RAVI TEST PAPERS & NOTES, WHATSAPP 8056206308

10TH MATHS PREVIOUSLY ASKED Statistics Probability

10th Standard

Maths

1) Cards marked with numbers 5 to 50, are placed in a box and mixed thoroughly. A card is drawn from the box at random. Find the probability that the number on the taken is
(i) a prime number less than 10.
(ii) a number which is a perfect square.

2) A card is drawn at random from a well shuffled pack of 52 playing cards. Find the probability of getting a red face card.

3) A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 and these are equally likely outcomes. Find the probability that the arrow will point at any factor of 8.

4) Cards marked with numbers 3, 4, 5, ..., 50 are placed in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that number on the drawn card is
(i) divisible by 7
(ii) a number which is a perfect square.

5) The king, queen and jack of clubs are removed from a deck of 52 playing cards and the remaining cards are shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of
(i) heart
(ii) queen
(iii) clubs

6) Two dice are rolled once. Find the probability of getting such numbers on the dice, whose product is 12.

7) A bag contains 24 balls out of which x are white. If one ball is drawn at random the probability of drawing a white ball is y. 12 more white balls are added to the bag. Now if a ball is drawn from the bag, the probability of drawing the white ball is $\frac{5}{3}y$. Find the value of x.

8) One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card is red and a king.

9) A card is drawn at random form a well-shuffled pack of 52 playing cards. Find the probability of getting neither a red card nor a queen.

10) A coin is tossed two times. Find the probability of getting at least one head.

11) A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability of getting
(i) a red king
(ii) a queen or a jack.

12) Two dice are thrown simultaneously.Find the probability that the sum of the two numbers appearing on the top is less than or equal to 10.

13) 17 cards numbered 1, 2, 3, ... , 16, 17 are put in a box and mixed thoroughly. One person draws a card from the box. Find the probability that the number on the card is: (i) odd (ii) a prime (iii) divisible by 3 (iv) divisible by 3 and 2 both.

14) A single letter is selected at random from the word "PROBABILITY". Find the probability that it is a vowel.

15) If three coins are tossed simultaneously, then find the probability of getting no head.

16) Two coins are tossed together. Find the probability of getting head on both.

17) In a throw of a pair of dice, what is the probability of getting a doublet or some number?

18) Two dice are thrown simultaneously. Find the Probability of getting a prime number on both dice.

19) In a throw of two dice, find the probability of getting a sum of 10.

20) A box contains cards numbered 6 to 50.A card is down at random from the box.Find the probability that the drawn card has a number which is a perfect square.

21) From a pack of 52 playing cards, a card is drawn at random.Find the probability, that the drawn card is not a face card.

22) From a well shuffled pack of cards, a card is drawn at random.Find the probability of getting a black queen.

23) Two dice are thrown together.Determine the probability of two coming on the first die and multiple of three on other die.

24) A bag contains 14balls of which x are white.If 6 more white balls are added to the bag, the probability of drawing a white ball is $\frac{1}{2}$ .Find the value of x.

25) Two coins are tossed together.Find the probability of getting at least one tail.

26) A bag contains 5black, 7 red and 3white balls.A ball is drawn from the bag at random.Find the probability that the ball drawn is:
(i) Black or white
(ii) Not black

27) A bag contains 2green, 3 red and block balls.A ball is taken out of the bag at random.Find the probability that the selected ball is:
(i) Not green
(ii) Not black

28) A box contains cards numbered from 1 to 17.If one card is drawn at random from the box, find the probability that it bears a prime number.

29) From a group of 2 boys and 2 girls, two children are selected at random.What is the sample space representing the event.Find the probability that one boy and girl is selected.

30) The probability of getting a bad egg from a lot of 400 eggs is 0.035.Find the number of bad eggs in the lot.

31) What is the probability of havin g 53 Mondays in a leap year?

32) A die is thrown once.Find the probability of getting:
(i)A prime number
(ii)A number divisible by 2

33) A die is thrown once.Find the probability of getting:
(i)An number prime number
(ii)A multiple of 3.

34) Two dice are thrown simultaneously.What is the probability that:
(i)5 will not come up on either of them
(ii)5 will not up come up on at least one?
(iii)5 will come up at both dice?

