Physics paper-VI
Group A: Statistical Mechanics.

Microscopic state

In the microscopic consideration, knowledge regarding the constituent particles of the system is taken into account.

Suppose, a state of the system is defined by the position coordinates 'q' and momentum coordinates 'p'.

For a system of N particles,
q represents a set of 3N position ~~coordinates~~ coordinates, $q_1, q_2, \ldots, q_{3N}$

p represents a set of 3N momentum coordinates
$p_1, p_2 \ldots p_{3N}$.
(It has taken into account all the three axes x, y, z that's why it is shown in 3N ways).

For one set of ~~of~~ position and momentum coordinates, the system is represented by one point in the phase ~~pa~~ space. Such state of the system is known as a microscopic state or microstate.

~~Thus~~

Thus, from the microscopic point of view, the macroscopic description of the system is not applicable.

Therefore, a microstate of a macroscopically defined system is described through a probability density $\rho(q, p, t)$ which is a function of position and momentum coordinates of the constituent particles and time t.