國立台中教育大學九十五學年度研究所碩士班招生考試

科學教育概論 科試題

科學教育 用

一、請解釋下列名詞（20%）：

(1). Inquiry-based teaching (5%)

(2). Authentic assessment (5%)

(3). Scientific literacy (5%)

(4). Analogy (5%)

二、我們經常說：科學學習要注重理解（understanding），試說明「理解」的意涵與促進理解的教學方法。25%

三、（一）請以中文寫出下兩句英文主要意思。

21st Century Science education requires more than a simple reworking of the curriculum content.

It requires us to ask questions which are not only what knowledge should we teach, but also why do we believe it to be true, and why was it so hard won?

（二）試由科學教育的觀點，申論此兩句之意涵，以及其在科學教育之啟示。（25%）

四、請先閱讀以下兩則報導：

1. More than half of the students in elementary schools like science, but by the time students reach high school, the number of students who like science decrease to only one-fourth (NAEP, 1978).
2. At present, most teachers argue that they are aiding students in “understanding” science by reviewing information found in standard textbooks. These textbooks presents content without personally relevant contexts, and focus on the structure of the different disciplines and on the generalizations currently accepted by the professionals. Often these generalizations are abstract, and they are important and attractive only to practicing scientists. [Published by Yager & Lutz in School Science and Mathematics (1995)]

請你引用至少兩種學術理論，來說明你針對文中所呈現現象的解決之道(15%)

五、請解釋「個人建構主義」與「社會建構主義」的意義，及其在科學教育上的應用。(15%)