35) A bag contains cards which are numbered from 2 to 90.A card is drawn at random from the bag.Find the probability that it bears:
(i)A two-digit number
(ii)A number which is a perfect square.

36) Two dice are rolled once.Find the probability of getting such numbers on two dice, whose product is a perfect square.

37) Two dice are rolled once.Find the probability of getting such number on the two dice, whose product is 12.

38) Two different dice are thrown at the same time.Find the probability that the sum of the two numbers appearing on the top of the dice is 7.

39) A box contains 80 discs which are numbered from 1 to 80.If one disc is drawn at random from the box, find the probability that it bears
(i) a perfect square number.
(ii) a number divisible by 2 and 3.

40) There are 8 men and 7 women candidates appearing in an interview for filling up one vacant post.Find the probability that:
(a)A man is selected
(b)A woman is selected

41) Cards marked with numbers 5,6,7,....,74 are placed in a bag and mixed thoroughly. One card is drawn at random from the bag. Find the probability that the number on the card is a perfect cube.

42) A bag contains 20 oranges, 10 apples and 40 mangoes.One fruit is taken out at random from the bag.Find the probability that the drawn fruit is:
(a)An apple (b)An apple or orange
(c)A mango (d)Not an orange

43) A die is tossed once.Write the sample space.

44) Find the probability that a leap year selected at random will contain 53 Sundays

45) In a tossing a die, find the probability of getting an odd number less than 4.

46) What is the probability of getting exactly two tails, when to coins are tossed together?

47) If P(E)=0.15, then find P(not E).

48) The probability that it will rain today is 0.07. What is the probability that it will not rain today?

49) A die is thrown once. Find the probabiltiy of getting an even number less than 5.

50) A letter is chosen at random from the English alphabet. What is the probability that it is a letter of the word 'RAMANUJAN'?

51) A number x is chosen at random from the numbers - 4, - 3, - 2, - 1, 0, 1, 2, 3, 4. What is the probability that $|X| < 2$?

52) A number is selected from the numbers 2, 3, 3, 5, 5, 5, 7, 7, 7, 7, 9, 9, 9, 9, 9 at random. find the probability that the number selected is
(i) their median
(ii) their mode

53) In a throw of a die, find the probability of getting an odd number less than 6.

54) A box contains 90 discs, numbered from 1 to 90. In one disc is drawn at random from the box, find the probability that it bears a prime number less than 23.

55) If I toss a coin 3 times and get head each time. then I should expect a tail to have a higher chance in the 4th toss. Is it true?

56) A bag contains 6 red, 3 black and 6 white balls. A ball si selected at random from the bag. Find the probability that the selected ball is
(i) red or black
(ii) not black

57) What is the probability that a non-leap year has 53 Mondays?

58) Two different dice are tossed together. Find the probability that the product of the number on the top of the dice is 6.

59) If the probability of winning a game is $\frac{5}{11}$, find the probability of losing the game.

60) If E be an event such that P(E) = $\frac{3}{7}$, what is P(not W) equal to?

61) A bag contains cards numbered from 1 to 25. A card is drawn at random from the bag. Find the probability that number is divisible by both 2 and 3.

62) A number is selected at random from I to 30. Find the probability that it is a prime number.

63) From the number 3, 5, 5, 7, 7, 7, 9, 9, 9, 9, one number is selected at random, what is the probability that the selected number is mean?

64) A die is thrown once. What is the probability of getting a prime number.

65) A girl calculates the probability of her winning the game in a match and find it 0.08.What is the probability of her losing the game?

66) Can 1.1 be probability of an event?

67) There are 30 cards of the same size in a bag in which the number» 1 to 30 are written. One card is taken out of the bag at random. Find the probability that the number on the selected card is not divisible by 3.

68) A bag contains 5 red, 8 green and 7 white balls. One ball is drawn at random from the bag, find the probability of getting:
(i) not a white ball,
(ii) neither a green nor a red ball.

69) In a family of two children find the probability of having atleast one girl.

70) Find the probability that a leap year has 53 sundays.

71) Two coins are tossed together.Find the probability of getting both heads or both tails.

72) One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting:
(i) a non face card,
(ii) a black king.

73) Two dice are thrown together. What is the probability of getting a doublet?

74) What is the probability that there are 53 Wednesdays in a leap year?

75) A number x is chosen from 25, 24, 23, -2, -1, 0, 1, 2,3. Find the probability that IxI < 3.

