

SMAI

Q 1) i) Finite Range (PMF)

→ Height of students but rounded to the nearest integer

Let $X = \{150, \dots, 190\}$ be our domain of

MF then $P(X) \geq 0$ because height of a person in the possible domain is always

$P(X) \forall x \in X$ cannot be less than 0 or greater than 1 hence $P(X) \geq 0$

also $\sum_{i=1}^n P(v_i) = 1$ {by definition of probability}

ii) Infinite Range

→ Height of the students (measured precisely to any real value.

$$P(X) \forall x \in P(X) [x \in a, b] = \int_a^b p(x) dx \geq 0$$

$$\text{also } \int_{-\infty}^{\infty} p(x) dx = 1 \quad (\text{By definition of probability})$$

$$2) U(a, b) = \int \frac{1}{b-a} \quad a \leq x \leq b$$