

系所組別： 生物醫學工程學系甲、丁組

考試科目： 材料導論

考試日期：0225，節次：2

I 解釋名詞 (文字敘述或圖示)：(50 分，每題 2 分)

1. Alloy
2. Activation Energy
3. Annealing point of glass
4. Austenite
5. Brittle fracture
6. Carburizing
7. Charpy test
8. Cold working
9. Copolymer
10. Crystallinity
11. Ductile fracture
12. Edge dislocation
13. Extrusion
14. Ferrous alloy
15. Fine pearlite
16. Foam
17. Frenkel defect
18. Galvanic corrosion
19. Grain growth
20. Intergranular fracture
21. Liquidus line
22. Metastable
23. Passivity
24. Scanning probe microscopy
25. Wrought alloy

II 計算及簡答題 (50 分，每題 10 分)

1. Describe and explain three strengthening mechanisms. Be sure to explain how dislocations are involved in each of the strengthening technique.

(背面仍有題目，請繼續作答)

2. Name two thermal properties of a liquid medium that will influence its quenching effectiveness.
3. Demonstrate that the minimum cation-to-anion radius ratio for a coordination number of 8 is 0.732.
4. The lower yield point for an iron that has an average grain diameter of 5×10^{-2} mm is 135 MPa. At a grain diameter of 8×10^{-3} mm, the yield point increase to 260 MPa. At what grain diameter will the lower yield point be 205 MPa?
5. Explain why it is important to grind cement into a fine powder.