

國 · 立 · 清 · 華 · 大 · 學 · 命 · 題 · 紙

97 學年度 歷史所 乙 組碩士班入學考試

科目 中國科技史 科目代碼 3401 共 1 頁第 1 頁 *請在【答案卷卡】內作答

一、請舉出你/妳讀過的三本有關中國科技史的書，並簡要地介紹其作者與中國科技史的關係，以及書的要旨或其中你/妳認為具有科技史意義的某些要點。(34%)

二、清人丁拱辰在其刊行的《增補則克錄》中論及計算球體實心砲彈重量的方法，其文曰：

拙作算彈重數內用營造尺量彈徑如四寸者作長闊高各四寸自乘得十六寸再乘得六十四寸圓折方以五二三六折得實積三十三寸五分以每寸方生鐵重五兩八錢一分計之得重十二斤餘可類推比較便捷耳。

1.請將前引文抄寫並詳加標點。 2.請計算丁氏所用之圓周率為何？ 3.請以此圓周率計算該鐵彈精確之重量為何（化約成幾斤幾兩幾錢幾分）？ (33%)

三、Context: Chinese science was considered in the West as a 'backward' offspring of the world science. However, the works of Joseph Needham challenged this vision. Needham asked his famous question usually called 'Needham Puzzle': Why modern science was not created in China? The same question is sometimes asked in a different way: Why did China was a powerful 'scientific superpower' and then suddenly lost its leadership in the world science?

Question: try to answer the "Needham Puzzle" in one form or another, taking any field of Chinese science you are familiar with. More specifically, show that in this field (1) the Chinese achieved a certain level of expertise comparable with that of the West; (2) at a certain moment, the field declined, while its Western counterpart did not decline; (3) provide explanations of these phenomena which, in your opinion, can be used to answer Needham's questions; (4) try to find a weak point in Needham's way of posing the questions and show that these questions contain assumptions which are difficult to justify. (可以中文作答) (33%)