國立成功大學

112學年度碩士班招生考試試題

編　　號：114

系　　所：工程科學系

科　　目：電磁學

日　　期：0207

節　　次：第 2 節

備　　註：不可使用計算機

※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Describe the Stoke's theorem and Helmholtz's theorem in detail. (20%)

2. It is known that charges introduced in the interior of a conductor will move to the conductor surface and redistribute themselves in such a way as to make both the volume charge density of free charges and the electric field intensity vanish under equilibrium conditions. Estimate the time it takes to reach equilibrium. (25%)

3. Determine the force per unit length on each of three equidistant, infinitely long, parallel wires 15 (cm) apart, each carrying a current 15 (A) in the same direction. (25%)

4. Determine the minimum dielectric constant of the guiding medium such that an EM wave incident on one end of a dielectric fiber at any angle will be confined within the fiber until it leaves from the other end. (30%)