Chapter 13 - Index Numbers

Question 1: What is Index Number?

Answer: According to Croxton and Cowden, "Index numbers are devices for measuring the difference in the magnitude of a group of related variables."

Question 2: The following are the prices of commodities in 2004 and 2018. Construct a price index based on price relatives taking 2004 as the base year.

Commodity	A	B	C	D	E
Price in 2004	50	40	80	110	20
Price in 2018	40	60	90	120	20

Solution:

Construction of a price index-

Simple average of price relatives

Commodity	Price in 2004 (P0)	Price in 2018 (P1)	Price Relatives $\left(\frac{P1}{P0} \times 100\right)$
A	50	70	$\frac{70}{50} \times 100 = 140$
B	40	60	$\frac{60}{40} \times 100 = 150$
C	80	90	$\frac{90}{80} \times 100 = 112.5$
D	110	120	$\frac{120}{110} \times 100 = 109.1$
E	20	20	$\frac{20}{20} \times 100 = 100$
N = 5			$\sum \left(\frac{P1}{P0} \times 100\right) = 611.6$

$$P_{01} = \frac{\sum\left(\frac{P_1}{P_0} \times 100\right)}{N} = \frac{611.6}{5} = 122.32$$