

3. (a) Find the standard deviation and its coefficient from the following data :

$$8+4=12$$

Variable	No. of frequency	Variable	No. of frequency
more than 90	0	more than 40	110
" " 80	5	" " 30	150
" " 70	14	" " 20	170
" " 60	34	" " 10	176
" " 50	65	" " 0	180

Or

- (b) Calculate Karl Pearson's coefficient of skewness :

$$12$$

Variable	Frequency	Variable	Frequency
70-80	11	30-40	21
60-70	22	20-30	11
50-60	30	10-20	6
40-50	35	0-10	5

4. (a) (i) Explain the addition theorem of probability using Venn diagrams in case of mutually exclusive events and events not mutually exclusive.
- (ii) If from a pack of cards a single card is drawn, what is the probability that it is either a spade or a king?

$$7+4=11$$

Or

- (b) One ticket is drawn at random from a bag containing 30 tickets numbered from 1 to 30. Find the probability that—

(i) it is a multiple of 5 or 7;

(ii) it is a multiple of 3 or 5.  $5+6=11$

5. (a) (i) Explain briefly the procedure followed in testing a hypothesis.
- (ii) Distinguish between Type-I and Type-II errors. How to avoid such errors?  $5+6=11$

Or

- (b) The following table gives the classification of 100 workers according to sex and the nature of work. Test whether nature of work is independent of the sex of the worker :

$$11$$

	Skilled	Unskilled
Males	40	20
Females	10	30

(For  $v=1$ , the table value of  $\chi^2$  at 5% level of significance is 3.84)