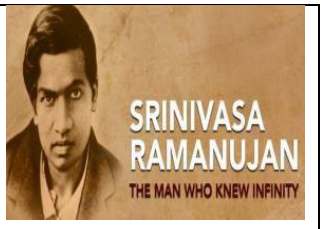
	SRM Institute of Science and Technology **Kattankulathur** **DEPARTMENT OF MEATHEMATICS** **18MAB102T ADVANCED CALCULUS & COMPLEX ANALYSIS** **UNIT –V Complex Integration and Cauchy's Theorem** **Tutorial Sheet -1**	

Sl.No.	Questions	Answer
	Part – A	
1	Evaluate $\oint_C \frac{e^{-z}}{z+1} dz$ where C is a circle $\|z\| = 2$	$= 2\pi i e$
2	Evaluate $\oint_C \frac{e^{2z}}{(z+1)(z-2)} dz$ where C is a circle $\|z\| = 3$	$= 2\pi i(e^4 - e^2)$
3	Evaluate $\int_C \bar{z} dz$ from $A(0,0)$ to $B(4,2)$ along the curve C and $z = t^2 + it$	$= 10 - \frac{8}{3}i$
4	Evaluate $\int_0^{2+i} (\bar{z})^2 dz$ along the line $y = \frac{x}{2}$	$= \frac{5}{3}(2 - i)$
5	Evaluate $\oint_C \frac{cosz}{z} dz$ where C is an ellipse $9x^2 + 4y^2 = 1$.	$= 2\pi i$
	Part – B	
6	Evaluate $\oint_C \frac{3z^2+z}{z^2-1} dz$ where C is a circle $\|z - 1\| = 1$	$= 4\pi i$
7	Evaluate $\oint_C \frac{dz}{z^3(z+4)}$ where C is a circle $\|z\| = 2$	$= \frac{1}{32}$
8	Evaluate $\oint_C \frac{z^3-2z+1}{(z-i)^2} dz$ where C is a circle $\|z\| = 2$	$= -10\pi i$
9	Evaluate $\oint_C \frac{e^z}{(z^2-\pi^2)^2} dz$ where C is a circle $\|z\| = 4$	$= \frac{i}{\pi}$
10	Evaluate $\oint_{1-i}^{2+3i} (z^2 + z) dz$ along the line joining the points (1, 1) and (2, 3)	$= \frac{1}{6}(64i - 103)$

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