# SDD & SAMPLING

## PRACTICE QUESTION

**1. Which one of the following is a source of primary data?**

(A) Government records

(B) Research Articles

(C) Journals

(D) Questionnaire filled by enumerators

**2. Which is the left part of the table providing the description of the rows?**

(A) Caption

(B) Box head

(C) Stub

(D) Body



**3. Ogive for more than type and less than type distributions intersect at**

(A) Mean

(B) Median

(C) Mode

(D) Origin

**4. Consider the following data where class length is given as 5. Calculate the number of class intervals.**
**59, 68, 78, 57, 44, 73, 40, 60, 70, 47**

(A) 5

(B) 6

(C) 7

(D) 8

**5.** In a cumulative frequency curve, what is represented on the Y-axis?

(A) Class interval

(B) Cumulative frequency

(C) Frequency density

(D) Relative frequency

**6.** In a frequency distribution, the relative frequency of the class is:

(A) The ratio of the class frequency to the total number of classes

(B) The ratio of the class frequency to the total frequency

(C) The ratio of the class frequency to the total number of data points.

(D) The ratio of the class mid point to the class frequency

**7.** Frequency density corresponding to a class interval is ratio of:

(A) Class frequency to class length

(B) Class frequency to total frequency

(C) Class frequency to Cumulative frequency

(D) Class length to class frequency

**8.** A perpendicular drawn from point of intersection of two Ogive on the horizontal axis gives the value of

(A) $2^{nd}$ Quartile

(B) $3^{rd}$ Quartile

(C) Mode

(D) $1^{st}$ Quartile

**9.** By plotting cumulative frequency against the respective class boundary, we get

(A) Frequency curve

(B) Ogives

(C) Frequency polygon

(D) Histogram

**10.** The frequency of visitor in an office is given below:

| Time | 9 AM-11 AM | 11 AM-1 PM | 1 PM- 3 PM | 3 PM- 5 AM |
|---|---|---|---|---|
| Frequency | 5 | 18 | 7 | 12 |

Find the cumulative frequency of visitors for the time 11 AM-1 PM?

(A) 5
(B) 23
(C) 18
(D) 30

**11.** The share holding pattern of ABC Ltd. is as follows:

| Share holders | Promoter | FII | DII | Govt. | Public |
|---|---|---|---|---|---|
| No. of shares in Millions | 120 | 25 | 20 | 20 | 15 |

What is the difference between central angles (in degree) for shares held by Promoters and Public, in pie chart?

(A) 216
(B) 189
(C) 180
(D) 99



**12.** What does an Ogive curve represent?

(A) The cumulative frequency and class boundary
(B) The frequency and class boundary
(C) The frequency and cumulative frequency
(D) The Frequency and Class Interval

**13.** The following is the data related to the daily income 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 at least 1,500 per day?

(A) 50%
(B) 45%
(C) 40%
(D) 60%

**14.** For tabulation, 'caption' is

(A) The upper part of the table

(B) The lower part of the table

(C) The main part of the table

(D) The upper part of a table that describes the columns and sub-columns

**15.** The Modes of presentation of data are:

(A) Textual, Diagrammatic and Internal presentation

(B) Tabular, Textual and Internal Presentation

(C) Textual, Tabular and Diagrammatic presentation

(D) Tabular, Diagrammatic and Internal Presentation

**16.** A less than ogive curve is drawn by plotting

(A) Less than cumulative frequencies on the vertical axis

(B) More than cumulative frequencies on the vertical axis

(C) Highest Frequencies on vertical axis

(D) Lowest Frequencies on vertical axis

**17.** Two frequency distributions are given to you. To compare them visually the best diagram to be drawn on the same sheet is

(A) Pie chart

(B) Histogram

(C) Frequency polygon

(D) Bar Chart

**18.** Which sampling is based on the discretion of the sampler?

(A) Systematic

(B) Multi-stage

(C) Stratified

(D) Purposive

**19.** Which of the following is not a type of sampling?

(A) Probability

(B) Non-probability

(C) Stand-Alone

(D) Mixed

**20.** An ogive is used to represent

(A) The frequency of each data point.

(B) The number of data points falling below a specific value

(C) The proportion of data points falling below a specific value

(D) The relationship between two variables

**21.** A histogram and a pie chart represent the same data on monthly expenses of a household. Which statement is most likely true?

(A) The histogram only shows the frequency of each expense category, while the pie chart shows the proportion of each category

(B) Both the histogram and pie chart show the frequency of each expense category

(C) Both the histogram and pie chart show the proportion of each expense category

(D) Pie charts are always better than histograms for representing expenses

**22.** The mode of a continuous frequency distribution can be determined graphically from_____

(A) By using Histogram

(B) By using frequency polygon

(C) By using ogive

(D) By using frequency curve

**23.** Frequency density corresponding to a class interval for the continuous frequency distribution, is the ratio of

(A) class frequency to the total frequency

(B) class frequency to the class length

(C) class length to the class frequency

(D) class frequency to the cumulative frequency

**24.** The curve obtained by joining the points, whose X co-ordinates are the upper limits of the class intervals and Y co-ordinates are corresponding cumulative frequencies, is called

(A) Ogive

(B) Histogram

(C) Frequency polygon

(D) Frequency curve

**25.** The law of statistical regularity says that

(A) Sample drawn from the population under discussion possesses the characteristics of population.

(B) A large sample drawn at random from the population would possess the characteristics of the population.

(C) A large sample drawn at random from the population would possess the characteristics of the population on an average.

(D) An optimum level of efficiency can be attained at a minimum cost.

**26.** A population comprises 5 members. The number of possible samples of size 2, that can be drawn from it with replacement is

(A) 100

(B) 15

(C) 125

(D) 25

**27.** Which of the following statements about simple random sampling is NOT true?

(A) Simple random sampling ensures that each unit in the population has an equal chance of being selected.

(B) In simple random sampling with replacement, each selected unit is replaced to the population before the next unit is drawn.

(C) Simple random sampling is highly effective when the population is very large and heterogeneous.

(D) In a simple random sampling without replacement, a unit is selected, it will never be selected again.

**28.** A frequency curve which starts with a minimum frequency and then gradually reaches its maximum frequency at the other extremity is known as

(A) Bell shaped curve

(B) Mixed curve

(C) U-shaped curve

(D) J-shaped curve

**29.** In tabulation, source of data, if any, is shown in the

(A) Footnote

(B) Body

(C) Stub

(D) Caption

**30.** The Secondary data is collected by :

(A) Enumerator himself

(B) Email

(C) Interview

(D) Internet



**31.** The Secondary data is collected by :

(A) International source like World Bank.

(B) Observation method.

(C) Interview method.

(D) Mailed questionnaire method.

**32.** Exit polls are an example of which method of collecting data?

(A) Random sampling

(B) Investigation

(C) Census

(D) Quota sampling

**33.** Numerical data presented in descriptive form are called :

(A) Classified presentation

(B) Tabular presentation

(C) Textual presentation

(D) Graphical presentation

**34.** The distribution of commuters coming to a Metro station from early morning hours to peak morning hours follows which type of frequency curve ?

(A) Bell shaped curve

(B) J-shaped curve

(C) U-shaped curve

(D) Mixed curve

**35.** What is the purpose of stratified random sampling?

(A) To ensure that every individual in the population has an equal chance of being selected.

(B) To divide the population into subgroups and then randomly sample from each subgroup.

(C) To select individuals based on their availability and convenience.

(D) To select a fixed percentage of the population without any specific criteria.

**36.** What type of data is most appropriate for representing using a Pie chart?

(A) Continuous data

(B) Categorical data

(C) Ordinal data

(D) Interval data

**37.** If the class intervals of certain data are 10-14, 15-19, 20-24, then the first class boundaries is

(A) 9.5-14.5

(B) 10-14

(C) 10-15

(D) 10.5-15.5

**38.** Standard Error (SE) and square root of sample size are

(A) Directly proportional

(B) Equal

(C) Inversely proportional

(D) Not equal

**39.** Which sampling technique is most appropriate when a person wants to ensure that subgroups are proportionally represented?

(A) Stratified Sampling

(B) Simple Random Sampling

(C) Multistage Sampling

(D) Systematic Sampling

**40.** For the non-overlapping classes 25-34, 35-44, 45-54, 55-64 the class mark of the class 35-44 is

(A) 39.5

(B) 40.5

(C) 35.0

(D) 44.0



**41.** Non-probability Sampling is also known as:

(A) Stratified Sampling

(B) Simple Random Sampling

(C) Purposive or Judgment Sampling

(D) Cluster Sampling

**42.** Out of 1000 persons, 40% are female, others are male. In a marriage function, 300 persons enjoyed the song. 30% of the people who had not enjoyed the song were female. What is the number of male, who did not enjoy the song in the function?

(A) 120

(B) 180

(C) 360

(D) 490

**43.** In tabular presentation of data, stub is _____

(A) Left part of table, which provide the description of rows

(B) Right part of the table providing the description of the row

(C) Left part of the table providing the description of columns

(D) Right part of the table providing the description of columns

**44.** A sample of 100 people is taken from a population of 1000. The sample mean height is 170 cm with a standard deviation of 10 cm. What is the standard error of mean?

