Name: **ID:**

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

I S_0 (x)= exp(x)

II. S_0 (x)= $\frac{1}{(1+X)^2}$

III. S_0 (x)= exp($-X^2$)

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 3 prop 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

* $S_0(0) = e^0 = 1$
* $S_0(\infty) = e^{\infty} = \infty$
* $S_0(1) \geq S_0(0)$ is an inc function of t

II ✓

* $S_0(0) = \frac{1}{1} = 1$
* $S_0(\infty) = \frac{1}{\infty} = 0$
* As x inc $S_0(x)$ dec

III ✓

* $S_0(0) = e^0 = 1$
* $S_0(\infty) = e^{-\infty} = 0$
* As x inc, $S_0(x)$ dec

thus $S_0(x)$ is a non-inc function of x