76) A bag contains 20 balls out of which x balls are red.
(i) If one ball is drawn at random from the bag, find the probability that it is not red.
(ii] If 4 more red balls are out into the bag, the probability of drawing a red ball will be $\frac{5}{4}$ times the probability of drawing a red ball in the first case. Find the value of x.

77) A dice is rolled twice. Find the probability that:
(i) 5 will not come up either time.
(ii) 5 will come up exactly one time.

78) The king, queen and jack of clubs are removed from a pack of 52 playing cards and then the remaining pack is well shuffled. One card is selected from the remaining cards. Find the probability of getting:
(i) a club,
(ii) a diamond,
(iii) a jack.

79) Find the probability that a non-leap year selected at random will contain 53 Sundays.

80) Two different dice are tossed together. Find the probability:
(i) of getting a doublet
(ii) of getting a sum 10 of the numbers on the two dice.

81) An integer is chosen at random between 1 and 100. Find the probability that it is
(i) divisible by 8.
(ii) not divisible by 8.

82) Two dice, one red and one black are thrown simultaneously. A student of class X makes the following table.

Event: Sum on 2 dice	1	6	12	15
Probability	0	$\frac{5}{36}$	$\frac{1}{36}$	0

Ritu observes the above table and remarks that it is correct. Is she right? Explain

83) Shivesh was tossing a fair coin. Shown below are the outcomes of his first 5 tosses.
Tail Tail Tail Tail Tail
Is the probability of Shivesh getting a head in his sixth toss higher than the probability of getting a tail? Give a valid reason.

84) A die is thrown once. What is the probability of getting a number less than 3?

85) Find the mode of the data, using an empirical formula, when it is given that median=41.25 and mean=33.75.

86) Construct the frequency distribution table for the given data.

MARKS	NUMBER OF STUDENTS
Less than 10	14
Less than 20	22
Less than 30	37
Less than 40	58
Less than 50	67
Less than 60	75

87) In a class test, 50 students obtained marks as follows.

MARKS OBTAINED	0-20	20-40	40-60	60-80	80-100
NUMBER OF STUDENTS	4	6	25	10	5

Find the modal class and the median class.

88) If the mean of the following data is 18.75, then find the value of p.

X_i	10	15	p	25	30
F_i	5	10	7	8	2

89) The ages of employees in a factory are as follows:

AGE (IN YEARS)	17-23	23-29	29-35	35-41	41-47	47-53
NUMBER OF EMPLOYEES	2	5	6	4	2	1

Find the median age of the employees.

90) From the following frequency distribution, find the median class

Cost of living Index	1400-1550	1550-1700	1700-1850	1850-2000
Number of Weeks	8	15	21	8

91) Consider the following distribution:

Marks Obtained	0 or More	10 or More	20 Or More	30 Or More	40 Or More	50 Or More
Number of students	63	58	55	51	48	42

(i) Calculate the frequency of the class 30 - 40.

(ii) Calculate the class mark of the class 10 - 25

92) The regarding marks obtained by 48 students of a class in a class test is given below. Calculate the modal marks of students.

MARKS OBTAINED	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
NUMBER OF STUDENTS	1	0	2	0	0	10	25	7	2	1

93) The mean and median of 100 observations are 50 and 52 respectively. The value of the largest observation is 100. It was later found that it is 110 not 100. Find the true mean and median.

94) Find the arithmetic mean of the following frequency distribution

X_i	3	4	5	7	10
F_i	3	4	8	5	10

95) Given below is the distribution of weekly pocket money received by students of a class. Calculate the pocket money that is received by most of the students.

POCKET MONEY (IN RS)	0-20	20-40	40-60	60-80	80-100	100-120	120-140
NUMBER OF STUDENTS	2	2	3	12	18	5	2

96) Find the unknown values in the following table

CLASS INTERVAL	FREQUENCY	CUMULATIVE FREQUENCY
0-10	5	5
10-20	7	x_1
20-30	x_2	18
30-40	5	x_3
40-50	x_4	30

97) Write the relationship connecting three measures of central tendencies. Hence find the median of the given data if mode is 24.5 and mean is 29.75

98) The following distribution shows the marks scored by 140 students in an examination. Calculate the mode of the distribution.

