DATE : . . .

4. $X_t = \begin{cases} 0 & \text{if 정상} \\ 1 & \text{if 고장} \end{cases}$

$P_{00} = \{X_{t+1}=0 \mid X_t=0\} = 0.9$

$P_{01} = \{X_{t+1}=1 \mid X_t=0\} = 0.1$

$P_{10} = \{X_{t+1}=0 \mid X_t=0\} = 1$

$P_{11} = \{X_{t+1}=1 \mid X_t=1\} = 0$

$$\therefore P = \begin{array}{c} \text{state} \\ 0 \\ 1 \end{array} \begin{array}{c} \begin{array}{cc} 0 & 1 \end{array} \\ \begin{bmatrix} 0.9 & 0.1 \\ 1 & 0 \end{bmatrix} \end{array}$$

$\mu_{00} = 1 + P_{01} \cdot \mu_{10} = 1 + 0.1 \cdot \mu_{10}$ ··· ①

$\mu_{01} = 1 + P_{00} \cdot \mu_{01} = 1 + 0.9 \cdot \mu_{01}$ ··· ②

$\mu_{10} = 1 + P_{11} \cdot \mu_{10} = 1 + 0 \cdot \mu_{10}$ ··· ③

$\mu_{11} = 1 + P_{10} \cdot \mu_{01} = 1 + 1 \cdot \mu_{01}$ ··· ④

② → $\mu_{01} = 1 + 0.9 \cdot \mu_{01} \Rightarrow \mu_{01} = 10$

∴ 10 일.