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|  SRM INSTITUTE OF SCIENCE & TECHNOLOGY (Deemed to be University u/s 3 of UGC Act, 1956) | SRM Institute of Science and Technology | |  SRINIVASA RAMANUJAN THE MAN WHO KNEW INFINITY |
| | Kattankulathur | | |
| | DEPARTMENT OF MATHEMATICS | | |
| | 18MAB101T -CALCULUS AND LINEAR ALGEBRA | | |
| | UNIT V: SEQUENCE & SERIES | | |
| | Tutorial Sheet -1 | | |
| Sl.No. | Questions | Answer | |
| Part – A | | | |
| 1 | Show that the sequence $\left\{ \frac{n+1}{2n+7} \right\}$ is convergent. | | |
| 2 | Examine the nature of the sequence: $\{2^n\}$ | Divergent. | |
| 3 | Examine the nature of the sequence: $\{3+(-1)^n\}$ | Oscillatory. | |
| 4 | Test for convergence of the series: $\frac{1}{4.7.10} + \frac{4}{7.10.13} + \frac{9}{10.13.16} + \infty$ | Divergent. | |
| 5 | Test for convergence of the series: $\frac{1}{1.2.3} + \frac{3}{2.3.4} + \frac{5}{3.4.5} + \infty$ | Convergent. | |
| Part – B | | | |
| 6 | Test for convergence of the series: $\sum_{n=1}^{\infty} \frac{n^3+1}{2^n+1}$ | Convergent. | |
| 7 | Test for convergence of the series: $\frac{x}{1} + \frac{1}{2} \cdot \frac{x^2}{3} + \frac{1.3}{2.4} \cdot \frac{x^3}{5} + \frac{1.3.5}{2.4.6} \cdot \frac{x^5}{7} + \infty, x > 0$ | Convergent for $0 < x < 1$. Divergent for $x > 0$. | |
| 8 | Test for convergence of the series: $\sum_{n=1}^{\infty} \sqrt{\frac{n}{n+1}} x^n, x > 0$. | Convergent for $0 < x < 1$. Divergent for $x \geq 0$. | |
| 9 | Test for convergence of the series: $\sum \frac{x^n}{n!}$ | Convergent for all x . | |
| 10 | Test for convergence of the series: $\sum \frac{x^n}{1+x^n}$ | Convergent for $0 < x < 1$. Divergent for $x \geq 0$. | |