MARKS	0-10	10-20	20-30	30-40	40-50
NUMBER OF STUDENTS	20	24	40	36	20

99) Find the unknown entries a, b, c, d in the following distribution of heights of students in a class

HEIGHT (IN CM)	**FREQUIENCY**	**CUMULATIVE FRQUENCY**
150-155	12	12
155-160	a	25
160-165	10	b
165-170	c	43
170-175	5	48
175-180	2	d

100) Find the mode of the following distribution

CLASSES	25-30	30-35	35-40	40-45	45-50	50-55
FREQUENCY	25	34	50	42	38	14

101) Find x and y from the following cumulative frequency distribution

CLASSES	**?FREQUENCY**	**C.F**
0-8	15	15
8-16	x	28
16-24	15	43
24-32	18	y
32-40	09	70

102) What is abscissa of the point of intersection of the "Less than type" and of the "More than type" cumulative frequency curve of a grouped data

103) Form the frequency distribution table from the following data:

MARKS (OUT OF 90)	**NUMBER OF CANDIDATES**
More than or equal to 80	4
More than or equal to 70	6
More than or equal to 60	11
More than or equal to 50	17
More than or equal to 40	23
More than or equal to 30	27
More than or equal to 20	30
More than or equal to 10	32
More than or equal to 0	34

104) Find the mean of the following distribution:

Class	3-5	5-7	7-9	9-11	11-13
Frequency	5	10	10	7	8

105) A die is thrown once. Find the probability of getting
(i) a prime number.
(ii) a number lying between 2 and 6.
(iii) an odd number

106) Five cards - the ten, jack, queen, king and ace of diamonds, are well shuffled with their face downwards. One card is then picked up at random.
(i) What is the probability that the card is the queen?
(ii) If the queen is drawn and put a side, what is the probability that the second card picked up is
(a) an ace?
(b) a queen?

107) A die is thrown twice. What is the probability that
(i) 5 will not come up either time?
(ii) 5 will come up at least once?
[Hint : Throwing a die twice and throwing two dice simultaneously are treated as the same experiment]

108) From a pack of 52 playing cards, Jacks, Queens and Kings of red colours are removed. From the remaining, a card is drawn at random. Find the probability that drawn card is : (i) a black king (ii) a card of red colour (iii) a card of black colour

109) From a well-shuffled pack of playing cards, black jacks, black kings and black aces are removed. A card is then drawn at random from the pack. Find the probability of getting
(a) a red card. (b) not a diamond card.

110) There are 100 cards in a bag on which numbers from 1 to 100 are written. A card is taken out from the bag at random. Find the probability that the number on the selected card
(i) is divisible by 9 and is a perfect square
(ii) is a prime number greater than 80.

111) A box consists of 100 shirts of which 88 are good, 8 have minor defects and 4 have major defects. Ramesh, a shopkeeper will buy only those shirts which are good but 'Kewal' another shopkeeper will not buy shirts with major defects. A shirt is taken out of the box at random. What is the probability that
(i) Ramesh will buy the selected shirt?
(ii) 'Kewal' will buy the selected shirt?

112) From a bag containing 5red, 8 black and 7blue balls, a ball is selected at random.Find the probability that:
(i)It is not a red ball
(ii)It is not a blue ball

113) A box contains 35blue, 25 white and 40 red marbles.If a marble is drawn at random from the box, find the probability that the drawn marble is:
(iWhite
(ii)Not blue
(iii)Neither white nor blue

114) In a single throw of two dice, find the probability of getting:
(i)A total of 7
(ii)A total of 11
(iii)Six as product

115) Three coins are tossed simultaneously.Find the probability of getting:
(a)Three heads
(b)Exactly 2 heads
(c)At least 2 heads

116) A bag contains 19cards, bearing numbers 1,2,3,...,, 19.A card is drawn at random from the bag.Find the probability that number on the drawn card is:
(i)Prime
(ii)Divisible by 3

117) An urn contains 8 red, 6white, 4 black balls.A ball is drawn at random from the urn.Find the probability that the drawn ball is:
(i)Red or white
(ii)Neither black nor white

118) From a well shuffled pack of 52 playing cards, black jacks, black kings and black aces are removed.A card is then drawn at random from the remaining pack.Find the probability of getting:
(a)A red card
(b)Not a diamond card.

