ABSTRACT

The research reported in this thesis deals with the problem of existence of solutions of nonlinear neutral integrodifferential equations including Sobolev type integrodifferential equations in Banach spaces. Several sufficient conditions are established for the existence of solutions of those integrodifferential equations. Also the regularity of solutions of semilinear Sobolev type integrodifferential equations are studied. Further we investigate the existence problem for abstract second order nonlinear functional integrodifferential equations. The results are obtained by using the fixed point theorems due to Banach, Schauder and Schaefer. All the results generalize the previous results of several researchers. Examples are provided to illustrate the theory which is applied to the controllability problem in control theory.