

## Chapter-13

### Unit-1 : Statistical Description of Data

MTP March '20

1. Find the number of observations between 250 and 300 from the following data:

Value:	More than 200	More than 250	More than 300	More than 350
No. of observations:	56	38	15	0

(a) 56

(b) 23

(c) 15

(d) 8

[MTP March '21]

2. The difference between Upper limit and lower limit of a class is called
- (a) Class Interval (b) Class boundaries
- (c) Mid-Value (d) Frequency

3. The following data relate to the marks of a group of students:

Marks:	Below 10	Below 20	Below 30	Below 40	Below 50
No. of students:	15	38	65	84	100

How many students got marks more than 30?

(a) 65

(b) 50

(c) 35

(d) 43

4. Median of a distribution can be obtained from

(a) Frequency polygon

(b) Histogram

(c) Less than type ogives

(d) None of these.

MTP October, '19

5. The number of times a particular item occurs in a given data is called its

(a) Variation

(b) Frequency

(c) Cumulative frequency

(d) None of these

6. Frequency density is used in the construction of

(a) Histogram

(b) Ogive

(c) Frequency polygon

(d) None of these

7. The width of each of ten classes in a frequency distribution is 2.5 and the lower class boundary of the lowest class is 10.6. Which one of the following is the upper class boundary of the highest class?

(a) 35.6

(b) 33.1

(c) 30.6

(d) None of these



8. Let  $L$  be the lower class boundary of a class in a frequency distribution and  $m$  be the mid point of the class. Which one of the following is the higher class boundary of the class?

(a)  $m + \frac{m+2}{2}$  (b)  $L + \frac{m+L}{2}$  (c)  $2m-L$  (d)  $m-2L$

**MTP March, '19**

9. Statistics is applied in  
 (a) Economics (b) Business management  
 (c) Commerce and industry (d) All these.
10. The primary data are collected by  
 (a) Interview method (b) Observation method  
 (c) Questionnaire method (d) All these.
11. The best method to collect data, in case of a natural calamity, is  
 (a) Personal interview (b) Indirect interview  
 (c) Questionnaire method (d) Direct observation method
12. 'Stub' of a table is the  
 (a) Left part of the table describing the columns  
 (b) Right part of the table describing the columns  
 (c) Right part of the table describing the rows  
 (d) Left part of the table describing the rows
13. Pie-diagram is used for  
 (a) Comparing different components and their relation to the total  
 (b) representing qualitative data in a circle  
 (c) Representing quantitative data in circle  
 (d) (b) or (c).

**[MTP April '19]**

**MTP-April '19**

14. The entire upper part of a table is known as  
 (a) Caption (b) Stub (c) Box head (d) Body
15. A frequency distribution  
 (a) Arranges observations in an increasing order  
 (b) Arranges observation in terms of a number of groups  
 (c) Relaters to a measurable characteristic  
 (d) all these.
16. Mode of a distribution can be obtained from  
 (a) Histogram (b) Less than type ogives  
 (c) More than type ogives (d) Frequency polygon
17. The following data relates to the incomes of 90 persons:
- | Income in ₹    | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 |
|----------------|-----------|-----------|-----------|-----------|
| No. of Persons | 13        | 32        | 20        | 25        |
- Which is the percentage of persons earning more than ₹ 2,000?
- (a) 45 (b) 85.56 (c) 52 (d) 55



**MTP-Oct '20**

18.

The most appropriate diagram to represent the data relating to the monthly expenditure on different items by a family is ?

(a) Histogram

(c) Frequency polygon

☒ (b) Pie-diagram

(d) Line graph

19.

The distribution of income is an example of frequency distribution of

(a) Continuous variable

☒ (b) A discrete variable

(c) An attribute

(d) (b) or (c)

20.

The number of accidents for seven days in a locality are given below :

No. of accidents :	0	1	2	3	4	5	6
Frequency :	12	15	23	30	9	3	2

What is the number of cases when 3 or less accidents occurred?

