

## CERTIFICATE

This is to certify that the thesis entitled "Analysis of State Dependent Bulk Queuing Models with Server Failures and Various Vacation Strategies" submitted by Mr. NIRANJAN S. P., School of Advanced Sciences, VIT, Vellore for the award of the degree of *Doctor of Philosophy*, is a record of bonafide work carried out by him under our supervision, as per the VIT code of academic and research ethics.

The contents of this report have not been submitted and will not be submitted either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university. The thesis fulfills the requirements and regulations of the University and in our opinion meets the necessary standards for submission.

Place: Vellore

Date: 11/12/2018



Signature of the Guide(s)

(Dr. K. Indhira and Dr. V. M. Chandrasekaran)