SRM Institute of Science and Technology

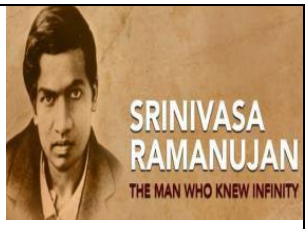
Kattankulathur

DEPARTMENT OF MATHEMATICS

18MAB101T -CALCULUS AND LINEAR ALGEBRA

UNIT V: SEQUENCE & SERIES

Tutorial Sheet -2



Sl.No.	Questions	Answer
	Part – A	
1	Test for convergence of the series: $\sum \frac{n^3}{3^n}$.	Convergent.
2	Test for convergence of the series: $\sum (\log n)^{-2n}$.	Convergent.
3	Test for convergence of the series: $\left(\frac{2^2}{1^2}-\frac{2}{1}\right)^{-1}+\left(\frac{3^3}{2^3}-\frac{3}{2}\right)^{-2}+\left(\frac{4^4}{3^4}-\frac{4}{3}\right)^{-3}+.....\infty$	Convergent.
4	Test for convergence of the series: $\sum \left(\frac{n+1}{2n+7}\right)^n$	Convergent.
5	Test for convergence of the series: $1+\frac{x}{2}+\frac{x^2}{3^2}+\frac{x^3}{4^3}+.....\infty, x>0$	Convergent.
	Part – B	
6	Test for convergence of the series: $\frac{2}{3.4}+\frac{2.4}{3.5.6}+\frac{2.4.6}{3.5.7.8}+\frac{2.4.6.8}{3.5.7.9.10}+.....\infty$	Convergent.
7	Test for convergence of the series: $\frac{3}{4}.\frac{x}{5}+\frac{3.6}{4.7}.\frac{x^2}{3}+\frac{3.6.9}{4.7.10}.\frac{x^3}{11}+....\infty, x>0$	Convergent for $0<x\le 1$. Divergent for $x>0$.
8	Test for convergence of the series: $\sum \frac{1.3.5...(2n-1)}{2.4.6...2n}x^n$.	Convergent for $0<x<1$. Divergent for $x\ge 0$.
9	Test for convergence of the series: $\sum \frac{(n!)^2}{(2n)!}x^n$.	Convergent for $x^2<4$. Divergent for $x^2\ge 4$.
10	Test for convergence of the series: $\frac{x}{1}+\frac{2^2x^2}{2!}+\frac{3^3x^3}{3!}+\frac{4^4x^4}{4!}+.....\infty$	Convergent for $x<\frac{1}{e}$. Divergent for $x\ge\frac{1}{e}$