(A) 0.5 cm

(B) 1.0 cm

(C) 1.58 cm

(D) 10 cm

**45.** In pie chart, if a category represents 25% of the total data, what will be the angle of corresponding sector?

(A) 90°

(B) 45°

(C) 60°

(D) 75°



**46.** A less than ogive curve is drawn by plotting

(A) Less than Cumulative frequencies on the vertical axis

(B) More than Cumulative frequencies on the vertical axis

(C) Highest Frequencies on vertical axis

(D) Lowest Frequencies on vertical axis

**47.** Series in which frequencies are continuously added corresponding to each class interval in the series:

(A) Frequency

(B) Cumulative frequency series

(C) Deviation

(D) Mid value

**48.** The Ogive can be used for making

(A) short term projection

(B) medium term projection

(C) long term projection

(D) group frequency distribution

**49.** The following set of data cannot be presented in a table

(A) The heights of students described in centimeters

(B) The weights of candidates expressed in kilograms

(C) The amount of rainfall opined as "medium." "average," "heavy", etc.

(D) The number of bills per day cleared by an auditor in a month

**50.** According to the empirical rule, if the data form a "bell-shaped" distribution, then the maximum and minimum frequencies occur at _____ and _____ respectively.

(A) Middle, left end

(B) Middle, right end

(C) End, middle

(D) Middle, ends

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 2 | C | 3 | B | 4 | D | 5 | B |
| 6 | B | 7 | A | 8 | A | 9 | B | 10 | B |
| 11 | B | 12 | A | 13 | A | 14 | D | 15 | C |
| 16 | A | 17 | C | 18 | D | 19 | C | 20 | B |
| 21 | A | 22 | A | 23 | B | 24 | A | 25 | C |
| 26 | D | 27 | C | 28 | D | 29 | A | 30 | D |
| 31 | A | 32 | A | 33 | B | 34 | B | 35 | B |
| 36 | B | 37 | A | 38 | C | 39 | A | 40 | A |
| 41 | C | 42 | D | 43 | A | 44 | B | 45 | A |
| 46 | A | 47 | B | 48 | D | 49 | C | 50 | D |

# PRACTISE QUESTION

## MEASURES OF CENTRAL TENDENCY

**1.** Average of 7 consecutive numbers is 33, then largest of these numbers is

(A) 34

(B) 35

(C) 36

(D) 37

**2.** Average weight of 120 students is 56 kg. if the average weight of boys is 60 kg and average weight of Girls is 50 kg, then the number of girls is

(A) 48

(B) 60

(C) 72

(D) 50



**3.** A student is asked to find the mean of numbers 3, 11, 7, 9, 15, 13, 8, 19, 17, 21, 14 and x. He found mean to be 12. What should be the number in place of x?

(A) 3

(B) 7

(C) 17

(D) 31

**4.** $\sum_{n=1}^{10} x_n = 426$. Also average of $x_{11}$ & $x_{12}$ is 40, then the mean of all the observations taken together is

(A) 46.6

(B) 38.83

(C) 42.16

(D) None of these

**5.** The average weight of 9 students of a class is 63 kg. If the average weight of first 3 students is 65 kg and the average weight of next 3 students is 60 kg then what is the average weight of remaining 3 students?

(A) 64 Kg

(B) 63 Kg

(C) 61 Kg

(D) 62 Kg

**6.** The A.M. of square of first '2n' natural number is

(A) $\frac{1}{6}(2n+1)(4n-1)$

(B) $\frac{1}{6}(2n-1)(4n-1)$

(C) $\frac{1}{6}(2n-1)(4n+1)$

(D) $\frac{1}{6}(2n+1)(4n+1)$

**7.** The mean of 5 observations x, x+2, x+4, x+6 and x+8 are 11, and then mean of last three observations is:

(A) 13

(B) 11

(C) 14

(D) 15



**8.** The sum of absolute deviations is minimum when it is taken from

(A) Mean

(B) Median

(C) Mode

(D) GM

**9.** The harmonic mean A and B is $\frac{1}{a}$ and harmonic mean of C and D is $\frac{1}{2a}$. The harmonic mean of A, B, C and D is

(A) $\frac{2}{a}$

(B) $\frac{2}{3a}$

(C) $\frac{3}{2a}$

(D) $\frac{a}{2}$

**10.** The average salary of all the workers in a workshop is Rs.8000. The average salary of 7 technicians is Rs.12000 and the average salary of the rest is Rs.6000. The total number of workers in the workshop is:

(A) 14

(B) 21

(C) 22

(D) 23

**11.** There are n observations. If we subtract 10 from each observation the new sum is 45, but if we subtracted 20 from each the sum is – 35. The original mean of the observations is

(A) 15.6

(B) 18.4

(C) 20

(D) None of these

**12.** A retail vendor wants to order the goods to wholeseller for his shop. In order to decide what should be the order which measure of central tendency he should consider

(A) Mean

(B) Median

(C) Mode

(D) Harmonic Mean



**13.** If for any two numbers AM, GM and HM are (x + 1), (x – 1) and (x – 2) respectively, then the value of x is

(A) 5

(B) 4

(C) 3

(D) 2

**14.** A group of 10 friends went to a restaurant to have dinner. 8 of them paid Rs.250 each, the ninth paid Rs.300 more than the average money paid by each person in the group and the 10th paid Rs. 400. Then what was the total bill to be paid by the group?

(A) 3000

(B) 4000

(C) 3400

(D) 3800

**15.** The average weight of 10 person increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What is the weight of the new person?

(A) 67.5

(B) 75

(C) 90

(D) 82.5

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 2 | A | 3 | B | 4 | C | 5 | A |
| 6 | D | 7 | A | 8 | B | 9 | B | 10 | B |
| 11 | A | 12 | C | 13 | C | 14 | A | 15 | C |

# SPEED TEST

**1.** The mean of a group X is 70 and the mean of group Y is 85. If the number of observations in group Y is five times that of group X, then the combined mean of both the groups is:

(A) 75
(B) 80
(C) 77.5
(D) 82.52

**2.** The Median of the following frequency distribution is:

| x | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| f(X) | 8 | 30 | 40 | 12 | 10 |

(A) 33
(B) 22.5
(C) 23
(D) 24



**3.** If the mean and median of a moderately asymmetrical series are 70.8 and 68.6 respectively, then the most probable mode is:

(A) 64.2
(B) 75.2
(C) 63.4
(D) 72.5

**4.** For a moderately-skewed distribution, which of the following relationship holds?

(A) Mean- Mode = 3(Mean - Median)
(B) Median- Mode = 3(Mean - Median)
(C) Mean- Median = 3(Mean - Mode)
(D) Mean- Median = 3(Median - Mode)

**5.** Which of the following measure of central tendency will be unaffected if the lowest and highest observations are removed?

(A) Mean
(B) Mode
(C) Median
(D) Range

**6.** If Mean of a data set is 22 and Median is 22.33 then Mode is

(A) 21

(B) 21.34

(C) 22.99

(D) 21.54

**7.** If Arithmetic Mean and coefficient of variation of y are 5 and 20 respectively, the variance of 12 – 3y

(A) 9

(B) 81

(C) 3

(D) 100

**8.** Which of the following measure of central tendency depends on the position of the observation?

(A) Mean

(B) Median

(C) Mode

(D) Harmonic Mean



**9.** If there are two groups containing 40 and 30 observations and have arithmetic means as 50 and 60, then the combined arithmetic mean is

(A) 55.48

(B) 56.35

(C) 54.28

(D) 50.28

**10.** If the arithmetic mean of two numbers is 10 and the geometric mean is 6, then the difference in the numbers is

(A) 12

(B) 14

(C) 16

(D) 8

**11.** If x and y are related as $4x + 3y + 11 = 0$ and mean deviation of y is 7.20, what is the mean deviation of x?

(A) 2.70

(B) 7.20

(C) 4.50

(D) 5.40

**12.** A Professor has given assignment to students in a Statistics class. A student Jagan computes the arithmetic mean and standard deviation for a set of 100 observations as 50 and 5 respectively. Later on, Sonali points out to Jagan that he has made a mistake in taking one observation as 100 instead of 50. What would be the correct mean if the wrong observation is corrected?

(A) 50.5

(B) 49.9

(C) 49.5

(D) 50.1

**13.** Find the mean of the following data

| Class Interval | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|---|---|---|---|---|---|---|---|
| Frequency | 9 | 13 | 6 | 4 | 6 | 2 | 3 |



(A) 23.7

(B) 35.7

(C) 39.7

(D) 43.7

**14.** The Median of the following set of observations: 24, 18, 36, 42, 30, 28, 21, 29, 25, 33 is

(A) 26.5

(B) 27.5

(C) 28.5

(D) 29.5

**15.** Find the mode of the following data:

| X | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 |
|---|---|---|---|---|---|---|
| f(x) | 20 | 53 | 42 | 42 | 41 | 43 |

(A) 31.75

(B) 30.75

(C) 33.75

(D) 35.75

**16.** For a moderately skewed distribution of marks in statistics for a group of 200 students, the mean marks and median marks were found to be 55.60 and 52.40, respectively. What are the modal marks?