(a) 56

(b) 6

☒ (c) 80

(d) 87

**MTP March '21**

21.

Histogram is used for presentation of the following type of series

(a) Time Series

☒ (b)

Continuous Frequency Series

(c) Discrete Series

(d)

Individual Series

22.

The graphical representation of cumulative frequency distribution is called-

(a) Histogram

(b) Pie Chart

(c) Frequency Polygon

☒ (d)

Ogive

23.

No. of Accidents	0	1	2	3	4	5	6	7
Frequency	36	27	33	29	24	27	18	9

In how many cases 5 or more accidents occur?

(a) 96

(b) 133

(c) 78

☒ (d) 54

**MTP-March'22**

24.

Median of a distribution can be obtained from

(a) Frequency polygon

(b) Histogram

☒ (c) ogives

(d) None of these.

25.

Cost of sugar in a month under the heads raw Materials, labour, direct production and others were 12, 20, 35 and 23 units respectively. What is the difference between the central angles for the largest and smallest components of the cost of sugar?

(a) 72°

(b) 48°

(c) 56°

☒ (d) 92°

26.

In a study relating to the labourers of a jute mill in West Bengal, the following information was collected.

'Twenty per cent of the total employees were females and forty per cent of them were married. Thirty female workers were not members of Trade Union. Compared to this, out of 600 male workers 500 were members of Trade Union and fifty per cent of the male workers were married. The unmarried non-member male employees were 60 which formed ten per cent of the total male employees. The unmarried non-members of the employees were 80'. On the basis of this information, the ratio of married male non-members to the married female non-members is

(a) 1:3

(b) 3:1

☒ (c) 4:1

(d) 5:1



27. For the non-overlapping classes 0—19, 20—39, 40—59 the class mark of the class 0—19 is  
 (a) 0 (b) 19 ☒ (c) 9.5 (d) none of these
28. Histogram is useful to determine graphically the value of  
 (a) Arithmetic Mean (b) Median ☒ (c) Mode (d) HM

MTP-Oct'21

29. Statistics is concerned with  
 (a) Qualitative information (b) Quantitative information  
 (c) (a) or (b) ☒ (d) Both (a) and (b).
30. The primary data are collected by  
 (a) Interview method (b) Observation method  
 (c) Questionnaire method ☒ (d) All these.
31. The following data relate to the incomes of 86 persons:
- | Income in ' :    | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 |
|------------------|---------|-----------|-----------|-----------|
| No. of persons : | 15      | 28        | 36        | 7         |
- What is the percentage of persons earning more than Rs 1500?  
☒ (a) 50 (b) 45 ☒ (c) 40 (d) 60
32. The following data relate to the marks of a group of students:
- | Marks:           | Below 10 | Below 20 | Below 30 | Below 40 | Below 50 |
|------------------|----------|----------|----------|----------|----------|
| No. of students: | 15       | 38       | 65       | 84       | 100      |
- How many students got marks more than 30?  
 (a) 65 (b) 50 ☒ (c) 35 (d) 43
33. The curve obtained by joining the points, whose x- coordinates are the upper limits of the class intervals and y coordinates are corresponding cumulative frequencies is called  
☒ (a) Ogive (b) Histogram (c) Frequency Polygon (d) Frequency Curve

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34. Salaries of employees working in ABC limited is as follows:
- | Salaries (In thousands) | below 10 | below 20 | below 50 | below 100 | below 1000 |
|-------------------------|----------|----------|----------|-----------|------------|
| Number of employees     | 28       | 34       | 65       | 84        | 123        |
- Find the number of employees with salaries more than 50k?  
 (a) 65 (b) 84 (c) 39 ☒ (d) 58
35. Which of the following is not an example of continuous variable?  
 (a) Temperature in India (b) Profit of Company X  
☒ (c) Number of road accidents (d) A person's height



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36. The number of times a particular items occurs in a class interval is called its:

- (a) Mean (b) Cumulative Frequency  
(c) Frequency (d) None of the above

37. An Ogive is a graphical representation of:

- (a) Cumulative Frequency distribution (b) Ungrouped Data  
(c) A frequency distribution (d) None of the above

38. From the following data, cumulative frequency for the class 20 – 30 is

Class	Frequency
-------	-----------

0–10	4
10–20	6
20–30	20
30–40	8
40–50	3

- (a) 26 (b) 10 (c) 41 (d) 30

39. Histogram can be shown as:

- (a) Ellipse (b) Rectangle (c) Hyperbola (d) Circle

40. \_\_\_\_\_ series is continuous.

- (a) Open ended (b) Exclusive (c) Close ended  
(d) Unequal Class Intervals

41. Ogive graph is used for finding:

- (a) Quartiles (b) Deciles (c) Median (d) All of these

42. Histogram is useful to determine graphically the value of:

- (a) Arithmetic Mean (b) Mode (c) Median (d) None of these

43. Data are said to be \_\_\_\_\_ if the investigator himself is responsible for the collection of data.

- (a) Primary Data (b) Secondary Data  
(c) Mixed of Primary and Secondary Data (d) None of these

44. A suitable graph for representing the portioning of total into sub parts in statistics is:

- (a) A Pictograph (b) A Pie Chart (c) An Ogive (d) A Histogram

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45. The distribution of profits of a company follows:

- (a) J-shaped frequency curve (b) U-shaped frequency curve  
(c) Bell-shaped frequency curve (d) Any of these

46. Median of a distribution can be obtained from:

- (a) Histogram (b) Frequency Polygon  
(c) Less than type ogives (d) none of these



47. Frequency density corresponding to a class interval is the ratio of
- (a) Class Frequency to the Total Frequency (b) Class Frequency to the class Length
- (c) Class frequency to the class Frequency
- (d) Class Frequency to the Cumulative Frequency.

48. Cost of sugar in a month under the heads raw Materials, labour, direct production and others were 12, 20, 35 and 23 units respectively. What is the difference between the central angles for the largest and smallest components of the cost of sugar?

(a)  $72^\circ$  (b)  $48^\circ$  (c)  $56^\circ$  (d)  $92^\circ$

49. Difference between upper limit and lower limit of class is known as

(a) Range (b) Class Mark (c) Class Size (d) Class Boundary

MTP-2 June'22

50. Histogram is used for finding:

(a) Mode (b) Mean (c) First Quartile (d) None

51. Data are said to be \_\_\_\_\_ if the investigator himself is responsible for the collection of data.

(a) Primary Data (b) Secondary Data

(c) Mixed of Primary and Secondary Data (d) None of these

52. The frequency of the Class 20-30 in the following data is;

Class	0-10	10-20	20-30	30-40	40-50
Cumulative Frequency	5	13	28	34	38
(a) 5	(b) 28	(c) <u>15</u>	(d) 13		

53. There were 200 employees in an office in which 150 were married. Total male employees were 160 out of which 120 were married. What was the female unmarried employees?

(a) 30 (b) 10 (c) 40 (d) 50

54. Relative frequency for a particular class lies between:

(a) 0 and 1 (b) 0 and 1, both inclusive (c) -1 and 0

(d) -1 and 1

55. Less than type and more than type Ogives meet at a point known as:

(a) Mean (b) Median (c) Mode (d) None



# ANSWER KEYS

1	(b)	2	(a)	3	(c)	4	(c)
5	(b)	6	(a)	7	(a)	8	(c)
9	(d)	10	(d)	11	(a)	12	(d)
13	(a)	14	(c)	15	(d)	16	(a)
17	(b)	18	(b)	19	(b)	20	(c)
21	(b)	22	(d)	23	(d)	24	(c)
25	(d)	26	(c)	27	(c)	28	(c)
29	(d)	30	(d)	31	(a)	32	(c)
33	(a)	34	(d)	35	(c)	36	(c)
37	(a)	38	(d)	39	(b)	40	(b)
41	(d)	42	(b)	43	(a)	44	(b)
45	(c)	46	(c)	47	(b)	48	(d)
49	(c)	50	(a)	51	(a)	52	(c)
53	(b)	54	(a)	55	(b)		



## Unit-2 : Sampling

Sampling fluctuations may be described as:

- (a) The variation in the values of a sample
- (b) The differences in the values of a parameter
- (c) The variation in the values of a statistic
- (d) The variation in the values of observations.

