

Chapter 13 Statistics

UNIT TEST

Duration: 1 hour

Marks: 30

SECTION A

Each carry 1 mark

- The mean and mode of a frequency distribution are 28 and 16 respectively. The median is
a) 22 b) 23.5 c) 24 d) 24.5
- The mean of 15 numbers is 25. If each number is multiplied by 4, mean of the new numbers is
a) 60 b) 100 c) 10 d) none of these
- The mean, mode and median of the observations, 7, 7, 5, 7 and x are the same. Then the observation x is
a) 10 b) 9 c) 8 d) 7
- Assertion: The arithmetic mean of the following frequency distribution is 25.

Class Interval	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80	Total
Frequency	12	30	x	65	y	25	18	230

Reason: $\text{Mean}(\bar{x}) = \frac{\sum f_i x_i}{\sum f_i}$, where $x_i = \frac{1}{2}(\text{lower limit} + \text{upper limit})$ of i^{th} class interval and f_i is its frequency.

- Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- Assertion (A) is true but Reason (R) is false.
- Assertion (A) is false but Reason (R) is true.

SECTION B

Each carry 2 marks

- Calculate the mode of the following data:

Daily wages (in ₹)	100 - 120	120 - 140	140 - 160	160 - 180	180 - 200	200 - 220	220 - 240
No. of workers	10	15	20	22	18	12	13

6. Form the frequency distribution table for the following data:

Marks (Out of 90)	Number of students
More than or equal to 80	4
More than or equal to 70	6
More than or equal to 60	11
More than or equal to 50	17
More than or equal to 40	23
More than or equal to 30	27
More than or equal to 20	30
More than or equal to 10	32
More than or equal to 0	34

7. Find the median of the following data:

Height(in cm)	Less than 120	Less than 140	Less than 160	Less than 180	Less than 200
No. of students	12	26	34	40	50

SECTION C

Each carry 3 marks

8. Find the value of p , if the mean of the following distribution is 20.

x	15	17	19	$20 + p$	23
f	2	3	4	5	6

9. Compute the median marks for the following data.

Marks	0 & above	10 & above	20 & above	30 & above	40 & above	50 & above
No. of students	50	46	40	20	10	3

SECTION D

Each carry 5 marks

10. The mean of the following data is 19. Find the missing frequencies x and y , if the total frequency is 80.

Class	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Frequency	6	8	x	19	20	y	8	3

11. Find the values of frequencies x and y in the following frequency distribution table if $N = 100$ and median is 32.

Mark	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
No. of students	10	x	25	30	y	10

SECTION E

12. A stopwatch was used to find the time that it took a group of students to run 100m.

Time (in sec)	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
No. of students	8	10	13	6	3

Based on the above data, answer the following:

- Estimate the mean time taken by a student to finish the race.
- What will be the upper limit of the modal class?
- Find the sum of lower limits of median class and modal class.
- How many students finished the race within 1 minute?

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1. c) 24

2. b) 100

3. b) 9

4. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

5. ₹ 166.67.

Marks	0 -10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90
No. of students	2	2	3	4	6	6	5	2	4

6.

7. 138.57

8. $p = 1$

9. 27.5

10. $x = 10$, $y = 6$

11. $x = 9$ and $y = 16$

12. i) 43

ii) 60

iii) 80

iv) 31