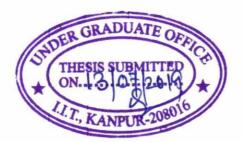
## CERTIFICATE

It is certified that the work contained in the thesis titled "Studies on structural optimality of plant stems", by Rohit Gupta, has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.



 $\label{eq:Dr.Sumit Basu} \mbox{Department of Mechanical Engineering}$   $\mbox{IIT Kanpur}$ 

July, 2019