(A) 54.43
(B) 48
(C) 53.56
(D) 46

**17.** For a given data set: 5, 10, 3, 6, 4, 8, 9, 3, 15, 2, 9, 4, 19, 11, 4; what is the median?

(A) 8
(B) 6
(C) 4
(D) 9

**18.** If the mean of two numbers is 30 and geometric mean is 24, then what will be the Harmonic mean of two numbers?

(A) 19.2
(B) 21.8
(C) 22.3
(D) 18.4



**19.** The Geometric Mean of 3, 7, 11, 15, 24, 28, 30, 0 is

(A) 6
(B) 0
(C) 9
(D) 12

**20.** The mean of the first three terms is 17 and mean of next four terms is 21. Calculate the mean of seven terms.

(A) 18.28
(B) 19.78
(C) 19.58
(D) 19.28

**21.** The mean of a set of 20 observations in 18.3. The mean is reduced by 0.6 when a new observation is added to the set. The new observation is:

(A) 17.6

(B) 18.9

(C) 5.7

(D) 24.6

**22.** If mode of a grouped data is 10 and median is 6, then what is the value of mean?

(A) 2

(B) 4

(C) 6

(D) 8

**23.** The AM and HM of two numbers are 5 and 3.2 respectively, then GM will be:

(A) 4.4

(B) 4.2

(C) 4.0

(D) 3.8



**24.** If A.M. and G.M. of two positive numbers a and b are 12 and 12, respectively, find the numbers.

(A) 18 and 6

(B) 15 and 9

(C) 16 and 8

(D) 12 and 12

**25.** The Median of the following frequency distribution is

| x | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 |
|---|---|---|---|---|---|
| f(x) | 3 | 5 | 20 | 12 | 7 |

(A) 27.75

(B) 9.35

(C) 8.25

(D) 10.01

**26.** If two variable 'x' and 'y' are related as 2x - y = 3, if the median of 'x' is 10, what is median of 'y'?

(A) 4

(B) 17

(C) 5

(D) 6

**27.** If the mean and median of a moderately asymmetrical series are 26.8 and 27.9 respectively, then the most probable mode is :

(A) 35.4

(B) 30.1

(C) 34.3

(D) 70.8

**28.** Mean deviation is minimum when deviations are taken from:

(A) Mean

(B) Median

(C) Mode

(D) Range



**29.** Ogive for more than type and less than type distributions intersect at

(A) Mean

(B) Median

(C) Mode

(D) Origin

**30.** The median of the observations 42, 72, 35, 92, 67, 85, 72, 81, 51, 56 is

(A) 69.5

(B) 72

(C) 64

(D) 61.5

**31.** The mean of 50 observations is 36. If two observations 30 and 42 are to be excluded, then the mean of the remaining observations will be:

(A) 36

(B) 38

(C) 48

(D) 50

**32.** If Arithmetic Mean and Geometric Mean between two numbers are 5 and 4 respectively, then these numbers are

(A) 2 & 3

(B) 2 & 8

(C) 4 & 6

(D) 1 & 16

**33.** If Arithmetic mean between two numbers is 5 and Geometric mean is 4 then what is the value of Harmonic mean?

(A) 3.2

(B) 3.4

(C) 3.5

(D) 3.6



**34.** The average age of 15 students in a class is 9 years. Out of them, the average age of 5 students is 13 years and that of 8 students is 5 years. What is the average of remaining 2 students?

(A) 5 years

(B) 9 years

(C) 10 years

(D) 15 years

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 2 | C | 3 | A | 4 | A | 5 | C |
| 6 | C | 7 | A | 8 | B | 9 | C | 10 | C |
| 11 | D | 12 | C | 13 | B | 14 | C | 15 | C |
| 16 | D | 17 | B | 18 | A | 19 | B | 20 | D |
| 21 | C | 22 | B | 23 | C | 24 | D | 25 | A |
| 26 | B | 27 | B | 28 | B | 29 | B | 30 | A |
| 31 | A | 32 | B | 33 | A | 34 | D | | |

# PRACTISE QUESTION

## MEASURES OF DISPERSION

**1.** The mean and standard deviation of the weights (in kg) of the students of a class of 50 students was calculated to be 60 and 4.5 kg respectively. Later on it was found that due to some fault in weighting machine, the weight of each student was under measured by 0.5 kg. The correct Coefficient of variation will be:

(A) 7.50

(B) 7.44

(C) 8.33

(D) 8.26

**2.** S.D. of first 'n' natural numbers is $2\sqrt{6}$, then n is



(A) 14

(B) 15

(C) 16

(D) 17

**3.** If the standard deviation of 1, 2, 3, 4,..., 10 is $\sigma$, then the standard deviation of 11, 12, 13, 14, ...,20 is:

(A) $10\ \sigma$

(B) $10 + \sigma$

(C) $\sigma + 1$

(D) $\sigma$

**4.** If mean and MD of x are 20 and 3.2 respectively, then the coefficient of MD of (3x + 2) will be

(A) 20.33

(B) 16.66

(C) 15.48

(D) 13.50

**5.** If the 3rd Quartile is 160, Inter quartile range is 32, then median is

(A) 150

(B) 148

(C) 144

(D) 140

**6.** Third Quartile is same as

(A) $75^{th}$ Percentile

(B) $7^{th}$Decile

(C) Average of first and second Quartile

(D) None of these

**7.** The AM and SD od x are 50 and 4.5 respectively and 4x – 3y = 8, then the variance of y is

(A) 8

(B) 64

(C) 36

(D) 6



**8.** The coefficient of variation of a data is 5.8%, S.D. of the data is 2.32, then the A.M. of the data is

(A) 50

(B) 45

(C) 40

(D) 36

**9.** $\sum x^2 = 5070$, $n = 30$, $\sigma = 5$ then $\bar{x}$ =

(A) 12

(B) 10

(C) 9

(D) 11.5

**10.** 25% of the data are less than 37.5 and 25% of the data are more than 52.5, then semi-inter quartile range is

(A) 15

(B) 45

(C) 7.5

(D) None of these

**11.** The mean and S.D. for group of 20 observations are 45 and 3 respectively and for another 30 observations are 50 and 4. Calculate combined SD of 50 observations:

(A) 3.5

(B) 4.38

(C) 4.75

(D) 3.9

**12.** The mean and variance of 5 observations are 4.80 and 6.16 respectively. If three of the observations are 2, 3, and 6, what are the remaining observations?

(A) 1, 7

(B) 5, 7

(C) 9, 4

(D) 10, 2



**13.** If coefficient of MD is 80 and Median is 20, then the difference between $75^{th}$ percentile and $25^{th}$ percentile is

(A) 16

(B) 26.66

(C) 20

(D) 40

**14.** SD of numbers 1, 4, 5, 7, 8 is 2x, then SD of 3, 9, 11, 15, 17 will be:

(A) 2x + 1

(B) 4x + 1

(C) 4x

(D) 2x

**15.** If $R_x$ and $R_y$ denote ranges of x and y respectively where x and y are related by $5x + 3y + 10 = 0$, then the relation between $R_x$ and $R_y$ is

(A) $3R_y = 5R_x$

(B) $5R_y = 3R_x$

(C) $-3R_y = 5R_x$

(D) None of these

**16.** If $2a^2x + 3aby = 10$, then the ratio of QD of y and QD of x is

(A) 3a: 2b

(B) 2b: 3a

(C) 3b: 2a

(D) 2a: 3b

**17.** For two numbers a and b mean and SD are respectively 12.5 and 2.5, then their product is

(A) 120

(B) 150

(C) 180

(D) 200



**18.** If Mean = 10, Mode = 4 and Q.D. = 1.5, then Coefficient of Q.D. is

(A) 15%

(B) 18.75%

(C) 16.66%

(D) 37.5%

**19.** The mean and SD for a set of observation are 45 and 5, If each data is decreased by 20% and then 5 is added to each data. The new coefficient of variation will be

(A) No change

(B) 20%

(C) 9.75%

(D) 11.25%

**20.** Given that

| x | 5 | 8 | 9 | 10 | 3 |
|---|---|---|---|---|---|
| y | -14 | -23 | -26 | -29 | -8 |

If SD of x is k, then the variance of y is

(A) $K^2$

(B) 3k

(C) $9k^2 + 1$

(D) $9k^2$

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 2 | D | 3 | D | 4 | C | 5 | C |
| 6 | A | 7 | C | 8 | C | 9 | A | 10 | C |
| 11 | B | 12 | C | 13 | B | 14 | C | 15 | A |
| 16 | D | 17 | B | 18 | B | 19 | C | 20 | D |

# SPEED TEST

**1.** _____is based on all the observations and _____ is based on the central fifty percent of the observations.

(A) Mean deviation, Range

(B) Mean deviation, quartile deviation

(C) Range, standard deviation

(D) Quartile deviation, standard deviation

**2.** Which one of the following is not a method of measures of dispersion?

(A) Standard deviation

(B) Mean deviation

(C) Range

(D) Concurrent deviation method

**3.** If the first quartile is 56.50 and the third quartile is 77.50, then the coefficient of quartile deviation is

(A) 638.09

(B) 15.67

(C) 63.80

(D) 156.71



**4.** If the sum of square of the values equals to 3390, Number of observations are 30 and Standard deviation is 7, what is the mean value of the above observations?

