# 100 Most Important MCQs for Statistics



Annual income of a person is

(a) An attribute(c) A continuous variable

(b) A discrete variable(d) (a) or (c)



The quickest method to collect primary data is

(a) Personal Interview(c) Telephone Interview

(b) Indirect Interview(d) By observation



The best method to collect data, in case of a natural calamity, is

(a) Personal Interview(c) Questionnaire Method

(b) Indirect Interview(d) Direct Observation Method



The amount of non-responses is maximum in

(a) Mailed Questionnaire Method(c) Observation Method

(b) Interview Method(d) All these

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 column and sub-column



'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



The chart that uses logarithm of the variable is known as:

(a) Line Chart(c) Multiple Line Chart

(b) Ratio Chart(d) Component Line Chart



Divided bar chart is considered for:

(a) Comparing different components of a variable(b) The relation of different components to the table(c) (a) or (b)(d) (a) and (b)



### Mutually exclusive classification is usually meant for

(a) A discrete variable(c) An attribute

(b) A continuous variable(d) Any of these



For a particular class boundary, the less than cumulative frequency and more than cumulative frequency add up to:

(a) Total frequency(c) (a) or (b)

(b) Fifty per cent of the total frequency(d) None of these



Out of 1000 persons, 25 per cent were industrial workers and the rest were agricultural workers. 300 persons enjoyed world cup matches on TV. 30 per cent of the people who had not watched world cup matches were industrial workers. What is the number of agricultural workers who had enjoyed world cup matches on TV?

(a) 260 (b) 240 (c) 230 (d) 250





In the equation 4x + 2y = 3, quartile deviation for y is 3. Find the quartile deviation for x.

(a) 4.5 (b) 6 (c) 1.5 (d) None



The mean and SD for *a*, *b*, and 2 are 3 and  $\frac{2}{\sqrt{3}}$  respectively. The value of *ab* would be? (a) 5 (b) 6 (c) 11 (d) 3





Which one is an absolute measure of dispersion?

(a) Range (b) Mean Deviation (c) Standard Deviation (d) All these measures



Interval Quartile Range is \_\_\_\_\_of Quartile Deviation

(a) Half (b) Double (c) Triple (d) Equal



The Standard Deviation of a set of 50 items is 10. Find the Standard Deviation if every item is increased by 5.

(a) 15 (b) 5 (c) 10 (d) None



## The standard deviation of 10, 16, 10, 16, 10, 10, 16, 16 is:

(a) 4 (b) 6 (c) 3 (d) 0



If two samples of sizes 30 and 20 have means as 55 and 60 and variances as 16 and 25 respectively, then what would be the SD of the combined sample of size 50?

(a) 5.00 (b) 5.06 (c) 5.23 (d) 5.35





If x and y are related by y = 2x + 5 and the SD and AM of x are known to be 5 and 10 respectively, then the coefficient of variation is:

(a) 25 (b) 30 (c) 40 (d) 20





If AM and coefficient of variation of *x* are 10 and 40 respectively, what is the variance of 15 - 2x?

(a) 8 (b) 64 (c) 74 (d) None





If the SD of the first *n* natural numbers is 2, then the value of *n* must be:

(a) 2 (b) 7 (c) 6 (d) 5



The mean and standard deviation of the salaries of two factories are given below:

Factory	No. of Employees	Mean Salary	SD of Salary
А	30	₹4,800	₹10
В	20	₹5,000	₹12

Examine which factory has more consistent structure so far as satisfying its employees are concerned.

(a) Factory A (b) Factory B (c) Both (d) None





A student computes the AM and SD for a set of 100 observations as 50 and 5 respectively. Later on, she discovers that she has made a mistake in taking one observation as 60 instead of 50. What would be the correct mean and SD if the wrong observation is replaced by the correct observation?