A random sample of size 17 has 52 as mean. The variance is 160. The 99%-confidence for the mean are:

$$t_{0.005}(16) = 2.92$$

- (a) [42.77,61.23]
- (b) [44,58]
- (c) [49,51]
- (d) [37,18]

Which sampling provides separate estimates for population means for different purposes and also an over all estimate ?

- (a) Multistage sampling
- (b) Simple random sampling
- (c) Systematic sampling
- (d) Stratified sampling

A sample of size 3 is taken from a-population of 10 members without replacement. If the sample observations are 1, 3 and 5 what is the estimate of the standard error of sample mean ?

- (a) 1.02
- (b) 1.92
- (c) 2.37
- (d) 3.01

For a given sample of 200 items drawn from a large population, the mean is 65 and the standard deviation is 8. Find the 95% confidence limits for the population mean :

- (a) [67.11,63.89]
- (b) [66.11,63.89]
- (c) [68.11,65.89]
- (d) None of these

A simple random sample of size 66 was drawn in the process of estimating the mean annual income of 950 families of a certain township. The mean and standard deviation of the samples were found to be ₹ 4730 and ₹ 7:65 respectively. Find a 95% confidence interval for the population mean:

- (a) [4782.15,4731.85]
- (b) [4728.15,4731.85]
- (c) [4793.85,4801.85]
- (d) None of these

A Population comprises of 20 members. The number of all possible samples if size 2 that can be drawn from it without replacement,

- (a) 210
- (b) 380
- (c) 190
- (d) 400

In sampling, standard deviations are known as

- (a) Expectation
- (b) Sampling Errors ,
- (c) Standard Error
- (d) All of the above

Except sampling error, other errors in sampling are :

- (a) Non sampling errors
- (b) Standard errors
- (c) Sampling fluctuations
- (d) All of these

Distribution formed of all possible value of statistics is called\_\_\_\_\_.

- (a) Sampling Distribution
- (b) Classification
- (c) Tabulation
- (d) None



11. In sampling, standard error is:  
 (a) Standard deviation  
 (b) Quartile deviation  
 (c) Mean deviation  
 (d) Coefficient of variation
12. If every 9<sup>th</sup> unit is selected from universal set then this type of sampling is known as:  
 (a) Quota Sampling  
 (b) Systematic Sampling  
 (c) Stratified Sampling  
 (d) None of these Answer:
13. The Standard deviation of the sampling distribution of a statistical distribution is a -  
 (a) Critical value  
 (b) Biased estimate  
 (c) Unbiased estimate  
 (d) Standard error
14. The method of sampling in which each unit of the population has an equal chance of being selected in the sample is  
 (a) Random sampling  
 (b) Stratified sampling  
 (c) Systematic sampling  
 (d) None of the above
15. The total number of samples of size  $n$  drawn from a population of size  $N$  units by simple random sampling without replacement is  
 (a)  $N^n$   
 (b)  ${}^NC_n$   
 (c)  ${}^nC_N$   
 (d)  $n^N$
16. In order to test the quality of chalks, the best suitable method will be  
 (a) Complete enumeration  
 (b) Simple random sampling  
 (c) Systematic sampling  
 (d) Stratified sampling
17. A sampling technique providing separate estimates for population means for different segments and also an overall estimate is:  
 (a) Systematic sampling  
 (b) Stratified sampling  
 (c) Multistage sampling  
 (d) Simple random sampling
18. If the points of inflexion of a normal current are 6 and 14 respectively, then its standard deviation is \_\_\_\_\_.  
 (a) 4  
 (b) 8  
 (c) 16  
 (d) 32
19. Which of the following is non-probability sampling method?  
 (a) Systematic Sampling  
 (b) Quota Sampling  
 (c) Cluster Sampling  
 (d) Stratified Sampling
20. Method used to test the human blood is called in Statistical terminology \_\_\_\_\_.  
 (a) Census Investigation  
 (b) Blood Investigation  
 (c) Sample Investigation  
 (d) None of these
21. A Parameter may be defined as a characteristic of a population based-on \_\_\_\_\_ of the population of.  
 (a) Sample units  
 (b) All the units  
 (c) Few units  
 (d) Any of above
22. Area Sampling is Similar to \_\_\_\_\_.  
 (a) Quota Sampling  
 (b) Cluster Sampling  
 (c) Judgment Sampling  
 (d) None of these



