

Paper - XIII - Semester VI (B.Sc)
Assignment Questions of
Laplace Transform.

1) Prove that if $L\{F(t)\} = f(s)$
then $L\{t^n F(t)\} = (-1)^n \frac{d^n}{ds^n} f(s)$
for $n = 1, 2, 3$.

(2) Find $L\{e^{-t}(3 \sinh 2t - 5 \cosh 2t)\}$

(3) Find the Laplace transform of $\frac{\sin at}{t}$. Does the transform of $\frac{\cos at}{t}$ exist?

(4) Find $L\{t^2 \cos at\}$

(5) Show that $\int_0^{\infty} t e^{-3t} \sin t dt = \frac{3}{50}$.