Q1/ Solve the initial value problem by using the Laplace transformation

 $y^{'}+2y=1 ; where y\left(0\right)=2 $

 Q2/ Solve the system $ x^{'}=2x+y-t$

 $y^{'}=-x+4y+1$

Q3/ Find the $L^{-1}\left\{\frac{2p+1}{\left(p^{2}+1\right)\left(p^{2}+4\right)}\right\}$ )

Q4/ Find the general solution of this linear systems Differential Equation:$ $

$$ x^{'}= x+3y$$

$ $ $y^{'}=3x-2y-z$

 $ z^{'}=-y+z$

Q5/ Solve the initial value problem by using the Laplace transformation

 $y^{'}-4y=cos2x ; where y\left(0\right)=-1 $

 Q6/ Solve the system $ x^{'}=-x+y+e^{-2t}$

 $y^{'}=-4x+3y-4$

Q7/ Find the $ L^{-1}\left\{\frac{2p-7}{p^{2}-8p+13}\right\}$

Q8/ Find the general solution of this linear systems Differential Equation

$$ x^{'}=2x+y+6z$$

$ $ $y^{'}=2y+5z$

 $ z^{'}=2z$

Q8/ a)Convert the Differential Equation in to system linear Differential Equation $ \frac{d^{3}y}{dt^{3}}-3t\frac{d^{2}y}{dt^{2}}+2y=t^{2}-1$

 b) $Find the L\left\{e^{-x}\left(x^{2}+sin^{2}2x\right)\right\}$

Q9/ Solve the initial value problem by using the Laplace transformation

 $y^{'}-4y=cos2x ; where y\left(0\right)=-1 $

 Q10/ Solve the Differential Equation: $\frac{d^{2}y}{dx^{2}}-2\frac{dy}{dx}-3y=e^{-2x} $

Q23/ Us power series to find the general solution of the Differential Equation

 $y^{''}+xy=0$

Q24/ Solve the Differential Equations $\left(x^{3}D^{3}+4x^{2}D^{2}-5xD-15\right)y=0 $

Q25/ Us Variation of Parameters to solve the Differential Equation:

 $ y^{''}+9y=tan3x$

Q26/ a)Find $D^{7}\left(e^{-3x}-2Sin3x+x^{9}-3x^{2}+5\right)$

 b) $Find the L\left\{e^{-x}\left(x^{2}+sin2x\right)\right\}$

Q27/ Solve the initial value problem by using the Laplace transformation

 $y'^{'}+4y=3 ; where y\left(0\right)=-1 and y^{'}\left(0\right)=0$

 Q27/ Solve the system $x^{'}=x-3y+3z$

 $y^{'}=-5y+6z$

$$ z^{'}=-3y+4z$$

Q28/ Convert the DE in to system linear DE $\frac{d^{3}y}{dt^{3}}-3\frac{dy}{dt}+2ty=t^{2}$

Q29/ Find the $L\left\{(x+e^{x})cos^{2}x\right\}$

Solve the linear systems of Differential Equations:

$ a ) x^{'}=2x+27y $ $b) x^{'}=3x+y+e^{-2t}$

$ y^{'}=4y+40z $ $y^{'}=-x+y+e^{3t}+2$

 $ z^{'}=3y+30z$

 Q30) $y'^{'}+4y=3 ; where y\left(0\right)=-1 and y^{'}\left(0\right)=0$

 Q31/ Solve the system $ x^{'}=y +1-2t$

 $y^{'}=-4x+t$

Q32/ Find the $L^{-1}\left\{\frac{3p^{3}+2p+1}{\left(p^{2}-1\right)\left(p^{2}+4\right)}\right\}$

Q33/ Find the general solution of this linear systems Differential Equation

$$ x^{'}=-2 x-3y$$

$ $ $y^{'}=3x+4y$

 $ z^{'}=x+2z$

Q34/ 1) If the $g\left(x\right)=\{\begin{matrix}3 1\leq x \\2x x<1 \end{matrix} then find L\left\{g(x)\right\}$.

 2) Convert the differential equation in to linear system $\frac{d^{3}y}{dt^{3}}-4\frac{dy}{dt}+2y=\sqrt{t}$

 3) Find the $L\left\{\left(x+e^{x}+cos2x\right)sin2x\right\}$