5.1 Aims and objectives of the study -

The detailed discussion in the previous chapter(s) on the effectiveness of the interpenetrating polymeric network (IPN) systems make us believe that the development and characterization of these novel hydrogel carriers will contribute to improved oral delivery of wide variety of chemotherapeutic agents. The literature survey also reveals that not enough scientific information available pertaining to the development of oral controlled release applications of interpenetrating polymeric network for drugs, especially gastric irritant nonsteroidal anti-inflammatory drugs (NSAIDs). Since development of sustained-release dosage forms bearing NSAIDs is beneficial for optimal therapy with respect to efficacy, safety, and patient compliance, it is the need of the hour that research must concentrate on investigating the feasibility of IPN's for the sustained delivery of diclofenac sodium, an NSAID. Therefore, in order to check the feasibility of interpenetrating polymeric network as drug delivery carrier, the present investigation is designed with following objectives:

- Development of validated bioanalytical technique using High Performance Liquid Chromatography (HPLC) for the determination of Diclofenac in animal plasma as per USFDA guidelines.
- Biopharmaceutical characterization of diclofenac bearing microspheres.
- Determination of sub-chronic oral toxicity study in rat and mice as per Organization for Economic Co-operation and Development (OECD) guideline.