What is Unsaturated Solution ?

The solution which can dissolve excess amount of solute in it at the given temperature is called an unsaturated solution at that temperature. The solution can be changed into saturated by cooling it or by adding more solute in it. It is less dense than the saturated solution.

What is Saturated Solution ?

The solution which cannot dissolve the excess amount of solute in it at a particular temperature is called a saturated solution at that temperature. It is denser due to the presence of maximum amount of solute in it. A saturated solution can be changed into unsaturated by heating the solution or by adding more solvent in it.

What is Supersaturated Solution ?

The solution formed by cooling a hot saturated solution fast is a supersaturated solution. Hence, the saturated solution at higher temperature that holds excessively more solute than the required amount for a saturated solution at that temperature is called a supersaturated solution.
Distinguish, differentiate, compare and explain what is the difference between saturated and unsaturated solution. Comparison and Differences.

Differences between Saturated and Unsaturated Solution

S.No.	Saturated Solution	Unsaturated Solution
1	A solution which is unable to dissolve more solute at a particular temperature is called a saturated solution.	A solution which has capacity of dissolving more solute at a particular temperature is called an unsaturated solution.
2	On heating, it becomes unsaturated.	On heating, it remains unsaturated.
3	It has more concentration of the solute.	It has less concentration of the solute.
4	Precipitation of the solute appears on cooling.	Precipitation does not appear on cooling.
5	It has more density.	It has less density.

How to prepare a Supersaturated Solution ?

Take some amount of saturated solution in a beaker and heat the beaker gently. Add a little amount of sugar in the beaker containing the saturated solution with increasing temperature. You will see that the additional sugar gets dissolved. Continue this process of dissolving the sugar more and more by keeping the definite volume of solution. After some time, we can see that no more sugar dissolves in the solution. Then, cool the saturated solution in cold water. The solution crystallizes less amount of solute and the solution holds more amount of solute than the required amount of solute for saturated solution at that temperature. It is a supersaturated solution.