(a) 49.90; 6.91 (b) 49.40; 4.91 (c) 49.90; 4.90 (d) None





Compute the Coefficient of Mean Deviation about Median for the following distribution:

	50 00	00 - 70	70 - 80
No. of Persons 8	12	20	10

(a) 8.10	(b) 22.96	(c) 9.10	(d) 12.96
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If two variables x and y are related by 2x + 3y - 7 = 0 and the mean and mean deviation about mean of x are 1 and 0.3 respectively, then the coefficient of mean deviation of y about its mean is:

(a) -5 (b) 12 (c) 50 (d) 4





If  $R_x$  and  $R_y$  denote ranges of x and y respectively where x and y are related by 3x+2y+10=0, what would be the relation between x and y?

(a)  $R_x = R_y$  (b)  $2R_x = 3R_y$  (c)  $3R_x = 2R_y$  (d)  $R_x = 2R_y$ 




Given that for a distribution, the mean, median and mode are 23, 24, and 25.5. It is most likely that the distribution is \_\_\_\_\_\_ skewed.

(a) Positively (b) Symmetrically (c) Asymptotically (d) Negatively



If x and y are related by x - y - 10 = 0 and mode of x is known to be 23, then the mode of y is:

(a) 20 (b) 13 (c) 3 (d) 23



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

(a) 20 (b) 13 (c) 46 (d) 23



# Following are the wages of the labourers: ₹82, ₹56, ₹90, ₹50, ₹120, ₹75, ₹75, ₹80, ₹130, ₹65. Find $P_{82}$ .

(a) 62.75 (b) 81.20 (c) 120.20 (d) None



Following distribution relates to the distribution of monthly wages of 100 workers. Compute  $D_7$ .

Profits in '000	Less than	500 -	700 -	900 -	1100 -	More than
₹	500	699	899	1099	1499	1500
No. of Firms	5	23	29	27	10	6

(a) ₹1,032.83

(b) ₹1,048.96

(c) ₹995.80

(d) None





For the following incomplete distribution of marks of 100 pupils, median mark is known to be 32. What is the mean mark?

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50-60
No. of Students	10	_	25	30	_	10

(a) 32 (b) 31 (c) 31.30 (d) 31.50





### The modal profits for the following data is:

Profit in ₹ '000	Below 5	Below 10	Below 15	Below 20	Below 25	Below 30
No. of Firms	10	25	45	55	62	65

### (a) 11.50 (b) $\gtrless$ 11267 (c) $\gtrless$ 11667 (d) 11.67





If there are two groups with 75 and 65 as harmonic means and containing 15 and 13 observations then the combined HM is given by:

(a) 65 (b) 70.36 (c) 70 (d) 71





An aeroplane flies from A to B at the rate of 500 km/hour and comes back from B to A at the rate of 700 km/hour. The average speed of the aeroplane is:

(a) 600 km per hour (c)  $10\sqrt{35}$  km per hour (b) 583.33 km per hour(d) 620 km per hour





#### Find the HM for the following distribution:

#### (a) 5.66 (b) 4.44 (c) 8.96 (d) None





The geometric mean of the series 1, k,  $k^2$ ,..., $k^n$ , where k is a constant is:

(a)  $k^{(n+1)/2}$  (b)  $k^{n+0.5}$  (c)  $k^{n+1}$  (d)  $k^{n/2}$ 





If the rates return from three different shares are 100%, 200% and 400% respectively. The average rate of return will be:

(a) 350% (b) 233.33% (c) 200% (d) 300%



#### Find the GM for the following distribution:

f: 2 3 3 2	<i>x</i> :	2	4	8	16
	f:	2	3	3	2
	J•				

(a) $5.66$ (b) $6.76$	(C) 8.96	(a) None
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Two years ago, a team of four persons had an average age of 14. Now, a new member is added to the team and the average age of the team is 17. What is the age of the new member?

