

國 立 清 華 大 學 命 題 紙

95 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 3201 共 1 頁第 1 頁 *請在試卷【答案卷】內作答

(每題 10 分，共十題)

1. Briefly describe what factors affect the SNR in MRI?
2. Why the spatial resolution in PET is better than SPECT?
3. What are the advantages of using high energy charge particle for radiation therapy?
4. Compare the advantages and disadvantages of Linear accelerator (LINAC) and betatron in radiation therapy.
5. What are the advantages of using fractionation in radiation therapy?
6. Find the number of counts that should be taken to make the standard deviation in the measurement 2%?
7. Explain why the bremsstrahlung radiation is a continuous spectrum?
8. Calculate the electron density of water. (How many electron in 1 m^3 of water)
9. Tissue air ratio (TAR) is a function of what parameters? Write down how these factors affect TAR.
10. Percent depth dose (PDD) is a function of what parameters? Write down how these factors affect PDD.