

國立屏東教育大學 101 學年度學士班轉學考試

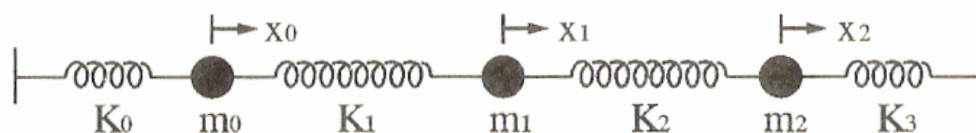
普通物理 試題

(應用物理系/先進薄膜製程學士學位學程)

*注意事項：

- (1) 本試題共 1 頁，答案請「橫式」書寫，並依規定上下翻頁，否則不予計分。
- (2) 不必抄題，但請依序將題號標出，並寫在答案紙上。

- 1 敘述繞射的物理意義。(10%)
2. 敘述熱力學第零定律。(10%)
3. 敘述電磁學中的安培定律 (Ampere' s Law) 及法拉第定律 (Faraday' s Law)。(10%)
4. 一波動的數學描述為 $f(x,t) = 0.1 \cos(2x + 100t)$ ，回答以下問題：
振幅為何？波速 (wave velocity) 為何？(10%)
5. 解釋電偶極矩 \mathbf{p} (electric dipole moment) 與磁電偶極矩 \mathbf{m} (magnetic dipole moment) (10%)
6. 寫出 RLC 震盪電路的阻抗 Z ，其中電阻 R 、電容係數 C 、電感 L 。(10%)
7. 平行帶電板之間距離 2cm ，電位差 10000Volt ，計算板上單位電荷密度 σ [C/m^2] (10%)
8. A 100 pF capacitor is charged to a potential difference of 50 V , and the charging battery is disconnected. The capacitor is then connected in parallel with a second (initially uncharged) capacitor. If the potential difference across the first capacitor drops to 35 V , what is the capacitance of this second capacitor? (20%)
9. Consider a coupled mass-spring system as shown below :



- (a) What is potential energy of the system? (b) Find an expression for the force acting on m_1 and m_2 .(10%)