

國立屏東教育大學 102 學年度研究所碩士班入學考試

普通物理學 試題

(應用物理系光電暨材料碩士班)

※請注意：答案須寫在答案卷上，否則不予計分。

問答與計算題 (共 100 分)

1. 國際公認的物理基本量共有 7 個，請任意寫出其中 5 個。(12 分)
2. 請詳細說明熱力學四個定律。(12 分)
3. 請詳細說明牛頓力學三個定律。(12 分)
4. 請詳細說明：高斯定律、安培定律、法拉第定律。(12 分)
5. 請解釋：順磁性、反磁性、鐵磁性。(12 分)
6. Charge is uniformly distributed around a ring of radius $R = 2.40$ cm, and the resulting electric field magnitude E is measured along the ring's central axis (perpendicular to the plane of the ring). At what distance from the ring's center is E maximum? (20 分)
7. A small loop of area 6.8 mm^2 is placed inside a long solenoid that has 854 turns/cm and carries a sinusoidally varying current i of amplitude 1.28 A and angular frequency 212 rad/s. The central axes of the loop and solenoid coincide. What is the amplitude of the emf induced in the loop? (20 分)