

DEPARTMENT OF MATHEMATICAL SCIENCES
CARNEGIE MELLON UNIVERSITY

BASIC EXAMINATION
MEASURE AND INTEGRATION
AUGUST 2010

Time allowed: 120 minutes.

Do four of the five problems. Indicate on the first page which problems you have chosen to be graded. All problems carry the same weight.

1. Let $(X; \mathcal{M}; \mu)$ be a measure space and let $f_n, f : X \rightarrow \mathbb{R}$ be measurable functions. Prove that if $\int f_n g$ converges to $\int f g$