(a) 17 (b) 19 (c) 21 (d) 23



If the mean of a set of observations  $x_1, x_2, x_3, ..., x_n$  is  $\overline{x}$ , then the mean of the observations  $x_i + ki$ , where i = 1, 2, 3, ..., n is:

(a) 
$$\overline{x} + k(n+1)$$
 (b)  $\overline{x} + kn$  (c)  $\overline{x} + \frac{k}{n}$  (d)  $\overline{x} + \frac{k}{2}(n+1)$ 





At ABC ltd, the average age of employees is 36. Average age of male employees is 38 and that of females is 32. Find the ratio of female to male in the company.

(a) 1:3 (b) 2:1 (c) 1:2 (d) 3:1





A random variable has the following probability distribution:

<i>x</i> :	4	5	7	8	10		
<i>P</i> :	0.15	0.20	0.40	0.15	0.10		
Find $E[x-E(x)]^2$ . Also, find $v(3x-4)$ .							
(a) 3.04; 29.36	6 (b) 3	.04; 27.36	(c) 4.04; 2	(c) 4.04; 27.36 (d) No			





A random variable *x* has the following probability distribution:

x	0	1	2	3	4	5	6	7
P(x)	0	2k	3 <i>k</i>	k	2k	$k^2$	$7k^{2}$	$2k^2 + k$
Find the valu	e of P	P(x < 3).						

(a) 0.10 (b) 0.50 (c) 0.40 (d) 0.31







The probability that there is at least one error in an account statement prepared by 3 persons *A*, *B* and *C* are 0.2, 0.3 and 0.1 respectively. If *A*, *B* and *C* prepare 60, 70 and 90 such statements, then the expected number of correct statements is:

(a) 170 (b) 176 (c) 178 (d) 180





Moidul draws 2 balls from a bag containing 3 white and 5 Red balls. He gets ₹500 if he draws a white ball and ₹200 if he draws a red ball. What is his expectation? If he is asked to pay ₹400 for participating in the game, would he consider it a fair game and participate?

(a) ₹625; No (b) ₹625; Yes (c) ₹450; Yes (d) ₹450; No





For a group of students, 30%, 40% and 50% failed in Physics, Chemistry, and at least one of the two subjects respectively. If an examinee is selected at random, what is the probability that he passed in Physics if it is known that he failed in Chemistry?

(a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{4}$  (d)  $\frac{1}{6}$ 




The odds in favour of an event is 2:3 and the odds against another event is 3:7. Find the probability that only one of the two events occurs.

(a) 25/50 (b) 27/50 (c)  $\frac{1}{2}$  (d) None





*X* and *Y* stand in a line with 6 other people. What is the probability that there are 3 persons between them?

(a) 1/5 (b) 1/6 (c) 1/7 (d) 1/3





If 8 balls are distributed at random among three boxes, what is the probability that the first box would contain 3 balls?

#### OR

8 identical balls are placed at random in three bags. What is the probability that the first bag will contain 3 balls?

(a) 0.2731 (b) 0.3256 (c) 0.1924 (d) 0.3443





There are three persons aged 60, 65 and 70 years old. The survival probabilities for these three persons for another 5 years are 0.7, 0.4 and 0.2 respectively. What is the probability that at least two of them would survive another five years?

(a) 0.425 (b) 0.456 (c) 0.392 (d) 0.388





There are two urns containing 5 red and 6 white balls and 3 red and 7 white balls respectively. If two balls are drawn from the first urn without replacement and transferred to the second urn and then a draw of another two balls is made from it, what is the probability that both the balls drawn are red?

(a) 7/20 (b) 35/88 (c) 65/726 (d) 3/20







## Question 53 If $P(\overline{A} \cup \overline{B}) = 5/6$ , P(A) = 1/2 and $P(\overline{B}) = 2/3$ , what is $P(A \cup B)$ ? (a) 1/3 (b) 5/6 (c) 2/3 (d) 4/9





The probability that an Accountant's job applicant has a B. Com. Degree is 0.85, that he is a CA is 0.30 and that he is both B. Com. and CA is 0.25 out of 500 applicants, how many would be B. Com. or CA?

(a) 450 (b) 500 (c) 900 (d) 950





A number is selected at random from the first 1000 natural numbers. What is the probability that the number so selected would be a multiple of 7 or 11?

