1

(1).

Plug in the market price and the consumption,

$$\text{CPI for 2016} = \frac{6 \times 15 + 3 \times 8}{5 \times 15 + 2 \times 8} \times 100 = 125.27.$$

(2).

$$\text{GDP Deflator for 2016} = \frac{6 \times 25 + 3 \times 15}{5 \times 25 + 2 \times 15} \times 100 = 125.81.$$

(3).

$$\text{GDP Deflator for 2015} = \frac{5 \times 20 + 2 \times 10}{6 \times 20 + 3 \times 10} \times 100 = 80.$$

2

Let M denotes the married population, S the single population and $P_A = M + R$ the adult population. In this question, the divorce rate is $d = 0.02$ and the marriage rate is $r = 0.03$. When the percentage of single people in the adult population is steady, we have

$$Md = Sr \implies \frac{P_A - S}{P_A} d = \frac{S}{P_A} r \implies \frac{S}{P_A} = \frac{d}{d+r} = \frac{2}{5} = 40\%.$$

That is, the steady-state percentage of single people in the adult population is 40%.

3

(1).

According to the definition, the labor force consists of group 1, 2, 3, 4, and 6. Adding the up, we know that

$$\text{Labor Force} = 65.$$

The labor force and group 5, 7, 8 make up the adults, so

$$\text{Labor Force Participation Rate} = \frac{65}{65 + 25} = \frac{13}{18}.$$

(2).

The umemployed is the group 4. Therefore,

$$\text{Unemployment Rate} = \frac{10}{65} = \frac{2}{13}.$$