General instructions for Students: Whatever be the notes provided, everything must be copied in the Maths copy and then do the HOMEWORK in the same copy.

Statistics

Grouped or Classified Data

Variate :   A particular value of a variable is called vatiate (observation).

Class Interval :   Each group into which the raw data is condensed, is called a
                 class interval.

Class limits : Each class is bounded by two figures, which are called class limits.
              The figure on the left side of the class is called its lower limit and
              that on the right is called its upper limit.

Class size or class width : The difference between the true upper limit and
             the true lower limit of a class is called its class size.
             Example : class size of the class $10 - 20 = 20 - 10 = 10$
             Example : class size of the class $1 - 5 = 5.5 - 0.5 = 5$

Class mark :   Class mark of a class $= \frac{\text{upper limit} + \text{lower limit}}{2}$

True class limits : In continuous distribution, the classlimits are called true
                 or actual class limits.

Stated class limits : In discrete distribution, the original class limits are
                 called the stated class limits.

Frequency of a class : The number of times a variate occurs in a given data is
                 called frequency of that variate.

Cumulative frequency of a class : The sum of frequencies of all the previous classes and their particular class is called the comulative frequency of the class.

3. Given below are the marks obtained by 27 students in a test :

21,   3,   28,   38,   6,   40,   20,   26,   9,   8,

14,   18,   20,   16,   17,   10,   8,   5,   22,   27,

34,   2,   35,   31,   16,   28,   37

(i) Using the class intervals 1 − 10, 11 − 20 etc. construct a frequency table.

(ii) State the range of these marks.

(iii) State the class mark of the third clas of your frequency table.

Classes	1 − 10	11 − 20	21 − 30	31 − 40
Frequency	8	7	6	6

Range   =   maxi. value − mini. value

=   40 − 2   =   38   **Ans.**

Class mark of the third class   = $\frac{30 + 21}{2}$ = $\frac{51}{2}$ =   25.5   **Ans.**

6. The marks obtained (out of 50) by 40 students in a test are given below :

28, 31, 45, 03, 05, 18,   35, 46, 49,   17,

10, 28, 31, 36, 40, 44, 47, 13, 19,   25,

24, 31, 38, 32, 27, 19,   25,   28, 48,   15,

18, 31, 37, 46, 06,   01, 20,   10, 45,   02

(i) Taking class interval   1 − 10,   11 − 20 ... ...

contruct a tally chart and frequency distribution table.

(ii) Convert the above distribution to continuous distribution.

(iii) State the true class limits of third class.

(iv) State class mark of the fourth class.

Class Interval	Tally Marks	Frequency
$1 - 10$	̄HH̄ II	7
$11 - 20$	̄HH̄ III	8
$21 - 30$	̄HH̄ II	7
$31 - 40$	̄HH̄ ̄HH̄	10
$41 - 50$	̄HH̄ II	7

Class Interval	Frequency
$0.5 - 10.5$	7
$10.5 - 20.5$	8
$20.5 - 30.5$	7
$30.5 - 40.5$	10
$40.5 - 50.5$	8

Lower limit $= 20.5$ and Upper limit $= 30.5$ Ans.

Class mark of the fourth class $= \dfrac{\text{upper limit + lower limit}}{2} = \dfrac{40.5 + 30.5}{2} = \dfrac{71}{2} = 35.5$ Ans.

HOMEWORK

EXERCISE $- 20.2$

QUESTION NUMBERS : 1, 2, 4 and 5

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