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Quiz1-September 421

Name: **ID:**

✗ You are given:

$$\mu_x = \begin{cases} 0.06 & 30 \le x \le 40 \\ 0.03 & 40 \le x \le 60 \end{cases}$$

Calculate ${}_{5|16}q_{30}$.

A 0.38

B 0.35

C 0.41

D 0.43

E 0.44

Ans :-

${}_{5|16}q_{30} = {}_5p_{30}\ {}_{16}q_{35}$

${}_5p_{30} = e^{-\int_{30}^{35} 0.06\,ds} = e^{-0.06(5)}$

${}_{16}p_{35} = {}_5p_{35}\ {}_{11}p_{40}$

$= e^{-\int_{35}^{40} 0.06\,ds}\ e^{-\int_{40}^{51} 0.03\,ds}$

$= e^{-0.06(5)}\ e^{-0.03(11)}$

$\Rightarrow {}_5p_{30}\,(1 - {}_{16}p_{35}) = 0.35$

✗ Which of the following can serve as survival functions for x≥0?

✗ I S_0 (x)= exp(x-0.7(2^x-1))

✗ II. S_0 (x)= 4/(x+10)

✗ III. S_0 (x)= exp(-(3+x))

A I and II only

B I and III only

C II and III only

D I, II and III

E The correct answer is not among the other choices.

Ans :- there are ∃ prob that $S_x(t)$ must satisfy :-

1. $S_x(0) = 1$
2. $S_x(\infty) = 0$
3. $S_x(t)$ is a non-inc function of t

I
* inc func

II
* $S_x(0) \neq 1$

III
$S_x(0) \neq 1$