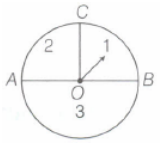
119) Ankita and Nagma are two friends.They were both born in 1990.What is the probability that they have
(i)Same birthday
(ii)Different birthdays?

120) Anita, Sita, Gita and Rita are four friends. What is the probability that (in a non-leap year)
(i) all will have same birthday
(ii) their birthdays fall in the month of October.
(iii) their birthdays fall on 10th day of the months.
(iv) their birthdays fall in January or February

121) In a game of musical chair, the person playing music has been advised to stop playing the music will stop within the first 20 s after starting?

122) Two dice are thrown simultaneously. Find the probability of getting a multiple of 2 on one die and a multiple of 3 on the other die.

123) A game of chance consists of an arrow which comes to rest pointing at one of the regions 1, 2 or 3. O is the centre of the circle, $OC \perp AB$.
Find the probability that
(i) arrow is resting on 3.
(ii) arrow is resting on 1.
(iii) arrow is not resting on 2.



124) A bag contains cards numbered 1 to 49. Find the probability that the number on the drawn card is:
(i) an odd number
(ii) a multiple 5
(iii) Even prime

125) Two unbiased coins are tossed simultaneously. find the probability of getting:
(i) atleast one head.
(ii) atmost one head
(iii) no head

126) A game consists of tossing a one-rupee coin 3 times and noting the outcome each time. Ramesh will win the game if all the tosses show the same result, (i.e either all three heads or all three tails) and loses the game otherwise. Find the probability that Ramesh will lose the game.

127) A box contains 100 cards marked from 1 to 100. If one card is drawn at random from the box, find the probability that it bears:
(i) a single digit number
(ii) a number which is a perfect square
(iii) a number which is divisible by 7

128) All red face cards are removed from a pack of playing cards. The remaining cards are well shuffled and then a card is drawn at random from them. Find the probability that the drawn card is:
(i) a red card
(ii) a face card
(iii) a card of clubs

129) Two different dice are rolled together. Find the probability to getting:
(i) the sum of numbers on two dice to be 5
(ii) even number on both dice.

130) One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting (a) Non face card,
(b) Black king or a Red queen,
(c) Spade card.

131) Three coins are tossed Simultaneously once. Find the probability of getting:
(i) at least one tail,
(ii) no tail.

132) a game consists of tossing a one-rupee coin three times and noting its outcome each time. Find the probability of getting:
(i) three heads,
(ii) at least two tails.

133) One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting:
(i) a red face card,
(ii) a spade,
(iii) either a king or a black cards.

134) In a class test, marks obtained by 120 students are given in the following frequency distribution. If it is given that mean is 59, then find the missing frequencies x and y.

MARKS	NUMBER OF STUDENTS
0-10	1
10-20	3
20-30	7
30-40	10
40-50	15
50-60	x
60-70	9
70-80	27
80-90	18
90-100	y

135) An NGO working for welfare of cancer patients, maintained its records as follows:

AGE OF PATIENTS (IN YEARS)	0-20	20-40	40-60	60-80
NUMBER OF PATIENTS	35	315	120	50

find mode.

136) The following distribution gives cumulative frequencies of 'more than type'.

MARKS OBTAINED (MORE THAN OR EQUAL TO)	5	10	15	20
NUMBERS OF STUDENTS (CUMULATIVE FREQUENCY)	30	23	8	2

Change the above data into a continuous grouped frequency distribution.

137) The following distribution gives the daily income of 50 workers of a factory:

DAILY INCOME (IN RS)	100-120	120-140	140-160	160-180	180-200
NUMBER OF WORKERS	12	14	8	6	10

Write the above distribution as 'less than type' cumulative frequency distribution.

138) Compute the median for the following data.

CLASS INTERVAL (LESS THAN)	20	30	40	50	60	70	80	90	100
CUMULATIVE FREQUENCY	0	4	16	30	46	66	82	92	100

139) Find the mean of the following distribution

Height (in cm)	Less than 75	Less than 100	Less than 125	Less than150	Less than 175	Less than 200
No of students	5	11	14	18	21	28
Height (in cm)	Less than 225	Less than 250	Less than 275	Less than 300		
No of students	33	37	45	50		

140) Following frequency distribution shows the daily expenditure on milk of 30 households in a locality

Daily Expenditure on Milk (in Rs)	0-30	30-60	60-90	90-120	120-150
Number in households	5	6	9	6	4

Find the mode for the above data

141) The following frequency distribution shows the number of runs scored by some batsmen of India in one-day cricket matches:

Runs Scored	2000-4000	4000-6000	6000-8000	8000-10000	10000-12000
Number of batsman	9	8	10	2	1

Find the mode for the above data.

