

Department of Mathematics  
MTL 725(Stochastic Processes and Applications)  
Answers to Tutorial Sheet No. 1

2. (a) Yes.

$$(b) P(X_{n+1} = j | X_n = i) = \begin{cases} 0 & \text{if } j = i + 1 \\ \frac{50-n+i}{100-n} & \text{if } j = i \\ \frac{50-i}{100-n} & \text{if } j = i - 1 \end{cases}$$

(c) No.

3. It is Covariance Stationary

6. It is Covariance Stationary

8. (a) It is covariance Stationary

(b) It is not a markov process

9. (a) Mean = 0

(b) Covariance =  $Cov(X(t), X(s)) = 1 + ts + t^2s^2$ . This also shows it is not covariance stationary.

10. The converse is true.

II Semester 2017-18