Topic: 2.3 – SERIES OF POSITIVE TERMS

Series of positive terms:

General properties:

1. Convergence of a series remains unchanged by the replacement, inclusion (or) omission of a finite number of terms.

2. A series remains convergent, divergent (or) oscillatory when each term of it is multiplied by a fixed number other than zero.

3. A series of positive terms either converges (or) diverges to +∞., omitting the negative terms, the sum of first n terms tends to either a finite limit (or) +∞.

4. Every finite series is a convergent series.

Problem:

Series of positive term.

1. If all the terms after few negative terms in an infinite series are positive, such a series is a positive term series.

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Problem:

Series of positive term.

1. If all the terms after few negative terms in an infinite series are positive, such a series is a positive term series.

Eg: $-10 - 6 - 1 + 5 + 12 + 20 + \cdots$

2. A series of positive terms either converges (or) diverges to ∞, for the sum of first n terms, omitting the negative term, tends to either a finite limit (or) ∞

3. Necessary condition for convergence. If a +ve term series Σu_n is convergent, then $\lim\limits_{n \to \infty} u_n = 0$. but the converse not true.

4. Test for divergence.

If $\lim\limits_{n \to \infty} u_n \neq 0$, the series Σu_n must be divergent.

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