142) Complete mean of the grouped data:

MONTHLY SALARY	NO. OF PERSONS
325.5 - 350.5	20
350.5 - 375.5	10
375.5 - 400.5	10
400.5 - 425.5	5
425.5 - 450.5	1
450.5 - 475.5	2
475.5 - 500.5	2

143) The marks obtained by 30 students of Class X of a certain school in a Mathematics paper consisting of 100 marks are presented in table below:

Class interval	**10-25**	**25-40**	**40-55**	**55-70**	**70-85**	**85-100**
Number of students	**2**	**3**	**7**	**6**	**6**	**6**

Find the mean of the marks obtained by the students,

144) The arithmetic mean of the following frequency distribution is 53. Find the value of k

Class	0-20	20-40	40-60	60-80	80-100
Frequency	12	15	32	k	13

145) Find the mode of the following frequency distribution.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	10	10	16	12	6	7

146) Find mean of the following data.

Class	0-15	15-30	30-45	45-60	60-75	75-90
Frequency	12	15	11	20	16	6

147) Find the mode of the following data.

Class	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Frequency	6	8	10	12	6	5	3

148) The mode of the following frequency distribution is 38. Find the value of x.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	7	9	12	16	x	6	11

149) Shown below is a table representing the percentage distribution of mental health disorders of Asian countries in 2019.

Percentage of citizens with mental health disorders	**Number of Asian countries**
7.5 - 10	1
10 - 12.5	25
12.5 - 15	11
15 - 17.5	4
17.5 - 20	1

Can the median of the above data be greater than 12.5%? Give a valid reason.

150) Following is the distribution of the long jump competition in which 250 students participated. Find the median distance jumped by the students. Interpret the median

Distance (in m)	0-1	1-2	2-3	3-4	4-5
Number of Students	40	80	62	38	30

151) A solid is in the shape of a right-circular cone surmounted on a hemisphere, the radius of each of them being 7 cm and the height of the cone is equal to its diameter. Find the volume of the solid $\left[\text{ use } \pi = \frac{22}{7}\right]$

152) A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that is bears

(i) a two digit number

(ii) a perfect square number

(iii) a number divisible by 5

153) A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent.

NUMBER OF DAYS	0-6	6-10	10-14	14-20	20-28	28-38	38-40
NUMBER OF STUDENTS	11	10	7	4	4	3	1

154) A student noted the number of cars passing through a spot on a road for 100 periods each of 3 min and summarised it in the table given below:

NUMBER OF CARS	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
FREQUENCY	7	14	13	12	20	11	15	8

Find the mode of the data.

155) If the median of the distribution given below is 28.5, find the values of x and y.

CLASS INTERVAL	FREQUENCY
0-10	5
10-20	x
20-30	20
30-40	15
40-50	y
50-60	5
Total	60

156) A life insurance agent found the following data for distribution of ages of 100 policy holders:

AGE (IN YEARS)	NUMBER OF POLICY HOLDERS
Below 20	2
Below 25	6
Below 30	24
Below 35	45
Below 40	78
Below 45	89
Below 50	92
Below 55	98
Below 60	100

Calculate the median age, if policies are given only to persons having age 18 yr onwards but less than 60 yr. Given benefits of insurance.

157) The following table gives the distribution of the life time of 400 neon lamps :

LIFETIME (IN HOURS)	NUMBER OF LAMPS
1500-2000	14
2000-2500	56
2500-3000	60
3000-3500	86
3500-4000	74
4000-4500	62
4500-5000	48

Find the median lifetime of a lamp.

158) 100 surnames were randomly picked up from a local telephone directory and the frequency distribution of the number of letters in the English alphabets in the surnames was obtained as follows:

NUMBER OF LETTERS	1-4	4-7	7-10	10-13	13-16	16-19
NUMBER OF SURNAMES	6	30	40	16	4	4

Determine

(i) median number of letters in the surnames

(ii) mean number of letters in the surnames.

