The integral on $(\Omega, \mathcal{F}, P)$ thus defined satisfies the standard properties of an integral, such as

1. $f(\omega) \leq g(\omega) \Rightarrow \int f(\omega)\, dP(\omega) \leq \int g(\omega)\, dP(\omega)$.
2. $f(\omega) \leq g(\omega)$ and $P\{\omega: f(\omega) \neq g(\omega)\} > 0 \Rightarrow \int f(\omega)\, dP(\omega) < \int g(\omega)\, dP(\omega)$.
3. $\int af(\omega) + bg(\omega)\, dP(\omega) = a \int f(\omega)\, dP(\omega) + b \int g(\omega)\, dP(\omega)$.
4. $A, B \in \mathcal{F}$ and $A \cap B = \emptyset \Rightarrow \int_{A \cup B} f(\omega)\, dP(\omega) = \int_A f(\omega)\, dP(\omega) + \int_B f(\omega)\, dP(\omega)$.