

Q. 30. The means of three samples of size 200, 250 and 300 are 25, 10 and 15 respectively. Find out the mean of the combined distribution.

$$N_1 = 200, N_2 = 250, N_3 = 300$$
$$M_1 = 25, M_2 = 10, M_3 = 15$$

$$\bar{X} = \frac{(N_1 M_1) + (N_2 M_2) + (N_3 M_3)}{N_1 + N_2 + N_3}$$

$$= \frac{(200 \times 25) + (250 \times 10) + (300 \times 15)}{200 + 250 + 300}$$

$$= \frac{5000 + 2500 + 4500}{750}$$

$$= \frac{12000}{750}$$

$$= \frac{48}{3} = 16 \text{ Ans.}$$

Q.42 From the following data calculate weighted arithmetic mean.

X	W	X · W
76	3	228
74	6	444
81	2	162
70	3	210
88	7	516

$$\Sigma W = 21 \quad \Sigma X \cdot W = 1660$$

$$\bar{X}_w = \frac{\Sigma X \cdot W}{\Sigma W}$$

$$= \frac{1660}{21}$$

$$= \frac{237.142}{3}$$

$$= 79.047$$

$$= 79.05 \text{ Ans.}$$

Q. 12. A student obtained the following Percentage of marks in an examination: English 60, Economics 75, Business Studies 72, Accountancy 90, Statistics 95. Find the weighted mean if weights are 3, 1, 2, 4, 3 respectively. Also find out A.M.

X	w	X.w
60	3	180
75	1	75
72	2	144
90	4	360
95	3	285
$\Sigma X = 392$	$\Sigma w = 13$	$\Sigma Xw = 1044$

$$\bar{X}_w = \frac{\Sigma Xw}{\Sigma w}$$

$$= \frac{1044}{13}$$

$$= 80.30\% \text{ Ans.}$$

$$A.M = \frac{\Sigma X}{N}$$

$$= \frac{392}{5}$$

$$= 78.4\% \text{ Ans.}$$

Q. 53. The average income of 100 persons is calculated 20, while the average income of all the 150 persons is 25. calculate the average income of 50 persons.

$$N_1 = 100$$

$$M_1 = 20$$

$$M = 25$$

$$M_2 = ?$$

$$N_2 = 50$$

$$M = \frac{(N_1 M_1) + (N_2 M_2)}{N_1 + N_2}$$

$$25 = \frac{(100 \times 20) + (50 \times M_2)}{100 + 50}$$

$$25 = \frac{2000 + 50M_2}{150}$$

$$2000 + 50M_2 = 3750$$

$$50M_2 = 3750 - 2000$$

$$M_2 = \frac{1750}{50}$$

$$\therefore M_2 = 35 \text{ Rs.}$$