

1.

A sample of moist soil was found to have the following characteristics:

Volume:	0.01456 m ³ (as sampled)
Mass:	25.74 kg (as sampled)
	22.10 kg (after oven drying)
Specific gravity of solid:	2.69

Find (1) density, (2) void ratio, (3) porosity, and (4) degree of saturation for the soil.
(20 points)

2.

Find the best answer(s) for each question. (2 points each)

- (1) 下列哪些是公路工程的三要素 (a)路工, (b)共同管道, (c)隧道, (d)橋樑, (e)停車場
- (2) 瀝青混凝土的鋪築和滾壓都須嚴格控制主要是根據 (a)時間, (b)人力, (c)經費, (d)距離 (e) 溫度
- (3) 公路幾何設計中，計算轉彎半徑所用的摩擦係數與停車視距所用的摩擦係數不同，且後者之值較小。(True or False)
- (4) 土木工程進行大都依循一定步驟，下列為其要項，請依進行先後排列(a)施工, (b)規劃, (c)維修, (d)管理, (e)設計。(答案範例：a→b→c→d→e)
- (5) 機場跑道設計乃是依照飛機起飛時的荷重設計，並不是飛機降落時的荷重。(True or False)
- (6) 假如某單一橋跨跨徑是 300 公尺，穿越河流，且此項工程只包含這 500 公尺的橋樑，較適合的施工法為 (a)預鑄節塊, (b)支撐先進, (c)節塊推進, (d)懸臂架設 (e)現場支撐
- (7) 針入度為 85/100 的瀝青較針入度為 60/70 的瀝質地來得硬。(True or False)
- (8) 公共工程施工品質目前分三級品管，其中第一級為主管機關，第二級為主辦單位，第三級為承包商。(True or False)
- (9) 公路種類一般依據兩項原則做功能性分類，這兩項原則是 (a)可及性, (b)區域性, (c)易行性, (d)舒適性, (e)安全性
- (10) 解決土木工程所面臨的實務問題可從三個方向考量：理論上是否合理、計算模擬是否正確，和現場試驗是否可驗證。(True or False)

(背面仍有題目,請繼續作答)

3.

A 14 foot simple beam is uniformly loaded with 200 pounds per foot over its entire length. If the beam is 3.625" wide and 7.625" deep, what is the maximum bending stress? What is the maximum shear stress? (20 points)

4.

為確保混凝土具有良好的耐久性，試由設計、施工及管理的層面，說明相關要點。
(20 分)

5.

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and details of the nature and amount of the delay or disruption likely to be suffered if it is late.

請說明此段的背景與意義 (20 分)