

國 立 清 華 大 學 命 題 紙

97 學年度 生醫工程與環境科學系(所) 丙(醫學暨保健物理)組碩士班入學考試

科目 放射物理學 科目代碼 2701 共 1 頁第 1 頁 *請在【答案卷卡】內作答

(每題 10 分，共十題)

1. What is the oxygen effect in radiotherapy?
2. What is the Modulation Transfer Function (MTF)?
3. Explain what parameters need to be considered when you are ask to design a shielding wall for a newly installed diagnostic x-ray machine in your hospital?
4. What is resolving time of a Geiger counter? Let N_0 be the observed number of count per second, N_c be the corrected number of count per second, and τ is the resolving time. Derive the relationship among these three parameters.
5. What is the wedge filter in radiation therapy? What is the wedge isodose angle?
6. Define "stopping power" and "linear energy transfer". What is their difference?
7. What is coherent scattering and incoherent scattering?
8. In an X-ray machine, describe the factors that affect the efficiency of x-ray production?
9. Describe electron capture (EC) process.
10. Describe a technique to measure the focal spot of x-ray tube.