

	<b>SRM Institute of Science and Technology Kattankulathur</b>	
	<b>DEPARTMENT OF MATHEMATICS</b>	
	<b>18MAB102T ADVANCED CALCULUS &amp; COMPLEX ANALYSIS</b>	
	<b>MODULE –IV ANALYTIC FUNCTIONS</b>	
	<b>Tutorial Sheet -2</b>	<b>Answers</b>
<b>Part – A</b>		
1	Find the image of the circle $ z =3$ under the transformation $w=2z$	6
2	Find a function $w$ such that $w=u+iv$ is analytic, if $u = e^x \sin y$	$f(z) = -ie^z + c$
3	Determine the analytic function $u+iv$ whose real part $u = x^3 - 3xy^2 + 3x^2 - 3y^2 + 1$	$f(z) = z^3 + 3z^2 + c$
<b>Part – B</b>		
4	Find the analytic function $f(z) = u + iv$ if $u - v = e^x(\cos y - \sin y)$	$f(z) = e^z + c$
5	Find the analytic function $f(z) = u + iv$ if $u - v = \frac{\sin 2x}{\cosh 2y - \cos 2x}$	$f(z) = \frac{\cot z}{+i} + c$
6	Determine the region $D'$ of the $w$ -plane into which the triangular region $D$ enclosed by the lines $x=0$ , $y=0$ , $x+y=1$ is transformed under the transformation $w=2z$	
7	Find an analytic function $f(z) = u + iv$ , given that $2u + 3v = \frac{\sin 2x}{\cos h2y - \cos x}$	$f(z) = \frac{(2 + 3i) \cot z}{13} + c$