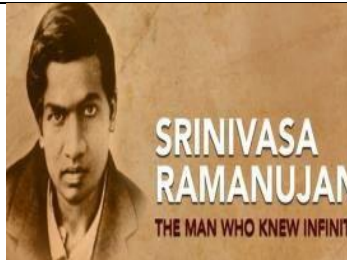
 <b>SRM</b> INSTITUTE OF SCIENCE & TECHNOLOGY (Deemed to be University u/s 3 of UGC Act, 1956)	<b>SRM Institute of Science and Technology Kattankulathur</b>		
	<b>DEPARTMENT OF MATHEMATICS</b>		
	<b>18MAB201T- TRANSFORMS AND BOUNDARY VALUE PROBLEMS</b>		
	<b>UNIT - I Partial Differential Equations Tutorial Sheet - 1</b>		
<b>Sl. No.</b>	<b>Questions</b>	<b>Answer</b>	
<b>Part - A</b>			
1	Form the PDE by eliminating arbitrary constants 'a' and 'b' from $\sqrt{1+a^2} \log(z + \sqrt{z^2-1}) = x + ay + b$	$p^2 + q^2 + 1 = z^2$	
2	Find the differential equation of all spheres of the same radius 'c' having their centres on the yoz-plane.	$(p^2 + q^2 + 1)x^2 = c^2 p^2$	
3	Eliminate the arbitrary function 'f' from $z = f\left(\frac{xy}{z}\right)$	$px - qy = 0$	
4	Eliminate the arbitrary function 'f' from $z = f(x^2 + y^2 + z^2)$	$py - qx = 0$	
5	Solve the equation $pq + p + q = 0$	$z = ax - \frac{a}{a+1}y + c$	
6	Solve the equation $p^2 + q^2 = m^2$	$z = ax + \sqrt{m^2 - a^2}y + c$	
<b>Part - B</b>			
7	Form the PDE by eliminating 'f' from $f(x^2 + y^2 + z^2, ax + by + cz) = 0$	$\begin{aligned} &(cy - bz)p \\ &+ (az - cx)q \\ &= b - ay \end{aligned}$	
8	Form the PDE by eliminating 'f' and 'g' from $z = xf\left(\frac{y}{x}\right) + yg(x)$	$xys + y^2t = px + qy - z$	
9	If $z = f(x^2 + y) + g(x^2 - y)$ , show that $r - \frac{p}{x} - 4x^2t = 0$		
10	Form the PDE by eliminating 'f' and 'g' from $z = f(2x + y) + g(3x - y)$	$r + s - 6t = 0$	
11	Form the PDE by eliminating arbitrary constants 'a', 'b' and 'c' from $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$	$x zr + x p^2 = z p$	