永康交流道亦併同改善。」

7. (10%) 請說明何謂「側車道」？何謂系統交流道？
8. (10%) 請說明都會區增設之交流道銜接於高架橋之意義。