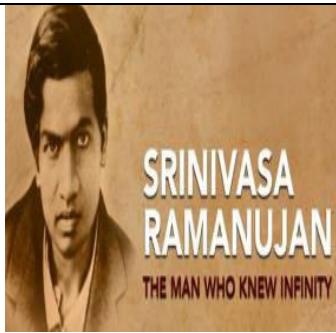
 <b>SRM</b> INSTITUTE OF SCIENCE & TECHNOLOGY (Deemed to be University u/s 3 of UGC Act, 1956)	<b>SRM Institute of Science and Technology Kattankulathur</b>		 <b>SRINIVASA RAMANUJAN</b> THE MAN WHO KNEW INFINITY
	<b>DEPARTMENT OF MEATHEMATICS</b>		
	<b>18MAB201T- TRANSFORMS AND BOUNDARY VALUE PROBLEMS</b>		
	<b>UNIT - I Partial Differential Equations Tutorial Sheet - 3</b>		
<b>Sl. No.</b>	<b>Questions</b>	<b>Answer</b>	
<b>Part - A</b>			
<b>1</b>	<b>Solve <math>(D^2 - 3DD' + 2D'^2)z = 0</math>.</b>	$z = \phi_1(y + x) + \phi_2(y + 2x)$	
<b>2</b>	<b>Solve <math>(D^2 - 4DD' + 4D'^2)z = e^{2x+y}</math>.</b>	$z = \phi_1(y + 2x) + x\phi_2(y + 2x) + \frac{x^2}{2}e^{2x+y}$	
<b>3</b>	<b>Solve <math>(D^3 - 2D^2D')z = 4\sin(x + y)</math>.</b>	$z = \phi_1(y) + x\phi_2(y) + \phi_3(y + 2x) - 4\cos(x + y)$	
<b>4</b>	<b>Solve <math>(D^2 - 6DD' + 5D'^2)z = xy</math>.</b>	$z = \phi_1(y + x) + \phi_2(y + 5x) + \frac{x^3y}{6} + \frac{x^4}{4}$	
<b>5</b>	<b>Solve <math>(D^2 - DD')z = \sin x \sin 2y</math>.</b>	$z = \phi_1(y) + \phi_2(y + x)$ $-\frac{1}{3}(2\cos x \cos 2y - \sin x \sin 2y)$	
<b>Part - B</b>			
<b>6</b>	<b>Solve <math>(D^2 + 2DD' + D'^2)z = 2\cos y - x\sin y</math>.</b>	$z = \phi_1(y - x) + x\phi_2(y - x)$ $+ x\sin y + 2\cos y$	
<b>7</b>	<b>Solve <math>(D^3 + D^2D' - DD'^2 - D'^3)z = e^x \cos(2y)</math>.</b>	$z = \phi_1(y - x) + x\phi_2(y - x) + \phi_3(y + x)$ $+ \frac{e^x}{25}(\cos 2y + 2\sin 2y)$	
<b>8</b>	<b>Solve <math>(D^3 - 2D^2D')z = \sin(x + 2y) + 3x^2y</math>.</b>	$z = \phi_1(y) + x\phi_2(y) + \phi_3(y + 2x)$ $-\frac{1}{3}\cos(x + 2y) + \frac{x^5y}{20} + \frac{x^6}{60}$	
<b>9</b>	<b>Solve <math>(D^2 + DD' - 6D'^2)z = y\cos x</math>.</b>	$z = \phi_1(y + 2x) + \phi_2(y - 3x)$ $+ \sin x - y\cos x$	
<b>10</b>	<b>Solve <math>(D^2 - 3DD' + 2D'^2)z = (2 + 4x)e^{x+2y}</math>.</b>	$z = \phi_1(y + x) + \phi_2(y + 2x)$ $+ \frac{2}{9}e^{x+2y}(11 + 6x)$	