Q3. Explain why the budget line is downward sloping.
Ans: The budget line is a negatively downward sloping line. The slope of a budget line measures the amount of good 2 that must be sacrificed in order to get an additional unit of good 1, as the consumer's income (M) is fixed. The budget line is downward sloping because, in order to increase the consumption of one good, the consumption of the other good must be reduced, with constant M.

$$\frac{-P_1}{P_2} = \frac{\Delta x_2}{\Delta x_1}$$

The slope of the budget line is, which implies the rate of exchange or the rate at which good 2 can be substituted for good 1.

Q4. A consumer wants to consume two goods. The prices of the two goods are Rs. 4 and Rs. 5 respectively. The consumer's income is Rs 20.
(i) Write down the equation of the budget line.
(ii) How much of good 1 can the consumer consume if she spends her entire income on that good?
(iii) How much of good 2 can she consume if she spends her entire income on that good?
(iv) What is the slope of the budget line?

Ans:

(i) P_1 = Rs 4

P_2 = Rs 5

M = Rs 20

Equation of the budget line = $P_1x_1 + P_2 + x_2$ =M

$4x_1 + 5x_2 = 20$

(ii) If Rs 20 is entirely spent on good 1, then the amount of good 2 demanded will be zero i.e., $x_2 = 0$ as the consumer has no income left to spend on good 2.

$4x_1 + 5(0) = 20$

$4x_1 = 20$

$x_1 = \frac{20}{4}$

$x_1 = 5$

Amount of good 1 consumed = 5 units

(iii) If Rs 20 is entirely spent on good 2, then $x_1 = 0$, as the consumer has no income left to spend on good 1.

$4(0) + 5x_2 = 20$

$5x_2 = 20$

$x_2 = \frac{20}{5}$

$x_2 = 4$

Amount of good 2 consumed = 4 units

(iv) Slope of the budget line = $\frac{-P_1}{P_2}$

$= \frac{\text{-Price of good 1}}{\text{Price of good 2}} = -\frac{4}{5}$

********** END **********