國立暨南國際大學 107 學年度碩士班入學考試試題   第 1 節

科目：電磁學   適用：電機系

編號：357

考生注意：
1.依次序作答，只要標明題號，不必抄題。
2.答案必須寫在答案卷上，否則不予計分。
3.限用藍、黑色筆作答；試題須隨卷繳回。

本 試 題
共 (頁
第 (頁

1. Find the electric field distribution outside and inside a spherical charge. The volume charge density of the sphere is constant ρ and the radius of the sphere is k. (20分)

2. A spherical capacitor consists of an inner conducting sphere of radius h and an outer conductor with a spherical inner wall of radius H. The space between the conductors is filled with a dielectric of permittivity ε. Find the capacitance of the capacitor. (20分)

3. An infinitely long conductor with a circular cross section of radius h carries a steady current I. Find the magnetic flux density inside and outside the conductor. (20分)

4. State the meaning of the following terms: (20分)

(a) Polarization Vector

(b) Hysteresis Loops

5. State the meaning of the following terms: (20分)

(a) Electric Dipole

(b) Magnetic Dipole