MATHEMATICS

1 If the mean of n observations is 12 and the sum of the observations is 132, then find the value of n.

(A) 9 (B) 10 (C) 11 (D) 12

ANS . C

2 The range of the data 14, 15, 18, 25, 11, 40, 36, 30 is :

(A) 29 (B) 27 (C) 24 (D) 26

ANS . A

3 The median of 5, 7, 9, 10, 11 is :

(A) 7 (B) 9 (C) 11 (D) 10

ANS . B

4 The mean of the data 15, 20, 20, 16, 22, 17, 23, 18, 24, 25, is :

(A) 26 (B) 22 (C) 20 (D) 18

ANS . C

5 If the mode of 22, 21, 23, 24, 21, 20, 23, 26, x and 26 is 23, then x is :

(A) 20 (B) 21 (C) 23 (D) 24

ANS . C

6 If the mean of 5, 7, x, 10, 5 and 7 is 7, then find the value of x.

(A) 6 (B) 7 (C) 8 (D) 9

ANS . C

7 The mean of p, q and r is same as the mean of q, 2r and s. Then which of the following is correct?

(A) p = q = r (B) q = r = s (C) q = r (D) p = r + s

ANS . D

8 The mean weight of 21 students is 21 kg. If a student weighing 21 kg is removed from the group, the what is the mean weight of the remaining students?

(A) 20 kg (B) 21 kg (C) 19 kg (D) None of these

ANS . B

9 Find the area of the shaded part of the given figure, if the radius of the larger circle is 21 cm, and diameter of the both smaller circles is 14 cm.

(A) 1078 cm^2 (B) 1098 cm^2 (C) 1100 cm^2 (D) 908 cm^2

Sol. Required Area = $\pi (21)^2 - 2 \times \pi (7)^2 = 441\pi - 98\pi = 343\pi = 1788$ cm^2

ANS . A

10 A sum of M12,500 amounts to M15,500 in 4 years at the rate of simple interest. What is the rate of interest?

(A) 5% (B) 6% (C) 7% (D) 8%

Sol. S.I. = 15500 – 12500 = M3000

$\Rightarrow$ 3000 = $\Rightarrow$ R = 6%

ANS . B

11 The range of the data 15, 18, 17, 16, 14, x, 12, 10, 9, 15 is 9. Which of the following is true about x? (A) $x > 18$ (B) $x < 9$ (C) $9 \le x \le 18$ (D) None of these

ANS . C

12 There are 7 observations in the data and their mean is 11. If each observation is multiplied by 2, then find the new mean.

(A) 11 (B) 13 (C) 22 (D) None of these

ANS . C

Direction (Q.3 to 6) : These questions are based on the following data. Read the following bar graph and answer the questions.

13 In which year is the difference between the sales of the scooters and the sales of cars was least? (A) 2005 (B) 2006 (C) 2007 (D) 2008

ANS . B

14 Total number of vehicles (scooters and cars) sold in the years 2005 and 2006 is :

(A) 26100 (B) 28500 (C) 25100 (D) 27500

ANS . A

15 Find the maximum difference between sales of scooters and that of cars, in any year, in the given period.

(A) 1500 (B) 1700 (C) 1800 (D) 2000

ANS . C

16 Find the total number of scooters sold in the four years.

(A) 26000 (B) 27000 (C) 31000 (D) 32000

ANS . D

17 From a series of 50 observations, an observation with the value of 45 is dropped, but the mean remains the same. What was the mean of 50 observations?

(A) 50 (B) 49 (C) 45 (D) 40

ANS . C

18 A bastman scores 80 runs in his 6^{th} inning and thus increases his average by 5. What is his average after 6^{th} inning?

