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Question 4A.

```
1. Command window.
2. clc
3. clear.
4. close all.
5. syms n(t).
6. eqn = diff(n,t,2) = diff(n,t) - 12*n = 144*(t^3) + 12.5;
7. Cond = [n(0) == 5, diff(n,t,2) == -0.5);
8. Ysol = dsolve(eqn, cond).
9. t = 0:0.1:1.5.
10. Ariyo = subs(Ysol)
11. fplot = (t, Ariyo).
12. grid on.
13. legend('Anyo', 'Location', 'Best')
```

(i) Question 4B

```
1. Command window
2.  clc.
3.  clear.
4.  close.
5. syms x(t) y(t).
6. eqn1 = diff(y,t) - 2*x == exp(-2*t);
7. eqn2 = diff(x,t) + y == exp(-t);
8. eqns = [eqn1 eqn2].
9. cond = [x(0) == 0, y(0) == 0];
10. Result = dsolve(eqns, cond).
11. xsol(t) = Result.x.
12. ysol(t) = Result.y.
```

(ii) Visualizing the solution on graph seperately continue with:

```
13. fplot(xsol).
14. fplot(ysol).
15. grid on.
16. legend('xsol', 'Location', 'best')
17. legend('ysol', 'location', 'best').
```

(iii) Visualizing the solution on graph together continue with:

```
13. fplot(xsol).
14.  hold on.
15. fplot(ysol).
16.  grid on.
17. legend('xsol', 'ysol', 'location', 'best').
```

(i) Question 4c.

1. Command window
2. clc.
3. clear
4. close all
5. syms t s w x K a .
6. x = K * exp(-a*t) * sin(5*w*t) * cos(3*w*t).
7. F = laplace(x,t,s)
8. simplify(F)
9. print(Ans).

(ii)
① Command window
② clc.
③ clear
④ close all
⑤ syms t s
⑥ F = pi * / ((s^2) + 15*pi*s + 24*(pi^3)) .
⑦ ilaplace(F).
⑧ simplify(ans)
⑨ print(ans).