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Continued

**(ii) Negative Vectors** Two vectors of equal magnitude but in opposite directions are called negative vectors.



**(iii) Zero Vector or Null Vector** A vector whose magnitude is zero is known as a zero or null vector. Its direction is not defined. It is denoted by  $0$ .

Velocity of a stationary object, acceleration of an object moving with uniform velocity and resultant of two equal and opposite vectors are the examples of null vector.

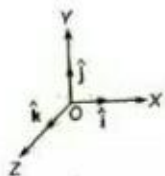
**(iv) Unit Vector** A vector having unit magnitude is called a unit vector.

A unit vector in the direction of vector  $A$  is given by

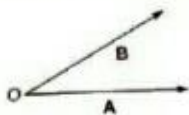
$$\hat{A} = A / A$$

A unit vector is unitless and dimensionless vector and represents direction only.

**(v) Orthogonal Unit Vectors** The unit vectors along the direction of orthogonal axis, i.e., X – axis, Y – axis and Z – axis are called orthogonal unit vectors. They are represented by  $\hat{i}$ ,  $\hat{j}$  and  $\hat{k}$



**(vi) Co-initial Vectors** Vectors having a common initial point, are called co-initial vectors.



**(vii) Collinear Vectors** Vectors having equal or unequal magnitudes but acting along the same or parallel lines are called collinear vectors.



**(viii) Coplanar Vectors** Vectors acting in the same plane are called coplanar vectors.

