

③  $X$  is a geometric random variable.

$$F(x) = 1 - (1-r)^x$$

$$S = \min \{x_1, x_2, \dots, x_n\}$$

$$F_{\min}(x) = 1 - \prod_{i=1}^n (1 - F_{x_i}(x))$$

$$= 1 - \prod_{i=1}^n (1 - 1 + (1-r)^{x_i})$$

$$= 1 - \prod_{i=1}^n (1-r)^{x_i} = 1 - (1-r)^{\sum x_i}$$

$$P = 1 - F(S)$$

$$S = \min \{4, 2, 3, 5, 2\} = 2$$

$$n = 5 ; r = 0.153$$

$$\therefore P = 1 - F(S) = 1 - (1 - (1 - 0.153)^{2 \times 5})$$

$$= 1 - (1 - 0.847^{10})$$

$$= 1 - (1 - 0.190035)$$

$$= 0.190035$$