① $A_1 = 100$ $A_2 = 110$ $A_3 = 121$ $A_4 = 133.1$ $A_5 = 146.41$

$A_n = A_{n-1} \cdot 1.1$

② 1 , 2, or 3

Ⓐ

$$A_n = b_{n-1} + b_{n-2} + b_{n-3}$$

$n \geq 4$

1 = 1   1

2 = 11   2
    2

3 = 111
    (12)(21)   4
    3

4 = 1111
    112, 211, 121   7
    31, 13
    4

Ⓑ $\dfrac{274}{ways}$ different

5 = 11111
    2111 1211, 1121, 1112
    221, 212, 122   13
    32, 23   1
    311, 131, 113

6 = 111111   19

5 × 2 11111

2211, 2112, 2121, 1221, 1212, 1122

    222

321, 312, 213, 231, 123, 132

(3) $T_n =$ total , $B_n =$ Bad $G_n =$ good

$T_n = 26^n = B_n + G_n$ 2 ways to set to good

$T_1 = 26$ $B_1 = 1$ $G_1 = 25$

$G_n = 25 \cdot (G_{n-1}) + (B_{n-1})$

$T_{n-1} = 26^{n-1} = B_{n-1} + G_{n-1}$

$\left(26^{n-1} - G_{n-1}\right) = B_{n-1}$ $\longrightarrow$ $G_n = 25(G_{n-1}) + \left(26^{n-1} - G_{n-1}\right)$

$G_n = 24 \, G_{n-1} + 26^{n-1}$

(4) $\boxed{5^n 3} = 5^n a_0$ $a_0 = 3$

(5) $5^n a_0 + 3\left(1 \ldots 5^n\right) = 5^n \cdot 3 + 3\left(\dfrac{5^n - 1}{5 - 1}\right)$

$= 3 \cdot 5^n + \dfrac{3}{4} 5^n$

$\boxed{\dfrac{9}{4} 5^n + \dfrac{3}{4}}$