



	Page
3.2.1 Collimation of the gamma ray source ...	51
3.2.2 Finite resolving time of the coincidence circuit, chance and accidental coincidence ...	52
3.2.3 Coincidence Circuit ...	53
3.2.4 Positrons formed at the edge or sides of the target ...	54
3.2.5 Targets ...	55
3.2.6 Requirements of the detector system ...	55
3.2.7 Gamma Sources ...	56
3.2.8 Errors arising due to absorption of incident and annihilation photons in the target ...	57
3.2.9 Correction for Compton Scattering of annihilation quanta..	60
3.2.10 Reduction of Background counts ...	61
3.2.11 Small angle scattering of annihilation photons ...	62
3.3 Experimental procedure and measurements ...	64
3.3.1 Procedure ...	
3.3.2 Errors and Corrections ...	66
3.4 Results ...	69
3.5 Discussion ...	70

## CHAPTER - 4

Measurement of total cross section and Extraction of Pair Production cross section from the measured total cross section	76
4.1 Introduction	76
4.2 Experimental conditions	77
4.3 Experimental arrangements	78
4.3.1 Collimation of source and detector	78
4.3.2 Precaution against small angle single scattering	79
4.3.3 Precaution against multiple scattering	80
4.3.4 Requirements for detector system	80
4.3.5 Gamma ray sources	81
4.3.6 Absorbers	81
4.4 Experimental procedure and measurements	82
4.4.1 Procedure	85
4.4.2 Measurements	86
4.5 Evaluation of the uncertainty in the measurements	87
4.6 Evaluation of cross section	90
4.7 Extraction of Pair Production cross section from the measured total cross section	92
4.8 Discussion	106
Synopsis	111
Appendix	112
References	114
Reprints	...