(A) 66 (B) 55 (C) 56 (D) 65

ANS . B

Sol. Let the average score of 5 innings = x

$\therefore$ the total score of 5 innings = 5x

And total score of 6 innings = (5x + 80)

ATQ:

$\Rightarrow$ x = 50

$\Rightarrow$ Average after 6 innings = x + 5 = 50 + 5 = 55

19 Find the altitude of a triangle whose base is 40 cm and area is 240 cm^2?

(A) 8 cm (B) 12 cm (C) 14 cm (D) 10 cm

ANS . B

Sol. Area = × base × height $\Rightarrow$ 240 = × 40 × h $\Rightarrow$ h = 12 cm

20 Find the cost of painting a wall with dimension 25 m by 9 m at the rate of M120 per square metre.

(A)M25000 (B) M24550 (C) M29450 (D) M27000

Sol. Area of wall = $25 \times 9 = 225\ m^2$

Cost of painting the wall = $225 \times 120 =$ M27000

ANS . D

21 Priya earned M25000 in a month. The given graph shows the amount of money saved by Priya in five months. What was the amount of money she spent in five months?

(A)M970000 (B) M100000 (C) M107000 (D) M117000

ANS . C

22 The mean of three numbers is 40. All the three numbers are different natural numbers. If lowest is 19, what could be highest possible number of remaining two numbers?

(A) 81 (B) 40 (C) 100 (D) 71

ANS . C

23 The given bar graph shows heights of selected lakes. Find the difference in elevation for Lake E and Lake C.

(A) 420 m (B) 604 m (C) 504 m (D) 692 m

ANS . B

24 Find the mode from the following data :

(A) 32 (B) 37 (C) 30 (D) 34

ANS B

25 In the frequency distribution of discrete data given below, the frequency p against value 3 is missing.

If the mean is 2.5, then the missing frequency p will be

(A) 0 (B) 10 (C) 30 (D) 40

Sol.

Mean = =

$\Rightarrow$ $400 + 6p = 440 + 5p$ $\Rightarrow$ $p = 40$

ANS . D

26 If the mean of 4, x and y is 6, then find the mean of x, y and 10.

(A) 10 (B) 12 (C) 3 (D) 8

Sol. $\Rightarrow$ $x + y = 14$ ...(i)

$\Rightarrow$ $= 8$

ANS . D

Direction (Q.7 & 8) : The bar graph below shows the number of cars passing through a toll tax.

27 Find the total number of cars passed through the toll tax.

(A) 500 (B) 600 (C) 625 (D)700

ANS . B

28 Find the percentage of cars which has atleast 2 passengers.

(A) (B) (C) (D)

ANS . A

Q The Tourists visit the Place on 7 days of a certain week was recorded as follows:

29 On which day is the number of tourists maximum?

(A) Sunday (B) Wednesday (C) Tuesday (D) Saturday

ANS : (A)

30 On which day is the number of tourists minimum?

(A) Friday (B) Monday (C) Thursday (D) Saturday

ANS : (A)

31. On which day 60 tourists visit?

(A) Monday (B) Tuesday (C) Friday (D) Sunday

ANS : (C)

32. What is the difference between the number of tourists visiting on Friday and Monday?

(A) 10 (B) 24 (C) 38 (D) 5

ANS :(D)

33. The sum of the number of tourists visiting on Sunday and Friday is

(A) 160 (B) 60 (C) 220 (D) 100

ANS : (C)

34. The difference between the maximum and minimum number of tourists is

(A) 50 (B) 80 (C) 90 (D) 100

ANS : (D)

35. A batsman scored the following number of runs in six innings:
35, 30, 45, 65, 39, 20
The mean runs scored by him in an inning is

(A) 39 (B) 38 (C) 37 (D) 40

ANS : (A)

36. The mean of the numbers 10,20, 30 and 40 is

(A) 20 (B) 25 (C) 30 (D) 50

ANS : (B)

37 The range of the weights (in kg) of a students of a class given below is:
49, 60, 47, 50, 47, 59, 58, 45, 53
(A) 10 (B) 15 (C) 20 (D) 2