(A) 14

(B) 11

(C) 8

(D) 5

**5.** If the variance of a random variable 'x' is 17, then what is variance of y=2x+5?

(A) 34

(B) 39

(C) 68

(D) 78

**6.** If the variance of given data is 12, and their mean value is 40, what is coefficient of variation (CV)?

(A) 5.66%

(B) 6.66%

(C) 7.50%

(D) 8.65 %

**7.** In a given set if all data are of same value then variance would be:

(A) 0

(B) 1

(C) -1

(D) 0.5

**8.** If' 'x' and 'y' are related as 3x-4y=20 and the quartile deviation of 'x' is 12, then the quartile deviation of 'y' is:

(A) 9

(B) 8

(C) 7

(D) 6



**9.** If there are two groups containing 40 and 30 observations and have arithmetic means as 50 and 60, then the combined arithmetic mean is

(A) 55.48

(B) 56.35

(C) 54.28

(D) 50.28

**10.** If the arithmetic mean of two numbers is 10 and the geometric mean is 6, then the difference in the numbers is

(A) 12

(B) 14

(C) 16

(D) 8

**11.** If x and y are related as 4x + 3y + 11 = 0 and mean deviation of y is 7.20, what is the mean deviation of x?

(A) 2.70

(B) 7.20

(C) 4.50

(D) 5.40

**12.** The mean deviation about the mean for the data 12, 16, 24, 30, 35, 39, 40 is

(A) 9.14

(B) 9.41

(C) 8.91

(D) 9.81

**13.** If the Standard Deviation of data 2, 4, 5, 6, 8, 17 is 4.47, then Standard Deviation of the data 4, 8, 10, 12, 16, 34 is

(A) 4.47

(B) 8.94

(C) 13.41

(D) 2.24



**14.** The mean and variance of a group of 100 observations are 8 and 9, respectively. Out of 100 observations, the mean and standard deviation of 60 observations are 10 and 2, respectively. Find the variance of remaining 40 observations?

(A) 4.5

(B) 3.5

(C) 2.5

(D) 1.5

**15.** For the first 20 natural numbers the standard deviation is _____

(A) 5.77

(B) 7.75

(C) 5.64

(D) 6.54

**16.** If Mean Deviation about Arithmetic Mean is 1.78 and Arithmetic Mean is 3.50 then coefficient of Mean Deviation about Arithmetic Mean is

(A) 50.85

(B) 44.33

(C) 52.65

(D) 51.85

**17.** If in a data set, 25 percent of values are smaller than 30 and one-fourth of values are larger than 70, then the coefficient of quartile deviation is _____%.

(A) 40

(B) 30

(C) 70

(D) 50

**18.** What is the coefficient of range for the observations 20, 28, 32, 41, 48, 60?



(A) 50

(B) 20

(C) 40

(D) 200

**19.** In which of the following there is no impact of presence of extreme observations?

(A) Quartile deviation

(B) Range

(C) Standard deviation

(D) Variance

**20.** If each observation of a set is divided by 10, then the Standard Deviation of the new observation is:

(A) $1/10^{th}$ of Standard Deviation of original observation.

(B) $1/100^{th}$ of Standard Deviation of original observation.

(C) 100 times of Standard Deviation of original observation.

(D) 10 times of Standard Deviation of original observation

**21.** The Standard Deviation of the series 3, 6, 9, 12, 15 is:

(A) 4.24

(B) 6.36

(C) 4.12

(D) 3.28

**22.** The AM of x is 20 and SD is 5.4. Also 2x-3y = 10, then CV of y is

(A) 36

(B) 42

(C) 52

(D) None of these

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 2 | D | 3 | B | 4 | C | 5 | C |
| 6 | D | 7 | A | 8 | A | 9 | C | 10 | C |
| 11 | D | 12 | A | 13 | B | 14 | D | 15 | A |
| 16 | A | 17 | A | 18 | A | 19 | A | 20 | A |
| 21 | A | 22 | A | | | | | | |

# PRACTISE QUESTION

## PROBABILITY

**1.** If E(x) = K, then E(4x+3) is

(A) 3K + 4

(B) 4K

(C) 4K + 3

(D) K + 3

**2.** A bag contains 3 white balls and 'x' black balls. If the probability of picking two black balls is 2/7, then the value of x is

(A) 2

(B) 4

(C) 5

(D) 6



**3.** The are 6 distinct cars parked in the parking area, then the probability that there are exactly 2 cars between two particular cars is

(A) $\frac{1}{6}$

(B) $\frac{1}{5}$

(C) $\frac{2}{7}$

(D) $\frac{3}{5}$

**4.** Find the expected value of the following probability distribution

| X | 5 | 10 | 20 | 30 | 35 |
|---|---|---|---|---|---|
| P(x) | 3/20 | 1/5 | 1/2 | 1/10 | 1/20 |

(A) 17.5

(B) 15.75

(C) 20.25

(D) None of these

**5.** The odds in favour that Dhoni will be seleced in the team are 5: 2. The same for Rohit and Kohli are 2: 1 and Kohli is 3: 2, then the probability that exactly two out of the three get selected is

(A) $\frac{53}{105}$

(B) $\frac{34}{105}$

(C) $\frac{47}{105}$

(D) $\frac{62}{105}$

**6.** A card is picked randomly from a deck of cards. What is the probability that it is a face card given that it is a Red card?

(A) 1/13

(B) 3/13

(C) 2/13

(D) 4/13

**7.** There are 4 odd numbers and 6 even numbers. Four numbers are selected at random without replacement and multiplied. Find the probability that the product is even

(A) $\frac{109}{210}$

(B) $\frac{209}{210}$

(C) $\frac{103}{210}$

(D) None of these

**8.** Let S be the sum of two numbers obtained in a single throw of two dice. The probability that 'S' is a prime number is

(A) 5/12

(B) 7/12

(C) 5/6

(D) 1/6

**9.** A coin in tossed 7 times, then odds that the head appears odd number of times is

(A) 1:2

(B) 2:1

(C) 1:1

(D) 3:4

**10.** If A and B are two independent events and P(A) = $\frac{1}{3}$ and $P(A \cup B) = \frac{5}{6}$, then P(B) =

(A) $\frac{1}{2}$

(B) $\frac{3}{5}$

(C) $\frac{3}{4}$

(D) $\frac{2}{3}$

**11.** If P(A) = $\frac{1}{2}$, P(B) = $\frac{2}{3}$, $P(A \cup B) = \frac{11}{12}$ then $P\left(\frac{A}{B'}\right)$ =

(A) $\frac{3}{4}$

(B) $\frac{7}{12}$

(C) $\frac{5}{12}$

(D) $\frac{1}{4}$

**12.** The probability that the leap year will have 53 Sundays or 53 Saturdays is



(A) $\frac{1}{7}$

(B) $\frac{2}{7}$

(C) $\frac{3}{7}$

(D) $\frac{5}{7}$

**13.** In a class 40% students study Mathematics, 25% Biology and 15% both Mathematics and Biology. One student is selected at random. The probability that he studies Mathematics, if it is known that he studies Biology is

(A) 1/5

(B) 2/5

(C) 4/5

(D) None of these

**14.** If $E(x^2)$ = 19.5 and E(x) = 4.2, then Coefficient of variation is

(A) 44.65

(B) 59.11

(C) 32.47

(D) 26.66

**15.** If $P(A' \cap B') = 1/5$, Find P(B), if P(A) = 2/3 and A and B are mutually exclusive

(A) 4/15

(B) 7/12

(C) 2/15

(D) None of these

**16.** If P(A) = 0.65 and P(B) = 0.40, then P(only one happens) =

(A) 0.53

(B) 0.95

(C) 0.79

(D) 0.66

**17.** If all the possible arrangements of the letters of the word PATROITIC are written down and a word is chosen atrandom, what's the probability that in that word all the consonants will be together?

(A) 11/84

(B) 5/126

(C) 21/85

(D) 1/6



**18.** Out of 5 men and 4 women a committee of 3 men and 3 women has to be formed. What are the chances that committee will always include one particular man and exclude one particular women

(A) 0.24

(B) 0.15

(C) 0.33

(D) 0.50

**19.** From a set of first 120 natural numbers a number is selected at random, what are the chances that its neither divisible by 3 nor by 7?

(A) 0.22

(B) 0.35

(C) 0.42

(D) 0.57

**20.** Two dice are rolled. What is the probability the difference betwwen the two numbers on the face of dice is a prime number?

(A) 4/9

(B) 5/12

(C) 11/36

(D) 1/3

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 2 | B | 3 | B | 4 | A | 5 | C |
| 6 | B | 7 | B | 8 | A | 9 | C | 10 | C |
| 11 | A | 12 | C | 13 | D | 14 | C | 15 | C |
| 16 | A | 17 | B | 18 | B | 19 | D | 20 | A |

# SPEED TEST

**1.** A machine is made of two parts A and B. The manufacturing process of each part is such that probability of defective in part A is 0.08 and that B is 0.05. What is the probability that the assembled part will not have any defect?

(A) 0.934

(B) 0.864

(C) 0.85

(D) 0.874

**2.** If $P(A)=1/3$, $P(B) = 3/4$ and $P(A \cup B)= 11/12$ then $P(B/A)$ is :

(A) 1/6

(B) 4/9

(C) 1/2

(D) 1/8

**3.** The probability that a leap year has 53 Monday is:

(A) 1/7

(B) 2/3

(C) 2/7

(D) 3/5

**4.** Suppose A and B are two independent events with probabilities $P(A) \neq 0$ and $P(B) \neq 0$. Let A' and B' be their complements. Which one of the following statements is FALSE?

