CERTIFICATE OF RESEARCH

This thesis titled "A CFD Study on Comparison of Heat Transfer Performance of Water Based Graphene Nanoplatelets Nanofluids and Multiwalled Carbon Nanotubes Nanofluids in a Concentric Tube Heat Exchanger" submitted by MD Zahinul Hoq (170011039), MD Jabir Rahim (170011008) has been accepted as satisfactory in partial fulfillment of the requirement for the Degree of Bachelor of Science in Mechanical Engineering.

Supervisor

Dr. Arafat Ahmed Bhuiyan

Associate Professor

Head of the Department

Prof. Dr. Md. Anayet Ullah Patwari

Professor

Department of Mechanical and Production Engineering (MPE)

Islamic University of Technology (IUT)

DECLARATION

I hereby declare that this thesis entitled "A CFD Study on Comparison of Heat Transfer Performance of Water Based Graphene Nanoplatelets Nanofluids and Multiwalled Carbon Nanotubes Nanofluids in a Concentric Tube Heat Exchanger" is an authentic report of study carried out as requirement for the award of degree B.Sc. (Mechanical Engineering) at Islamic University of Technology, Gazipur, Dhaka, under the supervision of Arafat Ahmed Bhuiyan, PdD, Associate Professor, MPE, IUT in the year 2020-2021

The matter embodied in this thesis has not been submitted in part or full to any other institute for award of any degree.

MD Zahinul Hoq

Student ID: 170011039

Jalun [fort Jobire MD Jabir Rahim Rahim]

Student ID: 170011008