# Homework 2

1. In the twin-tree economy, the production and consumption of apples and oranges are as follows,

| Year | Apple | | Orange | |
|---|---|---|---|---|
| | Production | Consumption | Production | Consumption |
| 2016 | 25 | 20 | 15 | 12 |
| 2015 | 20 | 15 | 10 | 8 |

Note that the differences between "Production" and "Consumption" are exported. And the market prices for apples and oranges are:

| Year | Apple | Orange |
|---|---|---|
| 2016 | 6 | 3 |
| 2015 | 5 | 2 |

(1) Compute the CPI for 2016 using 2015 as the base year (let the CPI of 2015 be 100).
(2) Compute the GDP deflator for 2016, using the 2015 price (let the GDP deflator of 2015 be 100).
(3) Compute the GDP deflator for 2015, using the 2016 price (let the GDP deflator of 2016 be 100).

2. Suppose that every year in Shanghai, 2% of married couples get divorced and 3% of single adults get married. Define a steady state, and what would be the steady-state percentage of single people in the adult population?

3. Suppose that an economy has 100 people, divided into 9 groups:

| Group | Description | Number of people |
|---|---|---|
| 1 | Have full-time jobs | 30 |
| 2 | Have one part-time job | 10 |
| 3 | Have two part-time jobs | 5 |
| 4 | Would like to work and are looking for jobs | 10 |
| 5 | Would like to work, but have given up looking. | 5 |
| 6 | Running their own business | 10 |
| 7 | Retired | 15 |
| 8 | University students | 5 |
| 9 | Small children | 10 |

(1) Compute the labor force and the labor force participation rate.
(2) Compute the unemployment rate.