(A) $P(A \cap B)= P(A)P(B)$

(B) $P(A/B)=P(A)$

(C) $P(A \cup B)=P(A) + P(B)$

(D) $P(A' \cap B')=P(A') P(B')$

**5.** The Theorem of Compound Probability states that for any two events A and B.

(A) $P(A \cap B)=P(A) \times P(B/A)$

(B) $P(A \cup B)=P(A) \times P(B/A)$

(C) $P(A \cap B)=P(A) \times P(B)$

(D) $P(A \cup B)=P(A) + P(B)-P(A \cap B)$

**6.** If a number is selected at random from the first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 and 4?

(A) 5/50

(B) 2/25

(C) 3/50

(D) 4/25

**7.** If three coins are tossed simultaneously, what is the probability of getting two heads together?

(A) 1/4

(B) 1/8

(C) 5/8

(D) 3/8

**8.** If $P(A)=1/2$ and $P(B)=1/3$ and $P(A \cup B)=2/3$ then find $P(A \cap B)$

(A) 1/4

(B) 2/3

(C) 1/6

(D) 1/2



**9.** If six coins are tossed simultaneously. The probability of obtaining exactly two heads is

(A) 0.2343

(B) 0.9841

(C) 0.1268

(D) 0.0156

**10.** A box contain 20 electrical bulbs out of which 4 are defective. Two bulbs are chosen at random from this box. The probability that at least one of them being defective is

(A) 7/19

(B) 4/19

(C) 12/19

(D) 15/19

**11.** If a card is drawn at random from a pack of 52 cards, what is the chance of getting a Club or a King?

(A) 13/52

(B) 4/52

(C) 17/52

(D) 16/52

**12.** A number is selected from the first 30 natural numbers. What is the probability that it would be divisible by 3 or 8?

(A) 0.2

(B) 0.4

(C) 0.6

(D) 0.8

**13.** If $P(A \cap B) = 1/3$ , $P(A \cup B) = 5/6$ , $P(B') = 1/2$ , then $P(A')$ is :

(A) 2/3

(B) 1/3

(C) 1/4

(D) 3/4



**14.** A number is selected at random from the first 100 natural numbers. What is the probability that it would be a multiple of 3 or 7?

(A) 33/100

(B) 4/100

(C) 21/100

(D) 43/100

**15.** Company 'A' produces 10% defective products, company 'B' produces 20% defective products and company 'C' produces 5% defective products. If choosing a company is an equally likely event, then what is probability that product chosen is free from defect?

(A) 0.88

(B) 0.80

(C) 0.79

(D) 0.78

**16.** The probability distribution of x is given below:

| Value of x: | 1 | 0 | Total |
|---|---|---|---|
| Probability: | p | 1-p | 1 |

Mean is equal to

(A) p

(B) 1 – p

(C) 0

(D) 1

**17.** For any two events 'A' and 'B' it is known that P(A) = 2/3, P(B) = 3/8 and $P(A \cap B) = 1/4$, then the events A and B are:

(A) Mutually exclusive and Independent

(B) Mutually not exclusive and Independent

(C) Mutually exclusive but not independent

(D) Neither independent nor mutually exclusive



**18.** If a random variable X has the following probability distribution, then the expected value of X is:

| X | -1 | -2 | 0 | 1 | 2 |
|---|---|---|---|---|---|
| P(x) | $\frac{1}{3}$ | $\frac{1}{6}$ | $\frac{1}{5}$ | $\frac{1}{6}$ | $\frac{1}{3}$ |

(A) 3/2

(B) 1/2

(C) 1/3

(D) 1/6

**19.** The probability that a four digit number comprising the digits 2, 5, 6 and 7, without repetition of digits, would be divisible by 4 is

(A) 1/2

(B) 3/4

(C) 1/4

(D) 1/3

**20.** On a commodity exchange when booking trades with provision for stop-losses, a trader can make a profit of ₹ 50,000 or incur a loss of ₹ 20,000. The probabilities of making profit and incurring loss, from the past experience, are known to be 0.75 and 0.25 respectively. The expected profit to be made by trader should be

(A) ₹ 32,500

(B) ₹35,000

(C) ₹ 30,000

(D) ₹ 40,000

**21.** Four persons are chosen at random from a group of 3 men, 2 women and 4 children.The probability that exactly 2 of them are children, is

(A) 10/21

(B) 1/12

(C) 1/5

(D) 1/9

**22.** If P(A)= 1/3 , P(B)= 1/4 , P(A/B)= 1/6 , the probability P (B/A) is

(A) 1/8

(B) 1/4

(C) 3/8

(D) 1/2



**23.** A random variable has the following probability distribution:

| X: | 2 | 3 | 5 |
|---|---|---|---|
| P: | K | 2K | 2K |

Find K.

(A) 1/3

(B) 2/5

(C) 1/5

(D) 2/3

**24.** A number is selected at random from the set {1, 2, ....., 99}. The probability that it is divisible by 9 or 11 is _____

(A) 19/100

(B) 19/99

(C) 10/100

(D) 10/99

**25.** Two coins are tossed. Define the events A = {"the first toss is head"}, A1 = {number of heads is 2}; A2 = {number of heads is 1}; A3 = {number of heads is 0} and A4 = {"both outcomes are alike"}. The event A is independent of _____.

(A) A1

(B) A2

(C) A3

(D) A1 and A2 both

**26.** The following table gives the cumulative probability function of X:

| X: | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| P(X): | 6/30 | 5/30 | 13/30 | 1/15 | 1/10 | 1/30 |

The expectation of X is _____

(A) 1.8

(B) 1.7

(C) 1.5

(D) 1.6

**27.** From a bag containing 4 red, 5 blue and 6 white caps, two caps are drawn without replacement. What is the probability that the caps are of different colours?

(A) 74/105

(B) 7/105

(C) 94/105

(D) 31/105

**28.** A question in statistics is given to three students A, B and C. Their chances of solving the question are 1/3, 1/5 and 1/7 respectively. The probability that the question would be solved is

(A) 19/35

(B) 16/35

(C) 1/105

(D) 104/105

**29.** A company produces two types of products, A and B the probability of a defective product in type A is 0.05 and in type B is 0.03. If the company produces 60% type A and 40% type B. What is the probability of a randomly selected product being defective?

(A) 0.042

(B) 0.03

(C) 0.048

(D) 0.052

**30.** If A and B are mutually exclusive events, then

(A) $P(A \cap B) = P(A)P(B)$

(B) $P(A \cap B) = P(A) + P(B)$

(C) $P(A \cup B) = P(A) + P(B)$

(D) $P(A \cup B) = P(A)P(B)$

**31.** Which of the following pairs of events are mutually exclusive?

(A) A: The student studies in a school.
B: He studies Geography.

(B) A: Archna was born in India.
B: She is a fine lawyer.

(C) A: Sita is 16 years old.
B: She is a good folk dancer.

(D) A: Imran is under 15 years of age.
B: He is a voter of Delhi.

**32.** Which one holds correct for any two events A and B?

(A) $P(A-B)=P(A)-P(B)$

(B) $P(A-B)=P(A) - P(A \cap B)$

(C) $P(A-B)=P(B) - P(A \cap B)$

(D) $P(A-B)=P(B) + P(A \cap B)$

**33.** Two cards are drawn at random from a pack of 52 cards. The probability of getting either both the red cards or both Kings cards is:

(A) 0.2488

(B) 0.4288

(C) 0.8248

(D) 0.8428

**34.** The probability of success of three students in CA Foundation examination are 1/5, 1/4 and 1/3 respectively. Find the probability that at least two students will get success.

(A) 2/5

(B) 3/4

(C) 1/6

(D) 1/5

**35.** If P(A)=0.65 and P(B) = 0.15, then P(A′) + P(B′) is:

(A) 1.5

(B) 1.2

(C) 0.8

(D) 0.35

**36.** Eight labourers are working at a construction site with the following wages for each day of working (in ₹):500, 620, 400, 700, 450, 560, 320, 450
If one of the workers is selected at random, what is the probability that his wage would be less than the average wage?

(A) 0.625

(B) 0.375

(C) 0.500

(D) 0.450

**37.** A box contains shoe pairs of same pattern of different sizes numbered from 1 to 12. If a shoe pair is selected at random, what is the probability that the number on the shoe pair will be a multiple of 5 or 6?

(A) 0.33

(B) 0.25

(C) 0.20

(D) 0,375

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 2 | C | 3 | C | 4 | C | 5 | A |
| 6 | B | 7 | A | 8 | C | 9 | A | 10 | A |
| 11 | D | 12 | B | 13 | B | 14 | D | 15 | A |
| 16 | A | 17 | B | 18 | D | 19 | D | 20 | A |
| 21 | A | 22 | A | 23 | C | 24 | B | 25 | B |
| 26 | A | 27 | A | 28 | A | 29 | A | 30 | C |
| 31 | D | 32 | B | 33 | A | 34 | C | 35 | B |
| 36 | C | 37 | A | | | | | | |

# PRACTISE QUESTION

## THEORETICAL DISTRIBUTION

**1.** If x follows Binomial distribution with mean and SD as 10 and $\sqrt{6}$ respectively, then Mode of the distribution is

(A) 10

(B) 11

(C) 10 or 11

(D) Neither 10 nor 11

**2.** If in a binomial distribution $P(x = 3) = \frac{9}{4} P(x = 5)$ and number of trials is 8, then p =

(A) 1/4

(B) 3/4

(C) 2/5

(D) 3/5



**3.** If $(0.6+0.4)^8$ then P(x = at least 2) is

(A) 0.99

(B) 0.95

(C) 0.90

(D) 0.88

**4.** In a Normal Distribution, if x = 47.5, z = 2.5 and x = 52.5, z = 3.5, then μ and σ.

(A) 40, 2.5

(B) 30, 5

(C) 35, 5

(D) 35, 2.5

**5.** If $F(x) = \frac{1}{\sqrt{50\pi}} e^{-\frac{(x-22)^2}{50}}$, then $Q_3$ of the distribution is

(A) 22

(B) 25

(C) 18.62

(D) 25.37

**6.** If the demand of Umbrella in the rainy reasonin a shop with mean 5 follows Poisson's Distribution, then what is the probability that on given day there will be demand of only 3 Umbrellas

(A) 10.39%

(B) 23.42%

(C) 19.91%

(D) 14.04%

**7.** If $x \sim P(2)$, then $P(2.2 \leq x \leq 4.9)$ is

(A) 0.27

(B) 0.35

(C) 0.44

(D) 0.49



**8.** There are 200 students in a class and their average mark is 75 and S.D. of marks is 5. Number of students who have secured more than 85 marks is (Given that area under the normal curve for z = 2 is 0.4772)

(A) 105

(B) 103

(C) 3

(D) 5

**9.** If the mean and SD of Normal distribution are 40 and 3 respectively, then the coefficient of Mean deviation is

(A) 6%

(B) 7.5%

(C) 9%

(D) Data Inadequate

**10.** If the variable follows Poisson's distribution with SD as 2, then find the probability that the variate takes values more than 2.

