$E(X)=\frac{1}{2}$ $E(Y)=\frac{1}{2}$

解：

(1)

$X\sim U(0,1)$，$Y\sim U(0,1)$

$$f(x)=\begin{cases}1 & 0\le x\le 1\\ 0 & \text{其它}\end{cases}$$

$$f(y)=\begin{cases}1 & 0\le y\le 1\\ 0 & \text{其它}.\end{cases}$$

X，Y相互独立

$\therefore f(x,y)=f(x)f(y)$

$$\therefore f(x,y)=\begin{cases}1 & 0\le x\le 1,\ 0\le y\le 1\\ 0 & \text{其它}.\end{cases}$$

$$P(X\ge Y)=\iint_{x\ge y} 1\,dx\,dy=1-\frac{1}{2}=\frac{1}{2}$$

(2)

$$E[|X-Y|]=\iint |x-y|\,dx\,dy$$

$$=\int_0^1 dx\int_0^1 |x-y|\,dy$$

$$=\int_0^1 dx\int_0^x (x-y)\,dy+\int_0^1 dy\int_0^y (y-x)\,dx$$

$$=\frac{1}{6}+\frac{1}{6}$$

$$=\frac{1}{3}$$