

DEPARTMENT OF PHYSICS
Centre of Advanced Study in Physics
PANJAB UNIVERSITY, CHANDIGARH-160 014 (INDIA)

Fax : +91 172 2541741, 2534492
Phone : +91 172 2534489
Email: physics@pu.ac.in



Dated :
PHS:

To whom it may concern

This is to certify that research work entitled “**DIFFERENTIAL CROSS SECTION MEASUREMENT OF Z BOSON IN LEPTONIC DECAYS AT $\sqrt{s} = 13$ TeV WITH CMS DETECTOR AT LHC**” is carried out by Ridhi Chawla under the supervision of Prof. Manjit Kaur, Department of Physics, Panjab University, Chandigarh, and Prof. Slawomir Marek Tkaczyk, Particle Physics Division, Fermi National Accelerator Lab, America, in the department of Physics, Panjab University, Chandigarh is a piece of original work and no part of this work has been submitted for any other degree at this or any other University/Institute. It is further certified that the thesis has also been thoroughly checked on anti-plagiarism software and nothing has been found which can be considered as plagiarism.

(Ridhi Chawla)

(Prof. Navdeep Goyal)

(Prof. Manjit Kaur)

(Prof. Slawomir Marek
Tkaczyk)

Signature & Name
of the candidate

Signature & Name
of the Chairperson

Signature & Name
of the supervisor

Signature & Name
of the supervisor