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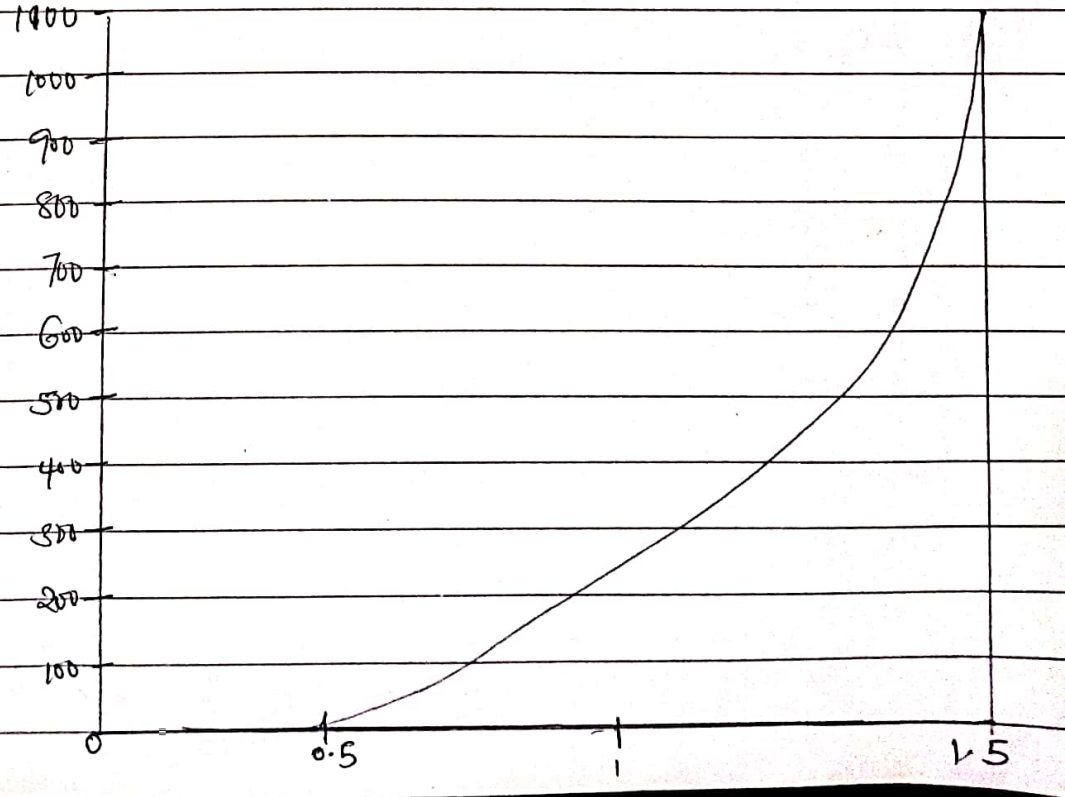
BIOMEDICAL ENGINEERING.
17/MHS01/089.

