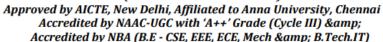
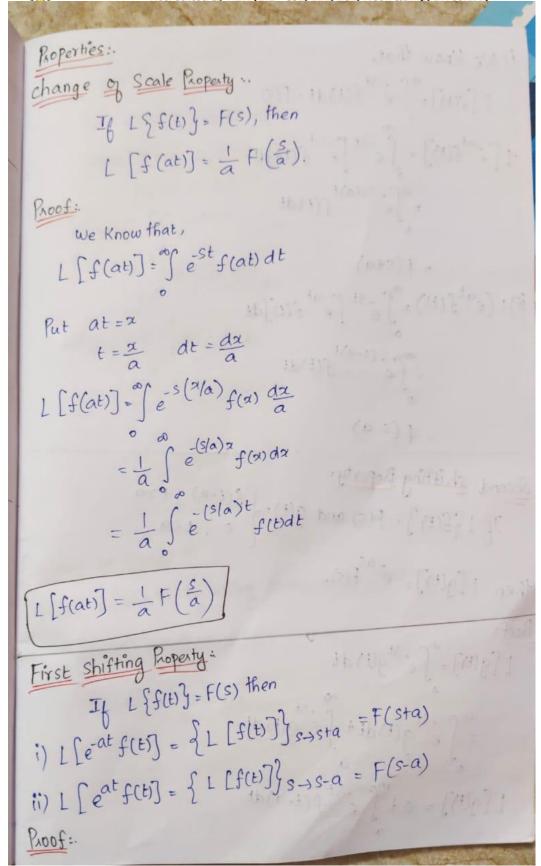


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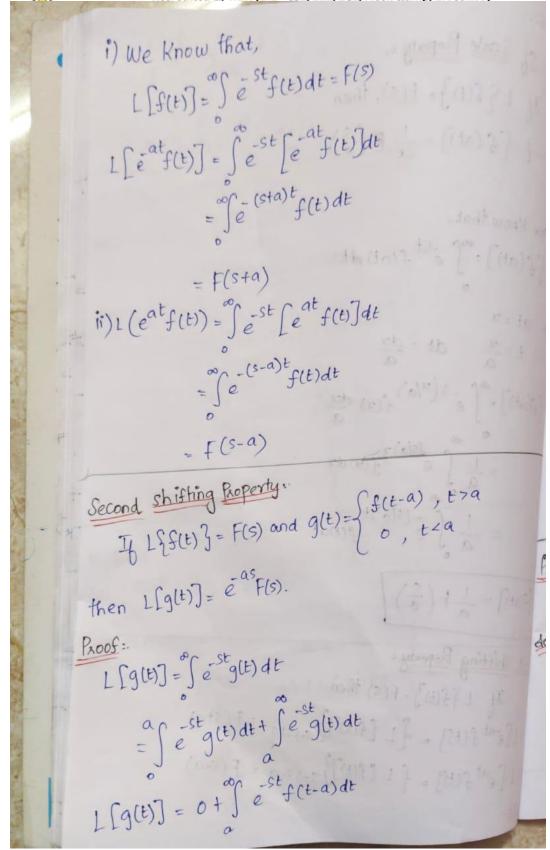


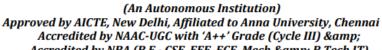




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Put
$$t-a=u \Rightarrow dt=du$$

when $t=a\Rightarrow u=0$
 $t=a\Rightarrow u=0$
 $t=a\Rightarrow u=0$

L[g(t)] = $\int e^{-st}f(t)du$
 $\int e^{-us}e^{-as}f(u)du$
 $\int e^{-as}\int e^{-st}f(t)dt$

Replace $u\Rightarrow t$
 $\int e^{-as}f(s)$

Problems on change of Scale Roperty:

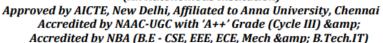
1) Find L (sinhat) by using change of Scale Roperty.

1 (sinhat) = $\int e^{-st}f(s)$

L (sinhat) = $\int e^{-st}f(s)$









Publems on first shifting theorem:

1) Find
$$L(e^{3t}sin^2t)$$

Soluting $L(e^{3t}sin^2t) = L(sin^2t)s - s + 3$

$$= L(\frac{1-\cos 2t}{2})s - s + 3$$

$$= \frac{1}{2} \left\{ L(1) - L(\cos 2t) \right\} s - s + 3$$

$$= \frac{1}{2} \left\{ \frac{1}{s} - \frac{s+3}{s^2+4} \right\} s - s + 3$$

$$= \frac{1}{2} \left\{ \frac{1}{s+3} - \frac{s+3}{(s+3)^2+4} \right\}$$

$$= \frac{1}{2} \left\{ \frac{4}{(s+3)((s+3)^2+4)} \right\}$$

$$= \frac{2}{(s+3)[(s+3)^2+4]}$$

$$= \frac{2}{(s+3)[(s+3)^2+4]}$$
2) Find $L(t^2e^{-2t})$.

Solution $L(e^{-3t}f(t)) = F(s+a)$

$$= L(e^{-3t}f(t)) = F(s+a)$$

$$= L(e^{-2t}t^2) = [L(t^2)]s + s + 2$$

$$= \left[\frac{2}{s^3} \right] s > s + 2$$



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$$= \left(\frac{2}{s^3}\right)_{s \to s+2}$$

$$= \frac{2}{(s+2)^3}$$

$$L(\xi^2 e^{-2t}) = \frac{2}{(s+2)^3}$$

3) Find
$$L\left[e^{2t} \cos 5t\right]$$

del: $L\left[e^{2t} \cos 5t\right] = L\left[\cos 5t\right] s \rightarrow s - 2$

$$= \left[\frac{S}{s^2 + 25}\right] s \rightarrow s - 2$$

$$= \frac{S - 2}{\left(s - 2\right)^2 + 25}$$

$$L\left[e^{2t} \cos 5t\right] = \frac{S - 2}{\left(S - 2\right)^2 + 25}$$

Problems on Second Shifting theorem:

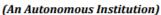
1) Find L[f(t)] where
$$f(t) = \begin{cases} 0 & 0.02 t \le 2 \\ 3 & 0.02 t \le 2 \end{cases}$$

2) Find L[f(t)] = $\int e^{-st} f(t) dt$

2) $\int e^{-st} f(t) dt + \int e^{-st} f(t) dt$

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Accredited by NBA (B.E. CSE, EEE, ECE, Mech & amp; B. Tech. IT)

$$= 3 \left(e^{-st} \right)^{\infty}$$

$$= \frac{3}{s} \left(e^{-st} \right)^{\infty}$$

$$= \frac{3}{s} e^{-2s}$$

$$= \frac{3}{s} e^{-2s}$$

$$= \frac{3}{s} e^{-2s}$$

$$= \frac{3}{s} e^{-2s}$$
2) Find the Laplace transform g

$$f(t) = \begin{cases} sint, out < \pi \\ 0, t > \pi \end{cases}$$

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$$= \begin{cases} f(t) = si$$