ANS : (B)

38 The marks of 11 students of a class are as given below:
78, 11, 99, 63, 94, 6, 78, 36, 30, 55, 22
The range of marks is
(A) 90 (B) 91 (C) 92 (D) 93

ANS : (D)

39 The rainfall (in mm) in a city on 7 days of a certain week was recorded as follows:

Day	*Rainfall (in mm)*
Monday	0.0
Tuesday	0.0
Wednesday	1.0
Thursday	2.0
Friday	3.0
Saturday	5.0
Sunday	4.0

On how many days was the rainfall less than 6 mm?
(A) 0 (B) 3 (C) 6 (D) 7

ANS : (D)

40. The mode of the distribution 3,5, 7, 4, 2, 1, 4, 3, 4 is

(A) 7 (B) 4 (C) 3 (D) 1

ANS : (B)

41. The marks of some students are as given below:
30, 31, 32, 32, 33, 32, 34, 35, 30, 31, 33, 32
Find the mode of their marks.
(A) 30 (B) 31 (C) 32 (D) 33

ANS : (C)

42 The median of the distribution 2, 3, 4, 7, 5, 1, 6 is

(A) 1 (B) 2 (C) 3 (D) 4

ANS : (D)

43. The median of the data 20, 30, 40, 10, 15, 25, 35 is

(A) 20 (B) 25 (C) 30 (D) 40

ANS : (B)

44. Which of the following statements is true?

(A) The mode is always one of the numbers in a data
(B) The mean is always one of the numbers in a data
(C) Mean < Mode in a data
(D) Median < Mode in a data

ANS : (A)

45. A coin is tossed. What is the probability of getting head?

(A) 0 (B) 1 (C) $\frac{1}{2}$ (D) 2

ANS : (C)

46. A coin is tossed. What is the probability of getting tail?

(A) 1 (B) $\frac{1}{2}$ (C) 2 (D) 0

ANS : (B)

47. A die is thrown. What is the probability of getting 1?

(A) 0 (B) 1 (C) $\frac{1}{2}$ (D) $\frac{1}{6}$

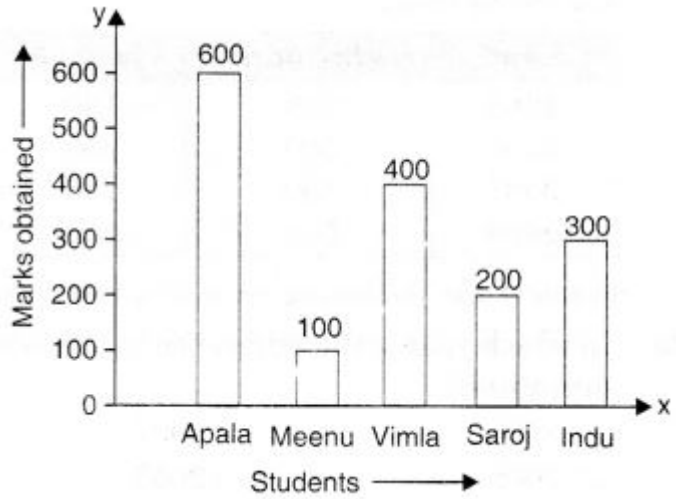
ANS : (D)

48. A die is thrown. What is the probability of getting 6?

(A) 0 (B) $\frac{1}{6}$ (C) $\frac{1}{2}$ (D) 1

ANS : (B)

Read the following bar graph and answer the following related questionsQ(49 – 56) :



49 Who got the maximum marks?

(A) Apala (B) Meenu (C) Saroj (D) Indu

ANS : (A)

50 Who got the minimum marks?

(A) Apala (B) Meenu (C) Vimla (D) Indu

ANS : (B)

51. The difference between maximum and minimum marks is

(A) 100 (D) 200 (C) 400 (D) 500

ANS : (D)

52. The ratio between the marks obtained by Saroj and Vimla is

(A) 1 : 2 (B) 2 : 3 (C) 3 : 4 (D) 1 : 6

ANS :(A)

53. How many girls have got marks more than 100?

(A) 2 (B) 3 (C) 4 (D) 1

ANS : (C)

54 Who has got 400 marks?

(A) Vimla (B) Saroj (C) Indu (D) Apala

ANS : (A)

55. The difference between the marks obtained by Vimla and Saroj is how many times the difference between the marks obtained by Meenu and Saroj?

