1 Poisson arrivals and renewal arrivals are always stationary processes.

2 With compound Poisson arrivals, the number of arrivals in a time interval T presents a Poisson distribution.

3 With compound Poisson arrivals, the average number of arrivals in [0-t] increases linearly with t.

4 In non-homogeneous Poisson arrivals, the waiting time to the next arrival after t is still negative-exponential distributed.

5 In non-homogeneous Poisson arrivals, arrivals at different times are statistically independent events

6 In non-homogeneous Poisson arrivals, arrivals at different times are statistically independent events

7 In Poisson arrivals the sum of the numbers of arrivals in two different interval is Poisson distributed

8 If we decompose a Poisson flow we always get a Poisson flow

9 In Poisson arrivals the probability that more than one user occurs in Delta t is zero.

10 The union of two compound Poisson arrival is still a compound Poisson arrival.

11 Is the union of two renewal flows still a renewal flow? Why and how?

12 The conditional renewal rate depends on the paste history. How and when?

13 The conditional renewal rate depends on the paste history. How and when?

14 The conditional renewal rate can be an increasing function of tau

15 arrivals whose intearrival period is negative exponential with alternating rates, lambda_1 and lambda_2, are renewal events.

16 In renewal arrivals the asimptotic probability of an arrival in t is zero.

17 For all the arrival processes the stationary rate of arrival is the reverse of the average interarrival period

18 Given a continuous-tyime, homogeneous MC, the transition time instants represent renewal time instants.

19 Dealing with non-recurrent renewal events, the average number of arrivals in [0-t] increases with t.

20 Renewal arrivals are memoryless.

21 Renewal arrivals are stationary, like Poisson arrivals

22 Dealing with arrival processes with single arrivals, the arrival rate is the reverse of the interarrival time; how and when?

23 The probability of a renewal arrival in Delta t depends on the future.

24 In renewal events the time distance to the next arrival depends on the distance to the last arrival.

25 Asymptotic probabilities can be interpreted as limiting fractions of time. How and when?

26 Regenerative processes are ergodic.

27 The asymptotic distributions at even and odd time instants can be different.

28 In stationary processes the second order distribution at t_1 and t_2 does not depend on t_1 and t_2

29 In stationary processes the second order distribution at t_1 and t_2 does depend neither on t_1 nor on t_2.

30 The asymptotic distribution is always a solution of the balance equations

31 The asymptotic distribution of a recurrent regenerative processes can depend on initial conditions.

32 In irreducible homogeneous markovan chains the asymptotic distribution always exists.

33 In regenerative processes the asymptotic distribution always exists

34 In regenerative processes the asymptotic distribution always exists

35 In a discrete-time MC, the sojourn time in a state is geometrically distributed.

36 Do the balance equations hold for any stationary chain? Why?

37 Are markov chains regenerative processes? How and when?

38 Are non-homogeneous markov chains regenerative processes?

39 Are regenerative processes ergodic?

40 In a stationary chain does the global probability flux entering any subset of states equal zero? Why?

41 In a stationary chain the global probability flux entering any subset of states equal zero.

42 When the asymptotic distribution is periodic, it is provided by the balance equations.

43 The asymptotic distribution of a Markov chain can have all zero elements: How and when?

44 The asymptotic distribution of a Markov chain can have all zero elements: How and when?

45 Some Markov chains allow for multiple asymptotic distributions.

46 Balance equations can be satisfied by more than one distribution

47 In dicrete-time Markov chain is the sojourn time always geometrically distributed?

48 In a Markov Chain, do the balance equations provide a distribution if the distribution $\Pi(n)$ is periodic?

49 In a Markov Chain, the probabilistic description of the third order is completely defined by the descriptions of first and second order

50 Non recurrent Markov Chains present a unique asymptotic distribution

51 In any continuous-time MC the sum of the rows of the intensity matrix Q is one

52 element q_jj of the intensity matrix Q of an MC is the rate at which the chain leaves state j.

53 In irreducible Markov Chains the probability of ever returning to a state is one.

54 In irriducible, homogeneous and finite Markov Chains the average return time to a state is always finite.

55 The chain derived from a MC by changing the pdf of the sojourn times presents the same asymptotic distribution.

56 The balance equations for time-continuous Chains are the same as for dicrete-time Chains.

57 The balance of flows in stationary conditions holds only for irreducible chains.

58 In continuous-time MCs the transition rate out of a state is negative

59 In continuous-time MCs the transition rate matrix Q may depend on time t.

60 infinite state-space MCs behave exactly as finite ones

61 Non irreducible Markov Chains can be ergodic

62 In Markov Chains the distribution of X(n), knowing only X(n-k),X(n-k-1), … X(0), only depends on X(n-k)

63 The state space of a Markov Chain can present two irreducible subsets (correggere su esame)

64 In Markov Chains the joint distribution of X(n), X(n+2) splits into the product of their marginal distributions.

65 In Markov Chains Pr(X_n|X_n-1, X_n+1) does not depend on X_n+1

66 Is the state X(n) of a Markov Chain statistically independent of future values X(n+k)?

67 In a Markov Chain we can have two or more distributions satisfying the balance equations

68 Balance Equations hold also for stationary non-irreducible MCs.

69 A markov chain state space can have two irreducible subsets, one positive recurrent and the other non-recurrent.

70 In a positive recurrent MC the average return time to a state is proportional to its asymptotic probability.

71 In a positive recurrent MC all states are visited with probability one

72 The probabilistic flux out of an irreducible subset of a MC is zero.

73 Any process with finite memory can be reduced to a markov chain.