國立中央大學98學年度碩士班考試入學試題卷

所別：機械工程學系碩士班 乙組(製造與材料)　科目：機械製造　共 1 頁 第 1 頁

＊請在試卷答案卷（卡）內作答

一、Chemical machining is a nontraditional process in which unwanted material is removed by a chemical etchant.

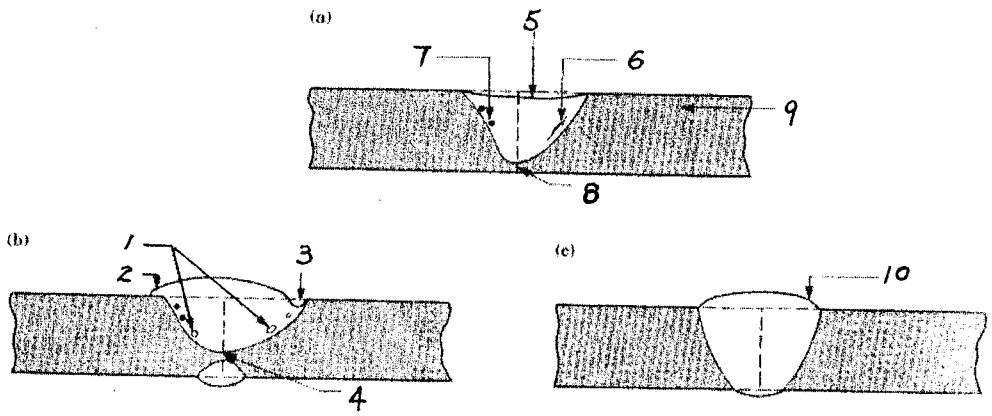
1. What are the four major steps in chemical machining? (5%)
2. List some of its applications. (5%)
3. Is it feasible to make a groove 1 mm wide and 2 mm deep on an aluminum block by chemical machining? Why or why not? (5%)

二、Composite materials are important engineering materials. In which, fiber-reinforced polymers (FRPs) are one of the most common types.

1. What are the factors that determine the properties of a composite material? (5%)
2. Give a short description of the following open mold shaping process of FRPs:
   a. hand lay-up (5%)
   b. spray-up (5%)
3. What is the geometry difference in the fibers used in the above two processes? (5%)

三.

1. See the attached figure (a), (b) and (c). Please write the name of welding defect (in English) as indicated in number 1~8. What is the function of "10" as shown in figure (c)? (Note: you should provide your answer in English) 20%



2. Explain why superheat is necessary for making sand casting? 10%

四、切削加工法雖是一種高效率的材料去除法、但為能獲得較佳的加工成果、必須對下列幾點的因果關係有正確認知、請論述之。

1.切削刀具的刀鼻半徑與工件表面的關係如何？ (10%)
2. 刀鼻半徑與切削力的關係如何？ (5%)
3. 刀鼻半徑與工件表面變質層的關係如何？ (5%)

五、放電加工是模具製作的重要方法、請就下列幾點的因果關係論述之。

1.加工液的潔淨程度與放電效率的關係如何？ (10%)
2.工件的熱傳導率與其材料去除率的關係如何？ (5%)

參考用