11. PERIODICITY AND EXTREME VALUES

Synopsis :

1. A real function f : A $\rightarrow$ R is said to be a periodic function if there exists a positive real number p such that f(x + p) = f(x), $\forall$ x $\in$ A. The least positive real number p such that f(x + p) = f(x), $\forall$ x $\in$ A, is called period of f.

2. If f(x) is a periodic function with period p, then

   f(ax + b) is also a periodic function with period p/|a|.

3. i) sinx is a period function with period 2π.

   ii) cosx is a period function with period 2π.

   iii) tanx is a period function with period π.

   iv) cotx is a period function with period π.

   v) secx is a period function with period 2π.

   vi) cosecx is a period function with period 2π.

4. i) The period of sinax is $\frac{2\pi}{|a|}$.

   ii) The period of cosax is $\frac{2\pi}{|a|}$.

   iii) The period of tanax is $\frac{\pi}{|a|}$.