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SCILAB TUTORIAL

Q1) Draw the surface plot of Laplace Transform of following function keeping $s = \sigma + j\omega$

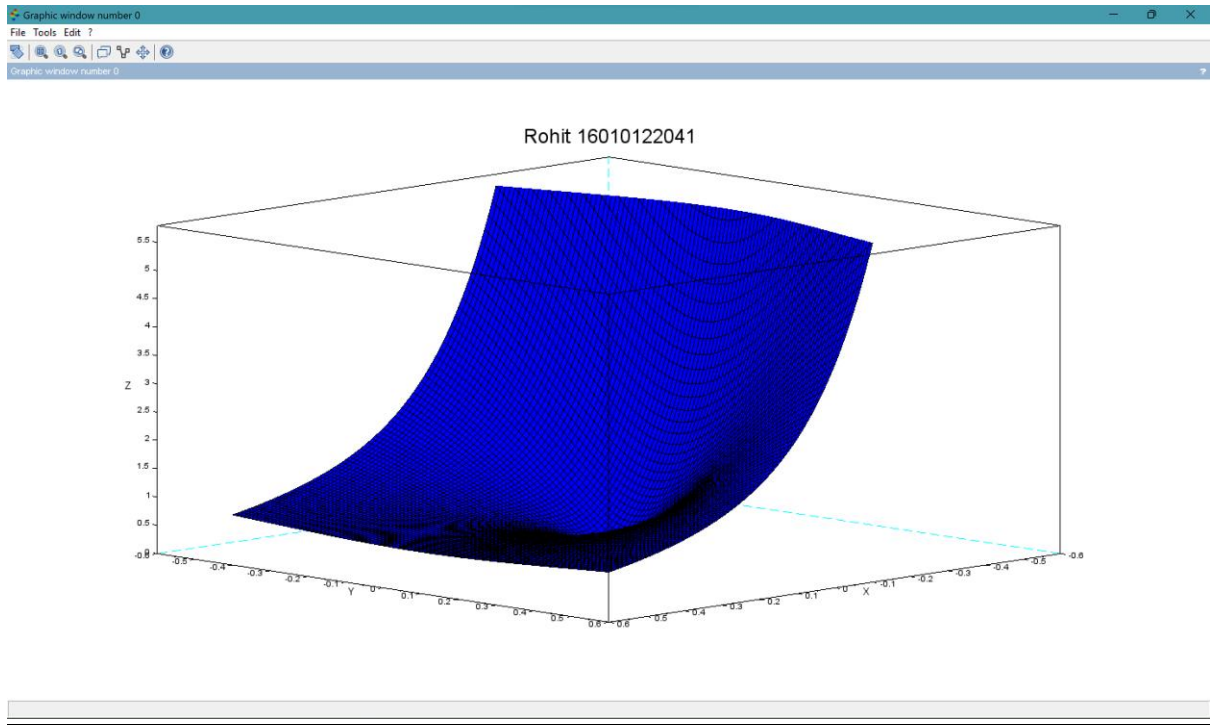
$$f(t) = \begin{cases} \cos(t-2) & 0 < t < 7 \\ 0 & t > 7 \end{cases}$$

Code on Scinotes:

```
clear; clc;
t=0:0.01:7;
f=cos(t-2);
a=1;
for sigma=-0.5:0.01:0.5,
b=1;
for omega =-0.5:0.01:0.5,
rp=f.*exp(-sigma*t).*cos(omega*t);
irp(a,b)=inttrap(t,rp);
ip=f.*exp(-sigma*t).*sin(omega*t);
iip(a,b)=inttrap(t,ip);
magnitude(a,b)=abs(irp(a,b)+%i*iip(a,b));
b=b+1; end;
a=a+1; end;
sigma=-0.5:0.01:0.5;
omega=-0.5:0.01:0.5;
plot3d(sigma,omega,magnitude);
title('Rohit 16010122041','fontsize',5)
```



Output:



Q2) Draw the surface plot of Laplace Transform of following functions keeping s as real.

$$f(t) = \begin{cases} t^4 & 0 < t < 10 \\ 0 & t > 10 \end{cases}$$

Code on Scinotes:

```
clear; clc;
t=0:0.01:10;
f=t^4;
a=1;
for sigma=-0.5:0.01:0.5,
rp=f.*exp(-sigma*t);
irp(a)=inttrap(t,rp);
magnitude(a)=abs(irp(a));
a=a+1; end;
sigma=-0.5:0.01:0.5;
plot2d(sigma,magnitude)
title('Rohit 16010122041','fontsize',5)
```

Output:

