Year	Price of Food items	Quantity of Food items	Price of Cloth items	Quantity of Cloth items	Price of Photographic goods	Quantity of Photographic goods
2019	200 TK	100 Million	500 TK	25 Million	100000 TK	0.01 Million
2020	300 TK	150 Million	600 TK	35 Million	150000 TK	0.02 Million
2021	500 TK	250 Million	650 TK	50 Million	200000 TK	0.03 Million

(a) Calculate Nominal GDP for the year 2019, 2020 & 2021.

(b) Calculate Real GDP for the year 2020 & 2021.

(c) Calculate GDP deflator for the year 2020 & 2021.

(d) Calculate inflation rate for the year 2020 & 2021.

(e) Calculate economic growth rate for the year 2020 & 2021.

Given that 2019 is the base year.

Nominal GDP (NGDP): We know that

NGDP = ∑(Current year price times current year quantity)

Therefore, $NGDP_{2019}$ = [(200*100) + (500*25) + (100000*.01)] Million TK

= [(20000) + (12500) + (1000)] Million TK

= 33,500.00 Million TK

$NGDP_{2020}$ = [(300*150) + (600*35) + (150000*.02)] Million TK

= [(45000) + (21000) + (3000)] Million TK

= 69,000.00 Million TK

$NGDP_{2021}$ = [(500*250) + (650*50) + (200000*.03)] Million TK

= [(125,000) + (32,500) + (6000)] Million TK

= 163,500.00 Million TK

Real GDP (RGDP):

Given that 2019 is the base year. In the base year, NGDP = RGDP, and GDP deflator = 100.

We know that RGDP = ∑(Base year price times current year quantity)

Therefore, $RGDP_{2020}$ = [(200*150) + (500*35) + (100000*.02)] Million TK

= [(30000) + (17500) + (2000)] Million TK

= 49,500 Million TK

$RGDP_{2021}$ = [(200*250) + (500*50) + (100000*.03)] Million TK

= [(50000) + (25000) + (3000)] Million TK

= 78,000 Million TK

GDP Deflator: We know that GDP Deflator = (NGDP/RGDP)*100

Therefore,

GDP $Deflator_{2020}$ = [(69,000/49,500)*100]

= [1.40816*100]

= 140.8163

GDP $Deflator_{2021}$ = [(163,500/78,000)*100]

= [2.09615*100]

= 209.6154

Inflation rate: We can calculate the inflation rate from GDP Deflator by using the following formula,

$$\text{Inflation rate} = \frac{GDP\ Deflator\ Year\ 2 - GDP\ Deflator\ Year\ 1}{GDP\ Deflator\ Year\ 1} * 100$$

Therefore,

$$\text{Inflation rate in 2020} = \frac{GDP\ Deflator\ Year\ 2020 - GDP\ Deflator\ Year\ 2019}{GDP\ Deflator\ Year\ 2019} * 100$$

$$= \frac{140.8163 - 100}{100} * 100$$

= 40.8163 %

$$\text{Inflation rate in 2021} = \frac{GDP\ Deflator\ Year\ 2021 - GDP\ Deflator\ Year\ 2020}{GDP\ Deflator\ Year\ 2020} * 100$$

$$= \frac{209.6254 - 140.8163}{140.8163} * 100$$

$$= \frac{68.8091}{140.8163} * 100$$

= 0.4886*100

= 48.86 %

Economic Growth: We know that economic growth rate can be calculated by using the following formula

$$\text{Economic growth} = \frac{RGD \quad in\ current\ year - RGDP\ in\ Previous\ year}{RGDP\ in\ previous\ year} * 100$$

Therefore,

$$\text{Economic growth rate in 2020} = \frac{RGDP\ in\ 2020 - RGDP\ in\ 2019}{RGDP\ in\ 2019} * 100$$

$$= \frac{49{,}500 - 3\ \ ,500}{33{,}500} * 100$$

$$= 0.4776*100$$

$$= 47.76\ \%$$

$$\text{Economic growth rate in 2021} = \frac{RGDP\ in\ 2021 - RGDP\ in\ 2020}{RGDP\ in\ 2020} * 100$$

$$= \frac{78{,}000 - 4\ \ ,500}{49{,}500} * 100$$

$$= 0.5757*100$$

$$= 57.57\ \%$$