

Question #91**Answer: E**

$$\mu_{60}^M = \frac{1}{75-60} = \frac{1}{15}$$

$$\mu_{60}^F = \frac{1}{\omega-60} = \frac{1}{15} \times \frac{3}{5} = \frac{1}{25} \Rightarrow \omega = 85$$

$${}_tP_{65}^M = 1 - \frac{t}{10}$$

$${}_tP_{60}^F = 1 - \frac{t}{25}$$

Let x denote the male and y denote the female.

$$\overset{\circ}{e}_x = 5 \quad (\text{mean for uniform distribution over } (0,10))$$

$$\overset{\circ}{e}_y = 12.5 \quad (\text{mean for uniform distribution over } (0,25))$$

$$\begin{aligned} \overset{\circ}{e}_{xy} &= \int_0^{10} \left(1 - \frac{t}{10}\right) \left(1 - \frac{t}{25}\right) dt \\ &= \int_0^{10} \left(1 - \frac{7}{50}t + \frac{t^2}{250}\right) dt \\ &= \left(t - \frac{7}{100}t^2 + \frac{t^3}{750} \right) \Big|_0^{10} = 10 - \frac{7}{100} \times 100 + \frac{1000}{750} \\ &= 10 - 7 + \frac{4}{3} = \frac{13}{3} \end{aligned}$$

$$\overset{\circ}{e}_{xy} = \overset{\circ}{e}_x + \overset{\circ}{e}_y - \overset{\circ}{e}_{xy} = 5 + \frac{25}{2} - \frac{13}{3} = \frac{30 + 75 - 26}{6} = 13.17$$