Programme: MSc. (Statistics)   **Part-1**   **Semester-1**

Practical- 2.4.3   **Branching Process**

1. A branching process has offspring distribution a = (1/4, 1/4, 1/2) where a discrete r.v. X takes values {0,1,2}. Find the following :

i.   Mean of offspring distribution.

ii.   Ps), probability generating function of offspring distribution.

iii. The probability of ultimate extinction. Verify graphically.

2. A branching process has offspring distribution a = (1/6, 1/2, 1/3) where a discrete r.v. X takes values {0,1,2}. Find the following –

i.   Mean of offspring distribution.

ii.   P(s), probability generating function of offspring distribution.

iii. The probability of ultimate extinction. Verify graphically.

3. Assume the offspring distribution is uniform on {0,1,2,3,4}. Find the probability of ultimate extinction.

4. Find probability of ultimate extinction whose offspring distribution is Poisson with parameter

l = 0.80, 2.

5. Find probability of ultimate extinction whose offspring distribution is geometric with parameter p = 0.7, 0.2.