**Concept 22 (Mixture Problem)**

**#** Important formula : C =

Here, = concentration of the first mixture

= quantity of the first mixture

= concentration of the second mixture

= quantity of the second mixture

**Example 1:** In 24 kg if salt water, 8% is salt; of another mixture, 4% is salt. How many kg of 2nd solution must be added to the first mixture to get a solution that is 5% salt?

(A) 24 (B) 36 (C) 48 (D) 72 (E) 96

**Solution:**

Mixture one quantity = 24 kg

Mixture one concentration = 8

Mixture two concentration = 4

Solution concentration C = 5

Mixture two quantity = ?

= C or, = 5 or, 192 + = 120 + or, = 72

Answer: (D)

**Concept 15 (Profit & Loss)**

* Profit = Selling Price – Cost

Loss = Cost – Selling Price

* **Always remember, Profit or Loss is always calculated on the cost**

If an item is sold at 20% profit, it is sold at 120% of cost

If an item is sold at 20% loss, it is sold at 80% of cost

* **Marking up/down means raising/lowering the selling price. It is always calculated on selling price.**

If an item is marked up by 20%, its selling price is 120% of previous selling price

If an item is marked down by 20%, its selling price is 80% of previous selling price

* 100% of cost is cost itself. It’s obvious isn’t it? But, keeping it in mind makes life easier. Let me show you how.

Suppose a book was sold at 20% profit and profit was 40 tk.

So, 20% of cost = 40

100% of cost = 200

The cost of the book was 200.

* **Discount is calculated on selling price**

If an item is sold at 20% discount, it is sold at 20% of the previous selling price

**Example 1:** A bicycle originally cost $100 and was discounted 10%. After three months it was sold after being discounted another 15%. How much was the bicycle sold for?

(A) $76.50 (B) $75.00 (C) $73.50 (D) $71.00 (E) $69.50

**Solution:**

Original price = $100

10% discounted price = $90

The bicycle was sold after another 15% discount. Meaning, the bicycle was sold at 85% of the discounted price. Selling price = $90 × 85% = %76.50

Answer: (A)

**Example 2:** A certain radio costs a shopkeeper Tk. 64, At what price must be sell it if he is to make a profit of 20% on the selling price?

(A) Tk. 12.80 (B) Tk. 76.80 (C) Tk. 78.00 (D) Tk. 80.00 (E) Tk. 84.00

**Solution:**

Cost = 64; at 20% profit, selling price is 120% of cost.

Selling Price = 64 ×120% = 76.80 taka

Answer: (B)