(A) 0.76

(B) 0.59

(C) 0.44

(D) 0.81

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 2 | C | 3 | A | 4 | C | 5 | D |
| 6 | D | 7 | A | 8 | D | 9 | A | 10 | A |

# SPEED TEST

**1.** Skewness of Normal Distribution is

(A) Negative

(B) Positive

(C) Zero

(D) Undefined

**2.** If a Poisson distribution is such that P(X=2)= P(X=3) then the variance of the distribution is

(A) √3

(B) 3

(C) 6

(D) 9

**3.** The Standard Deviation of Binomial distribution is

(A) npq

(B) $\sqrt{npq}$

(C) np

(D) $\sqrt{np}$

**4.** In a Standard Normal distribution, then the value of the mean (μ) and standard deviation (σ) is:

(A) μ = 0 and σ = 0

(B) μ = 0 and σ = 1

(C) μ = 1 and σ = 0

(D) μ = 1 and σ = 1

**5.** If mean and variance of a random variable which follows the Binomial Distribution are 7 and 6 respectively, then the probability of success is:

(A) 6/7

(B) 36/49

(C) 1/7

(D) 1/493

**6.** If 'x' and 'y' are independent normal variate with mean and Standard deviation $\mu_1$&$\mu_2$and $\sigma_1$& $\sigma_2$ respectively, then for z = x + y, which also follows normal distribution mean and SD are:

(A) Mean = $\mu_1 + \mu_2$, SD= $\sqrt{\sigma_1^2 + \sigma_2^2}$

(B) Mean = $(\mu_1 + \mu_2)/2$, SD = $\sqrt{\sigma_1^2 + \sigma_2^2}/2$

(C) Mean = $\mu_1 - \mu_2$, SD = $\sqrt{\sigma_1^2 - \sigma_2^2}$

(D) Mean = $(\mu_1 - \mu_2)/2$, SD = $\sqrt{\sigma_1^2 + \sigma_2^2}/2$

**7.** For a binomial distribution the mean and standard deviation are 10 and 3 respectively. Find the value of n.

(A) 30

(B) 9

(C) 90

(D) 100

**8.** Between 9 AM and 10 AM, the average number of phone calls per minute coming into the switchboard of a company is 4. Find the probability that during one particular minute, there will be either 2 phone calls or no phone calls (given $e^{-4}$ = 0.018316).

(A) 0.156

(B) 0.165

(C) 0.149

(D) 0.194

**9.** If a Poisson distribution is such that P(x = 2) = $\frac{1}{3}$P (x = 3), then the standard deviation of the distribution is:

(A) $\sqrt{3}$

(B) 3

(C) 2

(D) 1

**10.** The incidence of skin diseases in a chemical plant occurs in such a way that the workers have 20% chance of suffering from it. What is the probability that out of 6 workers 4 or more will have skin disease?

(A) 0.1696

(B) 0.01696

(C) 0.1643

(D) 0.01643

**11.** A company produces 5 defective items out of 300 items. The probability distribution follows

(A) Binomial distribution

(B) Normal distribution

(C) Poisson distribution

(D) Standard normal distribution

**12.** The mean of Poisson distribution is 4. The probability of two successes is _____.

(A) $\frac{8}{e^4}$

(B) $\frac{4}{e^4}$

(C) $\frac{16}{e^4}$

(D) $\frac{8}{e^2}$

**13.** For a normal distribution, the ratio of mean deviation to the standard deviation is _____.

(A) 0.4

(B) 0.6

(C) 0.8

(D) 1.0



**14.** For a binomial distribution, the variance is 0.2 and the mean is 0.6. The probability of getting 3 successes out of a trial of 5 is

(A) $\frac{80}{3^5}$

(B) $\frac{40}{3^5}$

(C) $\frac{20}{3^5}$

(D) $\frac{160}{3^5}$

**15.** The number of accidents in a year attributed to taxi drivers in a locality follows Poisson distribution with average 2. Out of 500 taxi drivers of that area, what is the number of drivers with at least 3 accidents in a year? (Given that e = 2.718)

(A) 162

(B) 180

(C) 201

(D) 190

**16.** In a class of 100 students, the mean marks was 50 with standard deviation 14.9. Assuming the distribution of marks to be normal, find the number of students who obtained more than 70% marks [at Z=1.34, Area=0.4099].

(A) 10

(B) 9

(C) 8

(D) 7

**17.** If a random variable X follows Poisson distribution such that P(X=1)= P(X=2), then the mean of the distribution is :

(A) 2

(B) 1

(C) 0

(D) $\frac{1}{2}$

**18.** The quartile deviation of a normal distribution with Mean of 10 and Standard Deviation of 4 is:

(A) 2.70

(B) 3.20

(C) 0.675

(D) 6.75



**19.** If X and Y are 2 independent normal variables with mean as 10 and 12 and Standard Deviation (S.D.) as 3 and 4 respectively, then (X + Y) is normally distributed with:

(A) Mean 22 and S.D.=7

(B) Mean 22 and S.D.=25

(C) Mean 22 and S.D.=5

(D) Mean 22 and S.D.= 49

**20.** Which of the following is a bi-parametric continuous probability distribution?

(A) Binomail

(B) Poisson

(C) Normal

(D) Both (A) & (C)

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 2 | B | 3 | B | 4 | B | 5 | C |
| 6 | A | 7 | D | 8 | B | 9 | B | 10 | B |
| 11 | C | 12 | A | 13 | C | 14 | A | 15 | A |
| 16 | B | 17 | A | 18 | A | 19 | C | 20 | C |

# PRACTISE QUESTION

## CORRELATION & REGRESSION

**1.** If the sum of product of deviation of x and y from respective means is 78 and sum of squares of deviations from mean of the same are 130 and 90, then r =?

(A) 0.66

(B) 0.57

(C) 0.72

(D) 0.89

**2.** What is the coefficient of correlation from the following data?

| x | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| y | 2 | 1 | 0 | 1 | 2 |



(A) 0

(B) -1

(C) 1

(D) 0.82

**3.** If the number of concurrents are 8 and the Coefficient of Concurrent Deviation is $\sqrt{\frac{1}{7}}$, n =

(A) 15

(B) 16

(C) 17

(D) 14

**4.** If r = 0.35, Cov (x,y) = 8.4 V(x) = 16 then V(y)=

(A) 2

(B) 4

(C) 6

(D) 36

**5.** If $r_{ab}$ = – 0.29 and 3a + 5c = 15, then $r_{bc}$ =?

(A) 1

(B) -0.29

(C) 0.29

(D) -1

**6.** If $b_{xy}$ is – 1. 45 and 3u + 4x = 5 & 5v – 2y = 2, then $b_{uv}$ =?

(A) 1.45

(B) -1.45

(C) -4.83

(D) 4.83

**7.** The value of r, if PE = 0.2 and the number of observations are 9 is

(A) 0.33

(B) 0.11

(C) 0.12

(D) 0.22



**8.** If the slope of the regression line y on x is 2.5 and the intercept 20, then the value of Y when X is 12 is:

(A) 30

(B) 45

(C) 50

(D) 22.5

**9.** If $b_{xy}$ and $b_{yx}$ are both positive, then –

(A) $\frac{1}{b_{yx}} + \frac{1}{b_{xy}} < \frac{2}{r}$

(B) $\frac{1}{b_{yx}} + \frac{1}{b_{xy}} > \frac{2}{r}$

(C) $\frac{1}{b_{yx}} + \frac{1}{b_{xy}} < \frac{r}{2}$

(D) $\frac{1}{b_{yx}} + \frac{1}{b_{xy}} = \frac{r}{2}$

**10.** If the Cov(x, y) is 2.70 and r = 0.6, then the product of variance of x and y will be

(A) 4.5

(B) 20.25

(C) 2.25

(D) 1.5

**11.** If mean of x and y is 20 and 40 respectively and the regression coefficient y on x is 1.6 then the regression line of y on x is:

(A) y = 1.6 + 7.8x

(B) y = 7.8 + 1.6x

(C) y = 8 + 1.6x

(D) y = 1.6 + 8x

**12.** The equation for two lines of regression for x and y are 5x = 22+y and 64x = 24+45y, then the value of correlation coefficient is

(A) $\frac{8}{15}$

(B) $\frac{45}{64}$

(C) $-\frac{8}{15}$

(D) $-\frac{45}{64}$



**13.** The two regression lines are as follows:
17x + 13y = 33
13x + 17y = 27
What will be the mean of x and y?

(A) (1/2, 3/2)

(B) (1/4, 7/4)

(C) (7/4, 1/4)

(D) (3/8, 5/8)

**14.** Which of the following is false?

(A) If r = 0, the two regression lines are perpendicular.

