



- iii) Variance is independent of
- a) origin only b) scale only
- c) both (a) and (b) d) none of these.
- iv) Which of the following is a unitless measure of dispersion ?
- a) S.D. b) M.D.
- c) C.V. d) Range.
- v) The correlation between the speed of an automobile and the distance travelled by it after applying the brake is
- a) negative b) zero
- c) positive d) none of these.
- vi) If X and Y are jointly distributed random variables and a, b, c, d are arbitrary constants, then
- a) $cov (aX + b, cY + d) = bc cov (X, Y)$
- b) $cov (aX + b, cY + d) = cd cov (X, Y)$
- c) $cov (aX + b, cY + d) = ac cov (X, Y)$
- d) $cov (aX + b, cY + d) = abc cov (X, Y)$.
- vii) If two unbiased dice are rolled together, what is the probability of getting no difference points
- a) $\frac{1}{2}$ b) $\frac{1}{3}$
- c) $\frac{1}{5}$ d) $\frac{1}{6}$.



xiii) If the first and third quartiles are 22.16 and 56.36 respectively, the quartiles deviation is

- a) 17.1
- b) 34.2
- c) 51.3
- d) none of these.

xiv) The chart in which different categories of data are represented as percentage of 360° is called

- a) pie diagram
- b) line diagram
- c) ogive
- d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Draw a histogram and frequency polygon from the following distribution :

Weekly wages (Rs.) : 0 — 20 20 — 40 40 — 60 60 — 80 80 — 100

No. of workers : 8 10 12 14 16

3. Construct a pie diagram for the data on blood group of 250 newly employed personnel in a hospital :

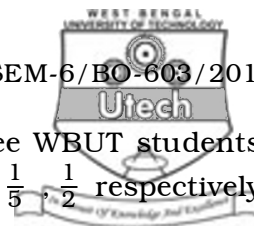
Blood group : **A** **B** **O** **AB**

No. of Workers : 50 90 70 40

4. Calculate standard deviation from the following distribution :

Age (Years) : 20 — 25 25 — 30 30 — 35 35 — 40 40 — 45 45 — 50

No. of Workers : 170 110 80 45 40 35



5. A problem in probability was given to three WBUT students, A, B, C whose chances of solving it are $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{2}$ respectively. What is the probability that the problem would be solved ?
6. The regression equations are $8x - 10y + 66 = 0$ and $40x - 18y = 214$. Find correlation co-efficient of variates.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) The median and mode of the following frequency distribution are known to be 27 and 26 respectively. Find the values of 'a' and 'b' :

Value : 0 — 10 10 — 20 20 — 30 30 — 40 40 — 50

Frequency : 3 a 20 12 b

- b) Draw the histogram and frequency polygon with the following data :

Age : 0 — 10 10 — 30 30 — 60 60 — 70 70 — 90

Frequency : 5 20 45 12 16
7 + 8

8. a) A distribution is given below :

12	19	46	36	27	37	40	15	06	30
05	09	10	30	26	20	28	20	11	45
20	42	42	27	19	12	35	12	18	34
32	30	45	37	41	39	46	40	22	25

- i) Arrange the data in frequency tables with 9 classes.
- ii) Draw the more than and less than ogive. Also find the median from them.



- b) Three coins are tossed. Find the probabilities of
- i) more than one head
 - ii) at least one head. 3 + 6 + 6
9. a) According to the theory in Genetics, the proportion of beans of *A*, *B*, *C* and *D* types in a generation should be 9 : 3 : 3 : 1. In an experiment with 1600 beans, the frequency of bean of *A*, *B*, *C* and *D* types was observed to be 882, 313, 287 and 118 respectively. Does the result support the theory ?
- b) The probability that an employee getting occupational disease is 20%. In a firm having 5 employees, what is the probability that :
- i) none of the employees get the disease
 - ii) exactly 2 will get the disease
 - iii) more than 4 will contract the disease. 8 + 7
10. a) You are given three urns as follows :
- Urn *X* contains 3 red and 5 white marbles ; Urn *Y* contains 2 red and 1 white marbles ; Urn *Z* contains 2 red and 3 white marbles. An urn is selected at random and a marble is drawn from the urn. If the selected marble is red, what is the probability that it came from the urn *X* ?
- b) The table gives the diastolic blood pressure of 250 men. The readings were made to the nearest millimetre and the central value of each group is given below :
- | | | | | | | | | |
|------------------------------|----|----|----|----|-----|----|----|----|
| Blood pressure (mm) : | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 |
| No. of men : | 4 | 5 | 31 | 39 | 114 | 30 | 25 | 2 |
- Calculate the mean and the median from the data. 7 + 8



11. a) The following are the runs made by two cricketers in 10 innings :

Innings :	1	2	3	4	5	6	7	8	9	10
Cricketer A :	31	48	13	51	38	43	50	36	47	82
Cricketer B :	51	5	12	83	37	112	42	18	79	20

- i) Which of the two cricketers is a better scorer on average ?
 - ii) Which of them is more consistent ?
- b) For a group of 8 students, the sum of squares of difference in rank for mathematics and statistics marks was found to be 50. What is the value of rank correlation coefficient ?
- c) From the following data, find out the two regression equations :

Age (years) :	1	3	4	5	7
Weight (kg) :	3	5	8	12	17

What will be the most probable weight of a baby at the age of 8 years ? 6 + 4 + 5