

國立中央大學97學年度碩士班考試入學試題卷

所別：太空科學研究所碩士班

科目：流體力學 共 1 頁 第 1 頁

\*請在試卷答案卷(卡)內作答

1. Write down the continuity equation, momentum and energy equations for an ideal, compressible and adiabatic neutral fluid (in the absence of gravity). (15%)
2. Derive the Bernoulli's equation from the above steady ideal fluid equations. (15%)
3. Apply the set of ideal fluid equations to the problem of steady flow passing a nozzle and obtain the integral forms of the continuity and energy equations. (15%)
4. Derive the dispersion relation for sound wave from the above ideal fluid equations. (15%)
5. What's incompressible fluid? Derive the law of conservation of circulation from the ideal incompressible fluid equations. (15%)
6. Explain in details the following terms. (25%)  
(a) streamline; (b) stagnation point; (c) potential flow; (d) Reynolds number; and  
(e) Prandtl number.

參考用