(a) 0.25 (b) 0.32 (c) 0.22 (d) 0.33



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Three events *A*, *B* and *C* are mutually exclusive, exhaustive, and equally likely. What is the probability of the complementary event of A?

(a) 6/11 (b) 3/11 (c) 1/6 (d) 2/3





If an unbiased die is rolled once, the odds in favour of getting a point which is a multiple of 3 is:

(a) 1:2 (b) 2:1 (c) 1:3 (d) 3:1





It is given that a family of 2 children has a girl, what is the probability that the other child is also a girl?

(a) 0.50 (b) 0.75 (c) 1/3 (d) 2/3



Find the probability that a four-digit number comprising the digits 2, 5, 6 and 7 would be divisible by 4.

(a) 4/13 (b) 5/13 (c) 8/24 (d) 7/13







What is the probability that a leap year selected at random would contain 53 Saturdays?

(a) 1/7 (b) 2/7 (c) 1/12 (d)  $\frac{1}{4}$ 





# If the area of a standard normal curve between Z = 0 to Z = 1 is 0.3413, then the value of $\phi(1)$ is:

(a) 0.5000 (b) 0.8413 (c) -0.5000 (d) 1



For a normal distribution with mean as 500 and SD as 120, what is the value of k so that the interval [500, k] covers 40.32 percent area of the normal curve? Given  $\phi(1.30) = 0.9032$ .

(a) 740 (b) 750 (c) 656 (d) 800





The distribution of wages of a group of workers is known to be normal with mean ₹500 and SD ₹100. If the wages of 100 workers in the group are less than ₹430, what is the total number of workers in the group? Given  $\phi(0.70) = 0.758$ .

(a) 413 (b) 400 (c) 500 (d) None





If x and y are 2 independent normal variables with mean as 10 and 12 and SD as 3 and 4, then (x + y) is normally distributed with:

(a) Mean = 22 and SD = 7(b) Mean = 22 and SD = 25(c) Mean = 22 and SD = 5(d) Mean = 22 and SD = 49





What is the first quartile of *x* having the following probability density function?

$$f(x) = \frac{1}{\sqrt{72\pi}} e^{-(x-10)^2/72} \text{ for } -\infty < x < \infty$$
(a) 4 (b) 5 (c) 5.95 (d) 6.75





If the two quartiles of a normal distribution are 47.30 and 52.70 respectively, what is the mode of the distribution? Also find the mean deviation about median of this distribution.

(a) 50; 3.20 (b) 100; 4.20 (c) 50; 4.20 (d) None




The probability that a random variable *x* following Poisson Distribution would assume a positive value is  $(1 - e^{-2.7})$ . What is the mode of the distribution?

(a) 2 (b) 3 (c) 4 (d) None





#### If the standard deviation of a Poisson variate *x* is 2, what is *P* (1.5 < x < 2.9)?

(a) 0.231 (b) 0.158 (c) 0.15 (d) 0.144





The manufacturer of a certain electronic component is certain that two per cent of his product is defective. He sells the components in boxes of 120 and guarantees that not more than two per cent in any box will be defective. Find the probability that a box, selected at random, would fail to meet the guarantee? Given that  $e^{-2.40} = 0.0907$ .

(a) 0.43 (b) 0.58 (c) 0.15 (d) None





If x and y are 2 independent binomial variables with parameters 6 and  $\frac{1}{2}$  and 4 and  $\frac{1}{2}$  respectively, what is  $P(x+y \ge 1)$ ?

(a) 1023/1024 (b) 1024/1023 (c) Both (d) None





What is the mode of the distribution for which mean and SD are 10 and  $\sqrt{5}$  respectively?

(a) 10 (b) 11 (c) 10 and 11 (d) None





A coin is tossed 10 times. Assuming the coin to be unbiased, what is the probability of getting at most 3 heads?