(B) Correlation coefficient is independent of both change in origin as well as scale.

(C) Correlation coefficient is unit free quantity.

(D) If r =1, all points on scattered diagram lie on line from left top to right bottom.

**15.** Spearman's Rank correlation was found to be 0.45 for 6 observations. Later on it was observed that for one of the data the difference in rank was wrongly taken as 5 instead of 6. The correct value of correlation coefficient will be.

(A) 0.30

(B) 0.86

(C) 0.65

(D) 0.14

**16.** If Spearman's Rank correlations between Maths and Science marks is - 0.125 and the sum of squares of difference in ranks was 94.5, then the number of students under observation is

(A) 9

(B) 10

(C) 8

(D) 11

**17.** If $\sigma$ (x) = 2.3, V(y) = 3.24, r = 0.66 and $\bar{x}$ and $\bar{y}$ are 10 and 22 respectively, the regression equation y on x will be

(A) y = 12.703 + 0.9297x

(B) y = 16.835 + 0.5165x

(C) y = 16.835 + 0.9297x

(D) y = 12.703 + 05165x

**18.** From the following table find the most probable value of x, when y is 35

| | Mean | SD |
|---|---|---|
| X | 40 | 2.4 |
| Y | 42 | 3.5 |

Also, there is a negative correlation of - 0. 45 between x and y.

(A) 39.66

(B) 42.16

(C) 45.32

(D) 40.25

**19.** The coefficient of correlation, when $\Sigma dx = 0$, $\Sigma dy = 9$, $\Sigma dx^2 = 60$, $\Sigma dy^2 = 69$, $\Sigma dxdy = 57$ and $n = 9$ is

(A) 0.95

(B) 0.90

(C) 0.85

(D) 0.77

**20.** If the two regression lines are $5.3x + 3.6y = 20$ and $4.4x + 2.7y = 10$, then $r =$

(A) 0.95

(B) 0.90

(C) - 0.85

(D) None of these

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 2 | A | 3 | A | 4 | D | 5 | C |
| 6 | D | 7 | A | 8 | C | 9 | B | 10 | B |
| 11 | C | 12 | A | 13 | C | 14 | D | 15 | D |
| 16 | C | 17 | A | 18 | B | 19 | A | 20 | D |

# SPEED TEST

**1.** The equations of the two lines of regression are 4x+3y+7=0 and 3x+4y+8=0. Find the correlation coefficient between x and y

(A) -0.75

(B) 0.25

(C) -0.92

(D) 1.25

**2.** If the regression equations are 2x+3y+1=0 and 5x+6y+1=0, then Mean of x and y respectively are

(A) --1, -1

(B) -1,1

(C) 1, -1

(D) 2, 3

**3.** If $b_{yx}$ = 0.5, $b_{xy}$ = 0.46 then the value of correlation coefficient r is:

(A) 0.23

(B) 0.25

(C) 0.39

(D) 0.48



**4.** The coefficient of rank correlation between the ranking of following 6 students in two subjects Mathematics and Statistics is:

| | | | | | | |
|---|---|---|---|---|---|---|
| Mathematics | 3 | 5 | 8 | 4 | 7 | 10 |
| Statistics | 6 | 4 | 9 | 8 | 1 | 2 |

(A) – 0.25

(B) 0.35

(C) 0.38

(D) – 0.20

**5.** Pearson's Correlation coefficient between x and y is

(A) $\frac{cov\ (x,y)}{S_x S_y}$

(B) $\frac{cov^2\ (x,y)}{S_x S_y}$

(C) $\frac{(S_x S_y)^2}{cov\ (x,y)}$

(D) $\frac{(S_x S_y)}{cov\ (x,y)}$

**6.** If the regression line y on x and of x on y are given 10x –290=–20y and 7y - 104 = –4x,then the arithmetic means of x and y are given by

(A) 5, 12

(B) 7, 12

(C) 12, 5

(D) 5, 7

**7.** _____ may be defined as the ratio of covariance between the two variables to the product of the standard deviations of the two variables.

(A) Scatter diagram

(B) Karl Pearson's correlation coefficient

(C) Spearman's correlation coefficient

(D) Coefficient of concurrent deviations

**8.** If the coefficient of correlation is 0.8 and regression coefficient $b_{xy}$ = 0.32 then what is the value of regression coefficient $b_{yx}$?

(A) 2

(B) 1

(C) 0.52

(D) 0.48



**9.** If the Regression coefficient ($b_{yx}$) of y on x is greater than unity, then other Regression coefficient ($b_{xy}$) of x on y is:

(A) Less than one

(B) Greater than one

(C) Equal to one

(D) Equal to zero

**10.** If 4y – 6x = 18 is regression line of y on x and coefficient of correlation between x and y is 0.8. What is the value of regression coefficient of x on y?

(A) 0.2448

(B) 0.4267

(C) 0.5733

(D) 0.7441

**11.** For variables X and Y, we collect the four observations with $\sum X = 10; \sum Y = 14; \sum X^2 = 65; \sum Y^2 = 5$ and $\sum XY = 3$. What is the regression line of Y on X?

(A) Y = -0.8X - 5.5

(B) Y = 0.8X - 5.5

(C) Y = -0.8X + 5.5

(D) Y = 0.8X + 5.5

**12.** The regression lines will be perpendicular to each other when the value of r is

(A) 1

(B) -1

(C) 1/2

(D) 0

**13.** Given that r = 0.4 and n = 81, determine the limits for the population correlation coefficient.

(A) (0.333, 0.466)

(B) (0.367, 0.433)

(C) (0.337, 0.463)

(D) (0.373, 0.427)



**14.** Spearman's rank correlation coefficient y_R is given by

(A) $1 - \frac{6\Sigma d_i^2}{n(n^2+1)}$

(B) $1 + \frac{6\Sigma d_i^2}{n(n^2-1)}$

(C) $1 + \frac{6\Sigma d_i^2}{n(n^2+1)}$

(D) $1 - \frac{6\Sigma d_i^2}{n(n^2-1)}$

**15.** If the regression equations are x+2y-5 = 0 and 2x+3y-8 =0, then the mean of x and the mean of y are respectively:

(A) -3 and 4

(B) 2 and 4

(C) 1 and 2

(D) 2 and 1

**16.** For a group of 10 students the sum of squares of difference in ranks for Physics and Chemistry marks was 60, what is the value of rank correlation coefficient. (Choose the nearest value)

(A) 0.636

(B) 0.725

(C) 0.698

(D) 0.842

**17.** The range of the coefficient of correlation is

(A) between –1 and 1

(B) between –1 and 1 including 1

(C) between –1 and 1 including –1

(D) between –1 and 1 including –1&1 both

**18.** If the regression lines are $3x - 4y + 8 = 0$ and $4x - 3y = 1$, then the correlation coefficient between x and y is _____.

(A) 3/4

(B) 3/8

(C) 4/8

(D) $\frac{1}{4}$



**19.** The variance of two variables 'x' and 'y' are 16 and 25 and covariance between 'x' and 'y' is 18.5. Another two variables 'u' and 'v' are defined as $u=(x-3)/2$ and $v = (y-2)/3$, then coefficient of correlation between 'u' and 'v' is:

(A) 0.85

(B) 0.875

(C) 0.90

(D) 0.925

**20.** Which of the following statement is correct?

(A) Both regression coefficients can be less than unity.

(B) Regression coefficients are independent of origin and scale.

(C) The regression lines of two independent variables are parallel to each other.

(D) If two regression lines coincide with each other, there is no correlation between the variates.

**21.** Which one of the following statement is correct regarding limit of the two regression coefficients?

(A) No limit.

(B) Must be positive.

(C) One positive and the other negative.

(D) Product of the regression coefficients must be numerically less than unity.

**22.** In case of "Insurance companies' profits" and "The number of claims they have to pay", there exists a:

(A) Positive correlation

(B) Negative correlation

(C) No correlation

(D) It cannot be predicted

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 2 | C | 3 | D | 4 | A | 5 | A |
| 6 | A | 7 | B | 8 | A | 9 | A | 10 | B |
| 11 | C | 12 | D | 13 | C | 14 | D | 15 | C |
| 16 | A | 17 | D | 18 | A | 19 | D | 20 | A |
| 21 | D | 22 | B | | | | | | |

# PRACTISE QUESTION

## INDEX NUMBER

**1.** If the CLI increases by 20% and wages increase by 40% then real percentage increase is

(A) 20%

(B) 16.66%

(C) 25%

(D) 10%

**2.** Time Reversal Test and Factor Reversal Test is satisfied by which number

(A) Laspayre's Index

(B) Paasche's Index

(C) Bowley's Index

(D) Fisher Index



**3.** Net monthly salary of an employee was Rs. 7500. The consumer price index in 1985 is 250 with 1980 as base year. If he has to be rightly compensated, then additional Dearness Allowance to be paid to the employee is _____.

