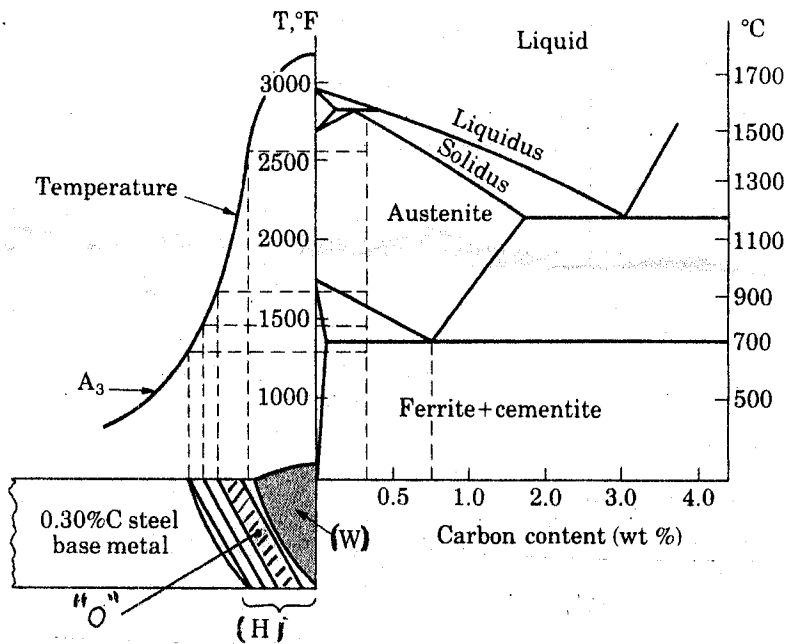


所別：中國文學系碩士班 乙組 科目：國文

- 一 1. 如下附圖為含 0.3% 碳鋼鋁件的相關位置和溫度關係圖，
- 請說明 (W) 和 (H) 位置的名稱？
 - 斜線部分 "O" 的微結構為何？
 - 提高鋼板含碳量 ($>0.3\%$) 對鋁件品質有何影響？ 10%



- 描述 die casting and low pressure casting 的同異處！
 - Is it possible to use die casting process to make 0.3% carbon steel parts? Explain why? 10%
- Use the following keywords to describe "Anodizing" in *English!* (note : less than 50 words) 10%
 Keywords: anode, cathode, oxidation, porous oxide layer

注意：背面有試題

所別：英美語文學系碩士班 不分組 科目：英文寫作

二. 多重選擇題(35%)

說明：本大題共六小題，各小題的每個選項各自獨立，其中至少有一個選項是正確的。每選對一個選項，可獲1分，每選錯一個選項，則倒扣1分，整題未作答者，不計分，而倒扣分數直至扣完本大題分數為止。

1. Which of the following ingredients are required in a fully generative CAPP (computer-aided process planning) system? (a) group technology, (b) knowledge base, (c) computer-compatible part description, (d) inference engine, (e) predefined standard plans, (f) parts classification and coding. 6%
2. In which of the following property categories do plastic parts compare favorably with metals? (a) impact resistance, (b) resistance to ultraviolet radiation, (c) stiffness, (d) strength, (e) strength-to-weight ratio, or (f) temperature resistance. 6%
3. Which of the following processes combines pressing and sintering of the metal powders? (a) metal injection molding, (b) hot pressing, (c) spark sintering, and (d) hot isostatic pressing. 4%
4. Which of the following are advantages and characteristics of hot working relative to cold working? (a) fracture of workpart less likely, (b) increased strength properties, (c) isotropic mechanical properties, (d) less overall energy required, (e) lower deformation forces required, and (f) more significant shape changes are possible. 6%
5. The maximum possible draft in a rolling operation depends on which of the following parameters? (a) coefficient of friction between roll and work, (b) roll diameter, (c) roll velocity, (d) stock thickness, (e) strain, and (f) strength coefficient of the work metal. 6%
6. Production of pipes and tubes is associated with which of the following bulk deformation processes? (a) extrusion, (b) hobbing, (c) ring rolling, (d) roll forging, (e) roll piercing, (f) tube sinking, or (g) upsetting. 7%

三、

1. 試比較車削與研磨的異同點。(10%)
2. 試論述研磨加工時、砂輪堵塞現象對加工速度與加工面精度的影響。(10%)
3. 試說明刀具材料應具備何種特性。(5%)
4. 試比較高速度鋼與陶瓷刀具的切削特性。(10%)