

# CE 412 A: Water Supply & Wastewater Disposal Systems

## Tutorial 1 – 2019-20 II

### TUTORIAL 1

**Problem 1:** The population of the city of Jaipur for seven decades from 1951 to 2011 is given below in the table. Estimate the population for the year 2021, using the following methods:

- (a) Arithmetic Increase Method
- (b) Geometric Increase Method
- (c) Decreasing Rate of Growth Method

Year	1951	1961	1971	1981	1991	2001	2011
Population (In Millions)	0.3	0.41	0.64	1.02	1.52	2.32	3.7

**Problem 2:** Population data of a city has given below:

Year	1960	1980	2000
Population	30000	170000	300000

Determine:

- (a) The saturation population
- (b) The equation of the logistic curve
- (c) The expected population for the year 2020.

**Problem 3:** A water supply scheme has to be designed for a city having a population of 150000. Estimate the fire demand (in Mld) using

- (a) Kuichling's formula
- (b) Freeman's formula
- (c) American Insurance Association formula