(A) 7500

(B) 18750

(C) 11250

(D) 12500

**4.** What is the formula for calculating the Deflated Value is

(A) $\frac{\text{Current Year Index} \times \text{Current Year Value}}{\text{Base Year Index}}$

(B) $\frac{\text{Current Year Value}}{\text{Current Year Index}} \times \text{Base year Index}$

(C) $\frac{\text{Current Year Index}}{\text{Current Year Value}} \times 100$

(D) None of the above

**5.** The index number for the year 2012 taking 2011 as base using simple average of price relatives method from the data below is:

| Commodity | A | B | C | D | E |
|---|---|---|---|---|---|
| Price in 2011 | 115 | 108 | 95 | 80 | 90 |
| Price in 2012 | 125 | 117 | 108 | 95 | 95 |

(A) 107.7

(B) 111.0

(C) 113.6

(D) 122.5

**6.** If with a rise of 10% in prices the wages are increased by 20%, the real wage increases by

(A) More than 10%

(B) Equal to 10%

(C) Less than 10%

(D) Indeterminate

**7.** For knowing consumer price index number we want to collect data from

(A) Retail shop prices

(B) Wholesale shop prices

(C) Fair prices

(D) Government depots

**8.** If $\Sigma P_0 Q_0 = 116, \Sigma P_0 Q_1 = 140$

$\Sigma P_1 Q_0 = 97, \Sigma P_1 Q_1 = 117$

then Fisher's ideal index number is _____.

(E) 184

(F) 83.59

(G) 119.66

(H) 120

**9.** Find the Paasche's Index number for prices from the following data taking 1970 as the base year.

| Commodity | 1970 | | 1975 | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| A | 1 | 6 | 3 | 5 |
| B | 3 | 5 | 8 | 5 |
| C | 4 | 8 | 10 | 6 |

(A) 261.36

(B) 265.48

(C) 274.32

(D) 282

**10.** Circular Test is an extension of _____.

(A) Factor reversal test

(B) Time reversal test

(C) Neither (A) nor (B)

(D) Both (A) and (B)

**11.** The consumer price index goes up from 120 to 180 when salary goes up from 240 to 540, what is the increase in real terms?



(A) 180

(B) 150

(C) 360

(D) 240

**12.** The index number of prices at a place in the year 2008 is 225 with 2004 as the base year then there is:

(A) 225% Increase

(B) 125% Increase

(C) 75% Decrease

(D) 100% Increase

**13.** The prices at a place becomes 2.45 times of the original price then percentage increase is:

(A) 245%

(B) 145%

(C) 102.45%

(D) None of the above

**14.** The index number of prices at a place in the year 2024 is 51 with 2023 as the base year then there is:

(A) 51% decrease

(B) 51% increase

(C) 49% decrease

(D) 49% increase

**15.** If there is increase in the price by 1.12 times then the new index number of the commodity will be

(A) 112

(B) 101.12

(C) 212

(D) 132

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 2 | D | 3 | C | 4 | B | 5 | B |
| 6 | C | 7 | A | 8 | B | 9 | A | 10 | B |
| 11 | C | 12 | B | 13 | B | 14 | C | 15 | C |

# SPEED TEST

**1.** From the following data calculate the Index number by Laspeyre's method:$\Sigma P_1Q_1=99$, $\Sigma P_0Q_1=71$, $\Sigma P_1Q_0=73$,$\Sigma P_0Q_0=96$.

(A) 130.26

(B) 131.51

(C) 30.88

(D) 76.04

**2.** Which of the following index number measures the change from month to month in most of the representative "basket" of goods and services of the type which are brought by a typical household

(A) Retail Price Index

(B) Laspeyre's Index

(C) Fisher's Index

(D) Passche's Index

**3.** Fisher's index number is called ideal index number because it satisfies

(A) Factor reversal test

(B) Time reversal test

(C) Both factor and time reversal test

(D) Circular test



**4.** If Laspeyre's Index is 119 and Passche's Index is 112, then Fisher's Index number will be

(A) 113.99

(B) 115.45

(C) 115.89

(D) 151.98

**5.** The gross monthly pay of an employee was ₹ 15,000 in a year 2020. The consumer price index number in 2023 is 155 with 2020 as base year. If employee is to rightly compensate what dearness allowance is required to be paid?

(A) ₹ 8,000

(B) ₹ 8,250

(C) ₹ 8,500

(D) ₹ 8,750

**6.** An Index number constructed to measure the relative change in the price of an item or a group of item is called:

(A) Quantity index number

(B) Price index number

(C) Volume index number

(D) Composite index number

**7.** Fisher's index does not satisfy following test.

(A) Unit Test

(B) Time Reversal Test

(C) Circular Test

(D) Factor Reversal Test

**8.** If the Laspeyre's index is 110 and Passche's index is 108, then what is the value of Fisher's index?

(A) 106.50

(B) 107.60

(C) 108.99

(D) 109.88



**9.** From the year 2013 to 2023, Consumer index number is increased from 135 to 180. During this period, salary of the employees as per pay commission recommendations was revised from ₹ 23,000 to ₹ 29,500. In real terms, an employee should get following additional amount (upto nearest whole number) to maintain his previous standard of living,

(A) ₹ 1,168

(B) ₹ 666

(C) ₹ 909

(D) ₹ 6,500

**10.** Which of the following index is computed by taking the average of base year and current year?

(A) Marshall-Edgeworth index

(B) Paasche's Index

(C) Laspeyre's Index

(D) Fisher's Index

**11.** Consider the data

| Year | Base Year | | Current Year | |
|---|---|---|---|---|
| Commodities | Price | Quantity | Price | Quantity |
| A | 10 | 5 | 20 | 2 |
| B | 15 | 4 | 25 | 8 |
| C | 40 | 2 | 60 | 6 |
| D | 25 | 3 | 40 | 4 |

Laspeyre's index is

(A) 166.04

(B) 166.40

(C) 164.04

(D) 164.40

**12.** The index number of prices for a country at a given date is 250. In comparison to the base period price, the price of all commodities in the country has increased by _____ times.

(A) 1.25

(B) 1.5

(C) 2

(D) 2.5



**13.** If Fisher's index number is 160 and Paasche's index number is 140, then Laspeyre'sindex number is

(A) 147.77

(B) 182.85

(C) 183.35

(D) 146.25

**14.** Weighted geometric mean of relative formula satisfies ---------- test & Factor Reversal test is satisfied by ----------.

(A) Time Reversal, Fisher's Ideal Index

(B) Time Reversal, Laspeyre's Index

(C) Factor Reversal, Paasche's Index

(D) Factor Reversal, Fisher's Ideal Index

**15.** The average of base year and current year is used in _____ index number.

(A) Laspeyre's

(B) Passche's

(C) Fisher's ideal

(D) Marshall-Edgeworth

**16.** Which index number formula satisfies both the time reversal and factor reversal tests?

(A) Fisher's Ideal Index

(B) Laspeyres' index

(C) Paasche's index

(D) Marshall-Edgeworth index

**17.** What of the following is not a test of adequacy in the context of index numbers?

(A) Unit Test

(B) Square Test

(C) Circular Test

(D) Factor Reversal Test



**18.** If the prices of all commodities in the base year are twice the values of the respective commodities in the current year, then the Fisher's ideal index number is equal to:

(A) 200

(B) 50

(C) 400

(D) 25

**19.** Which index number formula does not satisfy the time reversal test?

(A) Fisher's Ideal index and Laspeyre's Index

(B) Laspeyres' index and Paasche's Index

(C) Paasche's Index and Fisher's Ideal Index

(D) Laspeyres' index, Fisher's Ideal Index and Paasche's Index

**20.** The price index changes from 120 to 200 from Base year to Current year and the wage of the workers increase from 500 to 900, then what is the real wage percentage increase?

(A) 10%

(B) 8%

(C) 15%

(D) 20%

**21.** Which one of the following test of adequacy is concerned with the measurement of price changes over a period of years, when it is desirable to shift the base?

(A) Unit test

(B) Time Reversal test

(C) Circular test

(D) Factor Reversal test

**22.** The consumer price index for the year 2023 is 273 with 2010 as base year. The average monthly wages of industrial worker in year 2023 is ₹ 8,190. What is the real wage?

(A) ₹ 2,800

(B) ₹ 3,000

(C) ₹ 3,200

(D) ₹ 3,400



**23.** Time Reversal test is satisfied by:

(A) Laspeyre's method but not Fisher's method

(B) Paasche's method but not Laspeyre's method

(C) Fisher's mehod

(D) Laspeyre's method and Fisher's method

**24.** The value index is equal to:

(A) The total sum of the values of a given year multiplied by the sum of the values of the base year.

(B) The total sum of the values of a given year plus the sum of the values of the base year.

(C) The total sum of the values of a given year divided by the sum of the values of the base year.

(D) The total sum of the values of a given year minus the sum of the values of the base year.

**25.** During a certain period the cost of living index goes up from 110 to 200 and the salary of a worker is also raised from ₹ 330 to ₹ 500, then in the real terms, the raise in salary is effectively-

(A) Gain by ₹ 50

(B) Gain by ₹ 75

(C) Loss by ₹ 90

(D) Loss by ₹ 50

| ANSWER KEY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 2 | A | 3 | C | 4 | B | 5 | B |
| 6 | B | 7 | C | 8 | C | 9 | A | 10 | A |
| 11 | A | 12 | B | 13 | B | 14 | A | 15 | D |
| 16 | A | 17 | B | 18 | A | 19 | B | 20 | B |
| 21 | C | 22 | B | 23 | C | 24 | C | 25 | C |