**SYNTHESIS AND CHARACTERIZATION OF pH SENSITIVE MALEIC ANHYDRIDE AND ACRYLAMIDE HYDROGEL**

Major project-II report submitted for the partial fulfilment for the award of the degree of

**Master of Technology**

In

**Polymer Technology**

Under the supervision of

**Prof D. Kumar**

**Submitted by**

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**CERTIFICATE**

This is to certify that the M.Tech project titled **“SYNTHESIS AND CHARACTERIZATION OF pH SENSITIVE MALEIC ANHYDRIDE AND ACRYLAMIDE HYDROGEL”** which is submitted by Mukesh Kumar Mishra for partial fulfillment of the requirement for the award of the degree of M.Tech in Polymer Technology of Delhi Technological University, Delhi, is a record of the candidate’s own work carried out by him in the Department of Applied Chemistry and Polymer Technology. This report has not been submitted to any other university or institution for the award of any degree or diploma.

**SIGNATURE OF SUPERVISOR**

**DECLARATION**

I, hereby declare that the major project entitled **“SYNTHESIS AND CHARACTERIZATION OF pH SENSITIVE MALEIC ANHYDRIDE AND ACRYLAMIDE HYDROGEL”** is a record of original work done by me under the guidance of Prof. D. Kumar during the academic session 2014-15.

I also declare that no part of this report has been previously submitted to any university or institution for acquiring any degree or diploma.

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**ABSTRACT**

Acrylamide/maleic anhydride hydrogels were prepared by using free radical initiator ammonium persulphate. Hydrogels were cross-linked with methylene bisacrylamide. Swelling properties of hydrogels were analysed in distilled water to find out the concentration of acrylamide and maleic anhydride at which swelling is maximum. Maximum swelling of 1310% of hydrogel was obtained at unimolar concentration of acrylamide and maleic anhydride. Also, the maximum swelling of 1450% was reported at pH 8. Surface morphology, crystallinity and structural studies were carried out using scanning electron microscope, X-Ray Diffraction and Fourier Transform Infrared spectroscopy, respectively.