

P4:

Find the conditional p.d.f. of $X_{(i)}$ given $X_{(i+1)}$

Solution:

Let $j = i + 1$ in P3. Then

$$f_{X_{(i)}|X_{(j+1)}}(x|y) = i[F(x)]^{i-1}[F(y)]^{-i}f(x)$$