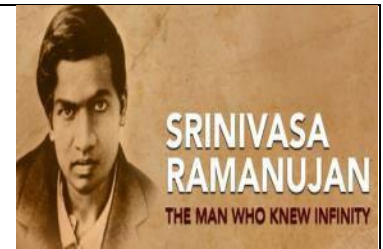




SRM Institute of Science and Technology
Kattankulathur
DEPARTMENT OF MEATHEMATICS
18MAB102T ADVANCED CALCULUS & COMPLEX ANALYSIS
UNIT -5 Cauchy Integral Formula
Tutorial Sheet -1



Sl.No.	Questions	Answer
Part – A		
1	Evaluate $\oint \frac{e^{-z}}{z+1} dz$ where c is a circle $ z =2$.	$2\pi i$
2	Evaluate $\oint \frac{3z^2+z}{z^2-1} dz$ where c is a circle $ z-1 =1$	$4\pi i$
3	Evaluate $\oint \frac{dz}{z^3(z+4)}$ where c is a circle $ z =2$	$\frac{1}{32}$
4	Evaluate $\int \frac{ze^{2z}}{(z-1)^3} dz$ where c is a circle $ z+i =2$	$8\pi i e^2$
5	Evaluate $\int \frac{\cos \pi z^2}{(z-1)(z-2)} dz$ where c is a circle $ z =3$.	$4\pi i$
6	Evaluate $\int \frac{e^{3z}}{(z+i\pi)^7} dz$ where c is the circle $ z =4$	$-\frac{81}{40}\pi i$
Part – B		
7	Using Cauchy integral formula evaluate $\oint \frac{e^{2z}}{(z+1)^4} dz$ where c is a circle $ z =2$.	$\frac{8\pi i e^{-2}}{3}$
8	Evaluate $\int \frac{dz}{z^2-2z}$ over the circle $ z-2 =1$	πi
9	Evaluate $\oint \frac{e^{3z}}{z-i\pi} dz$ where c is the circle $ z =4$	$-2\pi i$
10	Evaluate the integral $\int \frac{\cos z}{z} dz$ where c is an ellipse $9x^2 + 4y^2 = 1$	$2\pi i$