

$$5a) \sigma = (2, 3)(4, 5, 6)(7, 8, 9, 10) \dots$$

$$b) (1, 2, 3, 4, 5, \dots) \quad \text{or} \quad \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & \dots \\ 2 & 3 & 4 & 5 & 6 & 7 & \dots \end{pmatrix}$$

$$c) (3, 5)(7, 9, 11)(13, 15, 17, 19) \dots$$

$$(2, 4, 6, 8, 10, \dots)$$

$$d) (1, 2, 2^2, 2^3, 2^4, \dots)$$

$$(3, 3^2, 3^3, 3^4, \dots)$$

$$(5, 5^2, 5^3, \dots)$$

The primes are infinite and each cycle is infinite.  
This permutation is therefore type  $(0, 0, 0, \dots, \infty)$