MATHEMATICS ASSIGNMENT IV

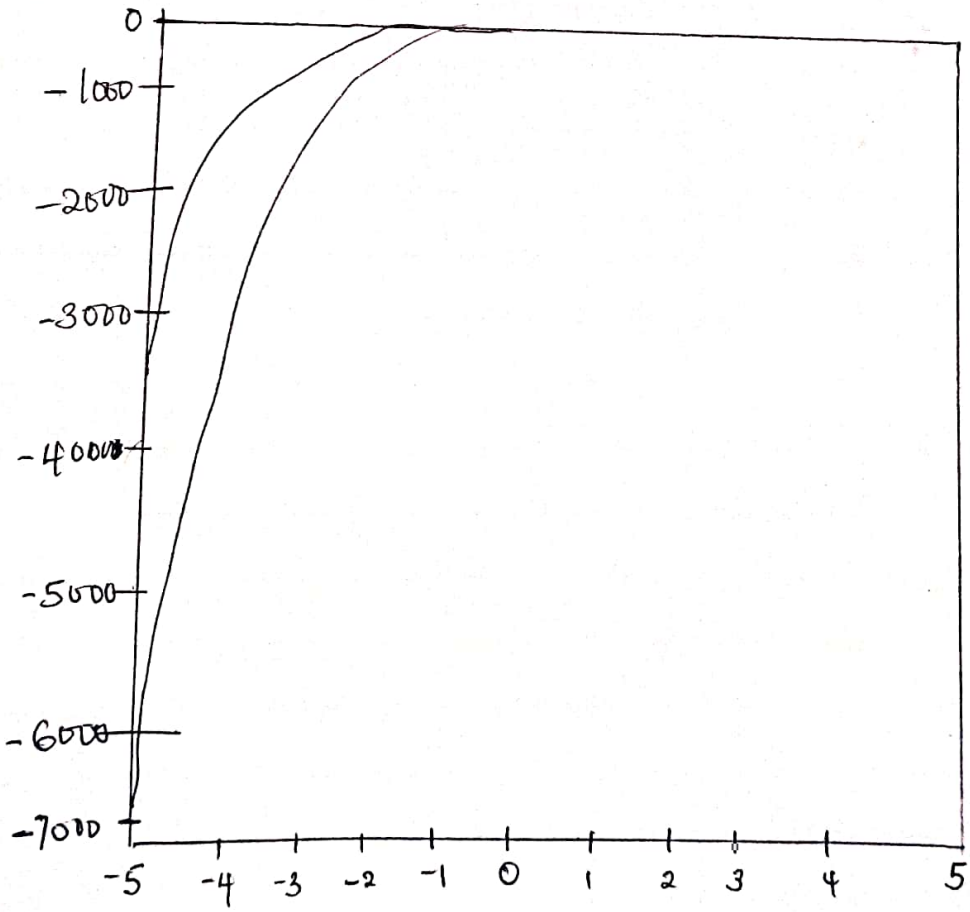
MAT 381

QUESTION 1.

Q.
```
• Command window
, Clear
. clc
• Syms n(t)
• Carrie = diff(n,t,2) - diff(n,t) - 12*n == 144*t^3 + 12.5
• dcarrie = diff(n,t)
• Esther = (n(0) == 5, dcarrie(0) == -0.5
• qnec = dsolve(Carrie, esther)
• Naza(qnec)
• tn = (0:0.1:1.5)
• Carrie n = Subs(qnec, tn)
• plot(tn, Carrie n)
• axis tight
• grid on
• grid minor
```

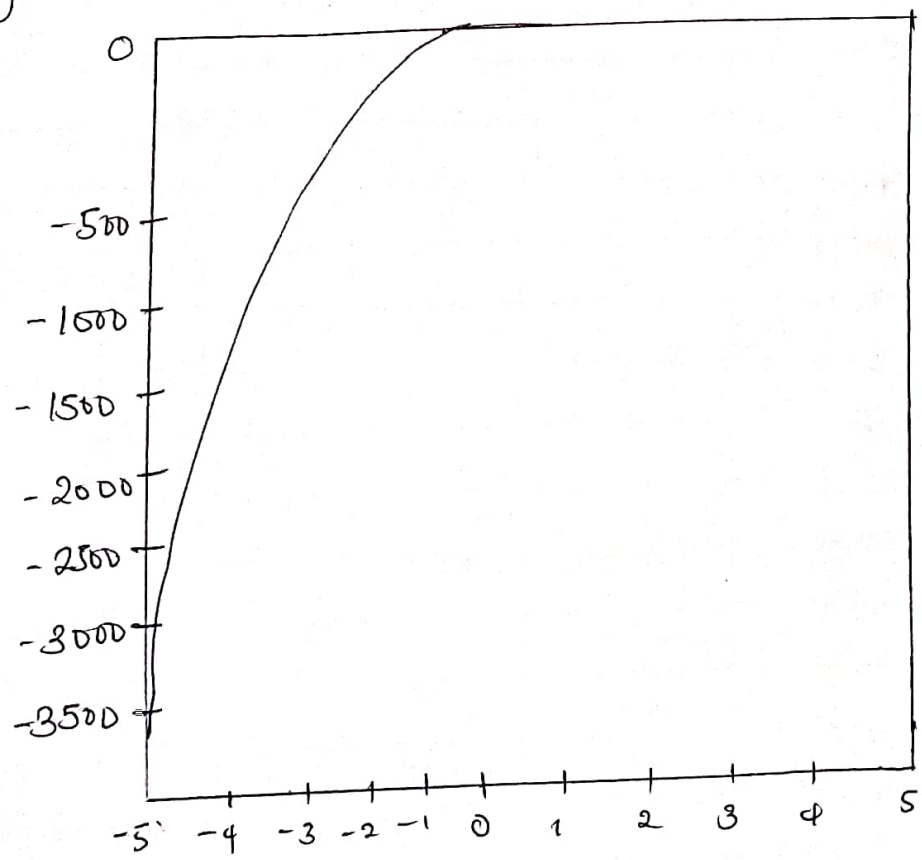


- Command window
- Clear
- clc
- Syms y(t) x(t)
- Eqn1 = diff(y,t) - 2*x == exp(-2*t)
- Eqn2 = diff(x,t) + y == exp(t)
- Eqn3 = [Eqn1, Eqn2]
- Cond = [y(0) == 0, x(0) == 0]
- [yeq xeq] = dsolve(Eqn3, Cond)
- fplot(yeq)
- hold on
- fplot(xeq)
- grid on
- grid minor



Command window

```
clear
clc
syms y(t) x(t)
eqn1 = diff(y,t) - 2*x == exp(-2*t)
eqn2 = diff(x,t) + y == exp(t)
eqn3 = [eqn1, eqn2]
cond = [y(0) == 0, x(0) == 0]
[yeq xeq] = dsolve(eqn3, cond)
figure(1)
fplot(yeq)
grid on
grid minor
figure(2)
fplot(xeq)
grid on
grid minor
```



Question 2.

- Command window
- clear
- cle
- Symv t k a w
- ft = K* exp(-a*t)* sin(5*w*t)*cos(3*w*t)
- fs = laplace(ft)