(a) 13/64 (b) 12/64 (c) 11/64 (d) None





The incidence of occupational disease in an industry is such that the workmen have a 10% chance of suffering from it. What is the probability that out of 5 workmen, 3 or more will contract the disease?

(a) 0.0906 (b) 0.0086

(c) 0.8006

(d) None





If the coefficient of correlation between two variables is 0.7 then the percentage of variation unaccounted for is:

(a) 70% (b) 30% (c) 51% (d) 49%



If r = 0.7; and n = 64 find out the probable error of the coefficient of correlation and determine the limits for the population correlation coefficient.

(a) 0.943; (0.743, 0.657) (b) 0.543; (0.743, 0.657) (c) 0.043; (0.743, 0.657) (d) None





For the variables x and y, the regression equations are given as 7x - 3y - 18 = 0 and 4x - y - 11 = 0. Given the variance of x is 9, find the SD of y.

(a) 9.1647 (b) 9.1467 (c) 9.1764 (d) None





If u = 2x + 5 and v = -3y - 6 and regression coefficient of y on x is 2.4, what is the regression coefficient of v on u?

(a) 3.6 (b) -3.6 (c) 2.4 (d) -2.4





The following data relate to the mean and SD of the prices of two shares in a Stock Exchange:

Share	Mean (in ₹)	SD (in ₹)
Company A	44	5.60
Company B	58	6.30

Coefficient of correlation between the share prices = 0.48.

Find the most likely price of share A corresponding to a price of  $\gtrless 60$  of share B and the most likely price of share B for a price of  $\gtrless 50$  of share A.

(a) 61.24; 44.85 (b) 44.85; 61.24 (c) 55.48; 44.85 (d) None





For 10 pairs of observations, no. of concurrent deviations was found to be 4. What is the value of the coefficient of concurrent deviation?

(a) 
$$\sqrt{0.2}$$
 (b)  $-\sqrt{0.2}$  (c)  $1/3$  (d)  $-1/3$ 





While computing rank correlation coefficient between profit and investment for the last 6 years of a company the difference in rank for a year was taken 3 instead of 4. What is the rectified rank correlation coefficient if it is known that the original value of rank correlation coefficient was 0.4?

(a) 0.3 (b) 0.2 (c) 0.25 (d) 0.28





If the rank correlation coefficient between marks in management and mathematics for a group of students is 0.6 and the sum of squares of the differences in ranks is 66, what is the number of students in the group?

(a) 10 (b) 9 (c) 8 (d) 11





If u+5x=6 and 3y-7v=20 and the correlation coefficient between x and y is 0.58, then what would be the correlation coefficient between u and v?

(a) 0.58 (b) -0.58 (c) -0.84 (d) 0.84





If the relation between x and u is 3x+4u+7=0 and the correlation coefficient between x and y is -0.6, then what is the correlation coefficient between u and y?

$$\begin{array}{ll} (a) -0.6 & (b) \ 0.8 \\ (c) \ 0.6 & (d) -0.8 \end{array}$$





If the covariance between two variables is 20 and the variance of one of the variables is 16, what would be the variance of the other variable?

(a)  $S_y^2 \ge 25$  (b) More than 10 (c) Less than 10 (d) More than 1.25




What is the value of correlation coefficient due to Pearson on the basis of the following?

X	-5	-4	-3	-2	-1	0	1	2	3	4	5
у	27	18	11	6	3	2	3	6	11	18	27
(a) 1		(b)	) —1		(c) (c)			(d)	-0.5		



### Solution

(c)

If we plot a graph, it looks as follows:







Therefore, it can be seen that there is a curvilinear correlation between *x* and *y*. Since Karl Pearson can find out only a linear correlation, therefore, as per Karl Pearson, the correlation is zero.