(iii) modal size of the surnames.

159) The median of the following data is 525. Find the values of x and y if the total frequency is 100.

Class Interval	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4

160) Consider the following distribution of daily wages of 50 workers of a factory

Daily wages (in Rs)	500-520	520-540	540-560	560-580	580-600
Number of workers	12	14	8	6	10

Find the mean daily wages of the workers of the factory by using an appropriate method

161) The marks distribution of 30 students in a mathematics examination are given in Table.

Class interval	**Number of students (f_i)**	**Class mark (x_i)**	**$f_i x_i$**
10-25	**2**	**17.5**	**35.0**
25-40	**3**	**32.5**	**97.5**
40-55	**7**	**47.5**	**332.5**
55-70	**6**	**62.5**	**375.0**
70-85	**6**	**77.5**	**465.0**
85-100	**6**	**92.5**	**555.0**
Total	$\Sigma f_i = 30$		$\Sigma f_i x_i = 1860.0$

Find the mode of this data. Also compare and interpret the mode and the mean.

162) A box contains 12 balls out of which x are black. If one ball is drawn at random from the box, what is the probability that it will be blackball? If 6 more black balls are put in the box, the probability of drawing a black ball now is double of what it was before.Find x.

163) Two dice are numbered 1,2,3,4,5,6 and 1,1,2,2,3,3 respectively.They are thrown and the sum of the numbers on them is noted.Find the probability of getting each sum from 2 to 9 separately

164) A number x is selected at random from the numbers 1, 2, 3 and 4. Another number y is selected at random from the numbers 1, 4, 9 and 16. Find the Probability that product of x and y is less than 16.

165) All the black face cards are removed from a pack of 52 cards. Find the probability of getting a,

(i) face card

(ii) red card

(iii) black card

(iv) king

166) A bag contains 15 balls of which x are blue and the remaining are red. If the number of red balls are increased by 5, the probability of drawing the red balls doubles. Find:

(i) P(red ball)

(ii) P(blue ball)

(iii) P(blue ball it of 5 extra red balls are actually added)

167) Three digit number are made using the digits 4, 5, 9 (without repetition). If a number among them is selected at random, what is the probability that the number will :

(i) be a multiple of 5 ?

(ii) be a multiple of 9 ?

(iii) will end with 9 ?

168) A bag contains 6 red, 4 black and some white balls.

(i) Find the number of white balls in the bag, if the probability of drawing a white ball is 1/3.

(ii) How many red balls should be removed from the bag for the probability of drawing a white ball to be $\frac{1}{2}$?

169) Write frequency distribution table for the following data:

MARKS	Below 10	Below 20	Below 30	Below 40	Below 50	Below 60
NUMBER OF STUDENTS	0	15	20	30	35	40

170) If median of the following frequency distribution is 24, the find the missing frequency x.

AGE (IN YEARS)	0-10	10-20	20-30	30-40	40-50
NUMBER OF PERSONS	5	25	x	18	7

171) During Medical check up of 200 students of school, their weights were recorded as follows:

WEIGHT (IN KG)	30-39	40-49	50-59	60-69	70-79	80-89
NUMBER OF STUDENTS	5	22	63	74	30	6

Find the median weight of students.

172) A survey was conducted to give the percentage distribution of doctors in hospitals of rural areas of various states and Union Territories (UT) of India are given in the following table:

PERCENTAGE OF DOCTORS	NUMBER OF STATES/UT
15-25	6
25-35	11
35-45	7
45-55	4
55-65	4
65-75	2
75-85	1

(i) Find the mean percentage of doctors of rural areas of various states and union territories.
(ii) Suppose there are two persons Ram and Shyam. If Ram find out the mean by direct method and Shyam find out the mean by step deviation method, then whether both of them get the same value. Explain the reason.
(iii) Give the advantages of conducting health programme.

173) Using step deviation method, find the mean of the following data.

CLASS INTERVAL	FREQUECY
135-140	4
140-145	9
145-150	18
150-155	28
155-160	24
160-165	10
165-170	5
170-175	2

174) The median class of a frequency distribution is 125-145. The frequency and cumulative frequency of the class preceding to the median class are 20 and 22, respectively. Find the sum of the frequencies, if the median is 137.

