

國立虎尾科技大學 103 學年度第一學期博士班資格考試題

所別：動力機械系機械與機電工程博士班

第 1 頁 共 2 頁

科目：工程材料

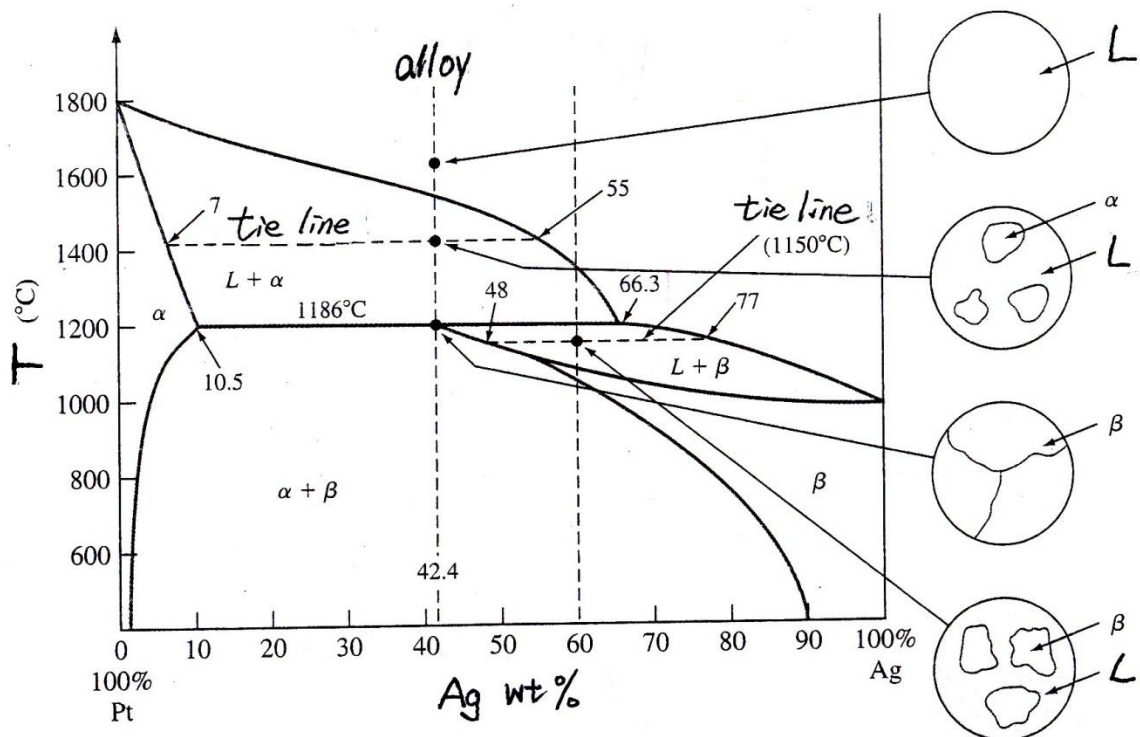
注意事項：

- (1) 本試題共有 4 題，每題 25 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號。
- (3) 可使用計算機，close book

- (1) If the copper atoms have a radius of 0.128 nm, determine the density in FCC and BCC structures. (Note: atomic mass of copper is 63.54 g/mol, Avogadro's number is 6.02×10^{23}). 25%

- (2) To discuss the definitions of (a) Young's modulus; (b) Yield strength; (c) Tensile strength; (d) Toughness; (e) Brittle fracture in separate stress-strain diagram. 25%

- (3) In the Pt-Ag (Platinum-Silver) equilibrium phase diagram, determine the component and ratio of phases in the following points. (a) 42.4 %Ag at 1400 °C; (b) 42.4 %Ag at $1186 + \Delta T$ °C. 25%



- (4) In the Fe-Fe₃C equilibrium phase diagram, discuss the heat treatment for (a) full annealing; (b) normalizing; (c) quenching; (d) tempering. 25%

