5.1: Conclusion:

The study comes to the following results:

1. Time of failures follows Weibull distribution with 2-parameters for five machines.

2. No time trend exists for the failure time and renewal process (repairable) represents homogeneous passion process (HPP) for the five machines.

3. The repairable time of machines represent Poisson stationary regenerative process

4. The underlying distribution of the renewal process is Weibull and it is significant.

5. The repair rate of machines occurred constantly.

6. There is a relationship between repair rate and mean time between failure (MTBF),which means whenever repair rate increases the mean time of period between fault increases in too.

7. The predication of the number of renewals reveals that the number of renewal increase in linearity for all machines.

8. When operation time of machines increase the performance decreases or the machine got fault.

9. The machines no (3,4 and 6) have high reliability and the machines no (1 and 5) have low reliability.

10. The hazard rate of machines increase according to the time.

11. The machines with high reliability have a low faults probability and hazard rate but the machines with low reliability have high faults probability and hazard rate.

12. Whenever mean time between failure(MTBF) for machines increase that indicate the machine has high reliability .

13. The machines have high availability.

5.2: Recommendations:

1. The renewal process is important in study of faults time and machines efficiency evaluation.

2. The extended of study span recommended to include all types of generation machines (water generation machines and gas generation machines) in Sudan.

3. We suggest that preventive maintenance should be made (regularly)machines for its conservation and to insure that electricity supply continuous.

4. The researcher recommended that the data type of renewal spare part , the cost and the faults should be recorded complete and accurate to assist to build stochastic models to use for faults forecasting and to evaluate the machines quality.

5. We recommended the national authority of electricity to provide Weibull++ software because it analyzes the renewal process model and failure in comprehensive way.