SRM Institute of Science and Technology

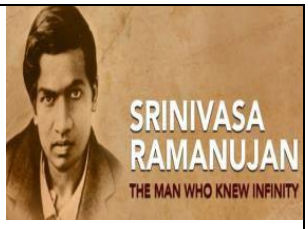
Kattankulathur

DEPARTMENT OF MATHEMATICS

18MAB101T -CALCULUS AND LINEAR ALGEBRA

UNIT V: SEQUENCE & SERIES

Tutorial Sheet -3



Sl.No.	Questions	Answer
	Part – A	
1	Define absolutely convergent with an example.	
2	Define conditionally convergent with an example.	
3	Test for convergence of the series: $\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{\sqrt{n}}$	Convergent.
4	Test for convergence of the series: $\sum_{n=1}^{\infty}\frac{(-1)^{n-1}(2n+3)}{2n}$	Oscillatory
5	Test whether the series is absolutely convergent or not: $\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{2n-1}$.	Conditionally convergent
	Part – B	
6	Test for convergence of the series: $\sum_{n=2}^{\infty}\frac{(-1)^{n-1}x^n}{n(n-1)}, 0<x<1.$	Convergent.
7	State the values of x for which the series is convergent. $\frac{x}{1}-\frac{x^2}{2}+\frac{x^3}{3}-\frac{x^4}{4}+.....\infty.$	$-1<x\leq 1$
8	Prove that the exponential series $1+\frac{x}{1!}+\frac{x^2}{2!}+\frac{x^3}{3!}+.....\infty$ is absolutely convergent and convergent for all values of x.	
9	Discuss the convergence of the series $\frac{x}{1+x}-\frac{x^2}{1+x^2}+\frac{x^3}{1+x^3}-.....\infty,$ if $0<x<1.$	Convergent.
10	Prove that the series $\frac{\sin x}{1^3}-\frac{\sin 2x}{2^3}+\frac{\sin 3x}{3^3}-.....\infty$ converges absolutely.	