

26. let the two acid solutions be 'a' litres and 'b' litres

$\therefore$  acid in 'a' litre solution = 90% of a

$$= \frac{90}{100} a$$

and

acid in 'b' litre solution = 97% of b

$$= \frac{97}{100} b$$

Total acid in the solution = 95% of 21

$$= \frac{95}{100} \times 21$$

$$= \frac{1995}{100}$$

$$\therefore \frac{90a}{100} + \frac{97b}{100} = \frac{1995}{100}$$

$$\therefore 90a + 97b = 1995 \quad \text{--- (I)}$$

and

$$a + b = 21 \quad \text{--- (II)}$$

Multiplying equation II by 90 ;

$$90a + 90b = 21 \times 90$$

$$90a + 90b = 1890 \quad \text{--- III}$$

Subtracting equation III from I;

$$\begin{array}{r} 90a + 97b = 1995 \quad \text{--- I} \\ - 90a + 90b = 1890 \quad \text{--- III} \\ \hline \end{array}$$

$$7b = 105$$

$$\therefore b = \frac{105}{7}$$

$$b = 15 \text{ litres}$$

Substituting,  $b = 15$  litres in (II) we get,

$$a + 15 = 21$$

$$\therefore a = 21 - 15$$

$$a = 6 \text{ litres}$$

$\therefore$  90% acid solution = 6 litres

and

97% acid solution = 15 litres