If the plotted points in a scatter diagram lie from upper left to lower right, then the correlation is:

(a) Positive (b) Zero (c) Negative (d) None



Find product moment correlation coefficient from the following information:

X	2	3	5	5	6	8
у	9	8	8	6	5	3

(a) 0.48	(b) 0.93	(c) –0.93	(d) None



The price of a commodity increases from ₹5 per unit in 1990 to ₹7.50 per unit in 1995 and the quantity consumed decreases from 120 units in 1990 to 90 units in 1995. The price and quantity in 1995 are 150% and 75% respectively of the corresponding price and quantity in 1990. Therefore, the product of the price ratio and quantity ratio is:

(a) 1.8 (b) 1.125 (c) 1.75 (d) None





If the price index for the year, say 1960 be 110.3 and the price index for the year, say 1950 be 98.4, then the purchasing power of money (Rupees) of 1950 in 1960 is:

(a) ₹1.12 (b) ₹1.25 (c) ₹1.37 (d) None



In 1996 the average price of a commodity was 20% more than in 1995 but 20% less than in 1994; and more over it was 50% more than in 1997 to price relatives using 1995 as base (1995 price relative 100) Reduce the data is:

(a) 150, 100, 120, 80 for (1994–97)
(c) 140, 100, 120, 80 for (1994–97)

(b) 135, 100, 125, 87 for (1994–97) (d) None



The consumer price Index for April 1985 was 125. The food price index was 120 and other items index was 135. The percentage of the total weight given to food index is:

(a) 66.67 (b) 68.28 (c) 90.25 (d) None



When the cost of Tobacco was increased by 50%, a certain hardened smoker, who maintained his formal scale of consumption, said that the rise had increased his cost of living by 5%. Before the change in price, the percentage of his cost of living was due to buying Tobacco is:

(a) 15% (b) 8% (c) 10% (d) None



If the 1970 index with base 1965 is 200, and 1965 index with base 1960 is 150, the index 1970 on base 1960 will be :

(a) 700 (b) 300 (c) 500 (d) 600





During the certain period the C.L.I. goes up from 110 to 200 and the Salary of a worker is also raised from 330 to 500, then the real terms is:

(a) loss by ₹50(b) loss by ₹75(c) loss by ₹90(d) None



Net monthly salary of an employee was ₹3000 in 1980. The consumer price index number in 1985 is 250 with 1980 as base year. If the has to be rightly compensated, then, the dearness allowance to be paid to the employee is:

(a)  $\gtrless 4,800.00$  (b)  $\gtrless 4,700.00$  (c)  $\gtrless 4,500.00$  (d) None



The total value of retained imports into India in 1960 was ₹71.5 million per month. The corresponding total for 1967 was ₹87.6 million per month. The index of volume of retained imports in 1967 composed with 1960 (= 100) was 62.0. The price index for retained inputs for 1967 our 1960 as base is:

(a) 198.61 (b) 197.61 (c) 198.25 (d) None





### From the following data:

Commodities	$Q_0$	$P_0$	$Q_1$	<b>P</b> <sub>1</sub>
А	2	2	6	18
В	5	5	2	2
С	7	7	4	24

Then the fisher's quantity index number is:

(a) 87.34 (b) 85.24 (c) 87.25 (d) 78.93





If  $\sum P_n Q_n = 249$ ,  $\sum P_0 Q_0 = 150$ , Paasche's Index Number = 150 and Drobiseh and Bowely's Index number = 145, then the Fisher's Ideal Index Number is:

(a) 75 (b) 60 (c) 145.97 (d) 144.91





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### **Question 99**

If the ratio between Laspeyre's Index Number and Paasche's Index Number is 28 : 27, then the missing figure in the following table P is:

Commodity	Bas	se Year	Current Yea		
	Price	Quantity	Price	Quantity	
Х	L	10	2	5	
Y	L	5	Р	2	

(a) 7 (b) 4 (c) 3 (d) 9





# If $\sum P_0 Q_0 = 1360$ , $\sum P_n Q_0 = 1900$ , $\sum P_0 Q_n = 1344$ , $\sum P_n Q_n = 1880$ , then Laspeyre's Index Number is:

(a) 0.71 (b) 1.39 (c) 1.75 (d) None