175) The following distribution gives the daily income of 50 workers of a factory:

DAILY INCOME (IN RS)	100-120	120-140	140-160	160-180	180-200
NUMBER OF WORKERS	12	14	8	6	10

Convert the distribution above to a 'less than type' cumulative frequency distribution and draw its ogive.

176) Literacy rates of 40 cities are given in the following table. If it is given that mean literacy rate is 63.5,then find the missing frequencies x and y.

Literacy rate (in %)	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
Number of cities	1	2	3	x	y	6	8	4	2	3	2

177) The following distribution gives the weights of 60 students of a class. Find the mean and mode weights of the students.

Weight (in kg)	40-44	44-48	48-52	52-56	56-60	60-64	64-68	68-72
Number of students	4	6	10	14	10	8	6	2

178) Find the mode of the following frequency distribution:

Class Interval	f
25-35	7
35-45	31
45-55	33
55-65	17
65-75	11
75-85	1

179) Find the missing frequencies and the median for the following distribution if the mean is 1.46.

No.of accidents	Frequency (No.of days)
0	46
1	x
2	y
3	25
4	10
5	5
Total	200

180) Find the mean of the following frequency distribution:

CLASS	0-20	20-40	40-60	60-80	80-100
FREQUENCY	17	28	32	24	19

181) Find the mean of the following frequency distribution by assumed mean method.

CLASS	25-30	30-35	35-40	40-45	45-50	50-55	55-60
FREQUENCY	14	22	16	6	5	3	4

182) Find the missing frequency for the given frequency distribution table, if the mean of the distribution is 18.

CLASS INTERVAL	11-13	13-15	15-17	17-19	19-21	21-23	23-25
FREQUENCY	3	6	9	13	f	5	4

183) For the following data. find the mode.

CLASS	1-3	3-5	5-7	7-9	9-11
FREQUENCY	14	16	4	4	2

184) Find the mode of the following frequency distribution:

CLASS	10-14	14-18	18-22	22-26	26-30	30-34	34-38
FREQUENCY	8	6	11	20	25	22	10

185) Find the missing frequency f for the following data. if the mode for the following data is 39.

CLASS	5-15	15-25	25-35	35-45	45-55	55-65	65-75
FREQUENCY	2	3	f	7	4	2	2

186) Monthly consumption of electricity of some consumers is given below as a distribution. Find the missing frequency (x) , if mode of distribution is given to be 200 units

MONTHLY CONSUMPTION (IN UNITS)	90-120	120-150	150-180	180-210	210-240
NUMBER OF CONSUMERS	20	15	x	75	50

187) Some surnames were picked up from a local telephone directory and the frequency distribution of the number of letters of the English alphabets was obtained as follows:

NUMBER OF LETTERS	1-4	4-7	7-10	10-13	13-16	16-19
NUMBER OF SURNAMES	10	25	35	x	12	8

188) Find the missing frequencies in the following frequency distribution table, if n = 100 and median is 32

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60	Total
Number of students	10	?	25	35	?	10	100

189) If the median of the following frequency distribution is 32.5. Find the values of f_1 and f_2.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	**Total**
Frequency	f_1	5	9	12	f_2	3	2	40

190) The following distribution gives the daily income of 50 workers of a factory.

Daily income (in Rs)	200-220	220-240	240-260	260-280	280-300
Number of workers	12	14	8	6	10

Convert the distribution above to a 'less than type' cumulative frequency distribution and draw its ogive

191) Draw a 'less than type ogive' for the following data.

Marks (Less than)	20	30	40	50	60	70	80	90	100
Number of candidates	0	4	16	30	46	66	82	92	100

Find the median of the data from the graph and verify the result using the formula.

192) The marks obtained by 45 students of a class in a test are given below

Marks	40-45	45-50	50-55	55-60	60-65	65-70
Number of students	8	9	10	9	5	4

Find the mean and median marks.

193) The mean of the following distribution is 18. Find the frequency f of the class 19-21.

Class	**Frequency**
11-13	3
13-15	6
15-17	9
17-19	13
19-21	f
21-23	5
23-25	4

194) The median of the following data is 50. Find the values of p and q, if the sum of all frequencies is 90. Also, find the mode.

Marks obtained	**Number of students**
20-30	P
30-40	15
40-50	25
50-60	20
60-70	q
70-80	8
80-90	10

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