13. According to Neyman's allocation, in stratified sampling
- Sample size is proportional to the population size
  - Sample size is proportional to the sample standard deviation
  - Sample size is proportional to the sample variance
  - Population size is proportional to the sample variance
24. If a random sample of size 2 with replacement is taken from the population containing the units 3, 6 and 1, then the samples would be
- (3, 6), (3, 1), (6, 1)
  - (3, 3), (6, 6), (1, 1)
  - (1, 1), (1, 3), (1, 6), (6, 1), (6, 2), (6, 3), (6, 6), (6, 1)
  - (1, 1), (1, 3), (1, 6), (3, 1), (3, 3), (3, 6), (6, 1), (6, 3), (6, 6)
25. The measure of precision obtained by sampling is given by:
- Standard error
  - Sampling fluctuation
  - Sampling distribution
  - Expectation
26. As a sample size increases, the standard error:
- Increase
  - Decreases proportionately
  - Remains constant
  - Decreases
27. If a random sample of 500 oranges produces 25 rotten oranges, then the estimate of sample proportion of rotten oranges in the sample is:
- 0.01
  - 0.05
  - 0.028
  - 0.0593
28. A parameter is a characteristic of
- Population
  - Sample
  - Both (a) and (b)
  - None of the above.
29. A collection of firms of small, medium and large sized are to be sampled for audit purpose. The preferred sampling method will be:
- Random Sampling
  - Stratified Sampling
  - Systematic Sampling
  - All of the above
30. Sampling is preferred than population in the following case:
- Testing of items is destructive in nature
  - Testing of items needs equipment of high costs
  - Population is very large
  - All of the above.
31. A population comprises of 5 units. The number of all possible samples of size 2 that can be drawn from it with replacement is:
- 100
  - 15
  - 125
  - 25
32. Sampling error is \_\_\_\_\_ proportional to the square root of the number of items in the sample.
- inversely
  - directly
  - equally
  - none of the above.
33. Sampling frame is a term used for
- a list of random numbers
  - a list of voters
  - a list of sampling units of population
  - None of the above.



34. Simple random sampling is:  
 (a) A probabilistic sampling  
 (b) A non-probabilistic sampling  
 (c) Quota - sampling  
 (d) Conyerience sampling
35. If  $\sigma = 20$  and sample size is 100, then Standard error of mean is:  
 (a) 2  
 (b) 5  
 (c)  $1/5$   
 (d) None of these.

### ANSWER KEYS

1 (c)	2 (a)	3 (d)	4 (a)	5 (b)
6 (b)	7 (c)	8 (c)	9 (a)	10 (a)
11 (a)	12 (b)	13 (d)	14 (a)	15 (b)
16 (b)	17 (b)	18 (a)	19 (b)	20 (c)
21 (b)	22 (b)	23 (a)	24 (d)	25 (a)
26 (d)	27 (b)	28 (a)	29 (b)	30 (d)
31 (d)	32 (a)	33 (c)	34 (a)	35 (a)

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