(A) 2 (B) 3 (C) 4 (D) 6

ANS : (A)

56 How many girls have got marks less than 600?

(A) 1 (B) 2 (C) 3 (D) 4

ANS : (D)

Sale of Mathematics and English books in the year 2005, 2006, 2007 and 2008 are given below :

Years	*Mathematics*	*English*
2005	200	100
2006	300	250
2007	400	200
2008	500	500

Answer the following related questionsQ(29 – 33) :

57. In which year is the difference in the sale minimum?

(A)2008 (B) 2007 (C) 2006 (D) 2005

ANS : (A)

58 In which year is the difference in the sale maximum?

(A)2005 (B) 2006 (C) 2007 (D) 2008

ANS : (C)

59. The ratio of sales in the year 2005 is

(A) 2 : 1 (B) 3 : 1 (C) 4 : 1 (D) 2 : 3

ANS : (A)

60 The rise in the sale of Mathematics books from 2005 to 2008 is

(A) 100 (B) 200 (C) 300 (D) 400

ANS : (C)

61. The fall in the sale of English books from 2006 to 2007 is

(A) 50 (B) 100 (C) 150 (D) 200

ANS : (A)

Number of children in six different classes are given below :

Class	*Number of children*
6	400
7	350
8	320
9	280
10	225
11	200

Answer the following related questions Q (34 – 40).

62 In which class is the number of children maximum?

(A) 6 (B) 7 (C) 8 (D) 9

ANS : (A)

63. In which class is the number of children minimum?

(A) 8 (B) 9 (C) 10 (D) 11

ANS : (D)

64. The difference between the maximum and minimum number of children is

(A) 100 (B) 200 (C) 300 (D) 400

ANS :(B)

65 . In how many classes is the number of children less than 500?

(A) 2 (B) 4 (C) 5 (D) 6

ANS : (D)

66 In how many classes is the number of children more than 100?

(A) 6 (B) 4 (C) 3 (D) 1

ANS : (A)

67. The ratio of the number of children of class 6 and 11 is

(A) 3 : 1 (B) 2 : 1 (C) 2 : 3 (D) 1 : 4

ANS : (B)

68 The total number of children is

(A) 1775 (B) 1675 (C) 1575 (D) 1785

ANS : (A)

69 The difference between the upper and lower limit is called

(A) group (B) class size (C) class interval (D) class mark

ANS : (B) class size

70 A process which results in some well defined outcome is known as :

(A) outcome (B) event (C) experiment (D) frequency

ANS : (C) experiment

71 What is the median of the data 46,64,87, 41,58,77,35,90,55,33,92?

(A) 87 (B) 77 (C) 58 (D) 60.2

ANS : (C) 58

72 In a bar chart, a bar of length 4 cm is drawn. If 1 cm = 1.5 l, what will 4 cm be ?

(A) 3 l (B) 6 l (C) 5 l (D) 9 l

ANS : (B) 6 l
1 cm = 1.5 /, 2 cm = 3 /, 3 cm = 4.5 l, 4 cm = 6 l.

73 The mean weight of 100 students in a class is 46 kg. The mean weight of boys is 50 and of girls is 40 kg. Therefore, the number of boys is:

(A) 50 (B) 60 (C) 70 (D) 65

ANS : (B) 60

74 The probability of an experiment cannot be greater than:

(A) 0 (B) 0.5 (C) 1 (D) 2

ANS : (C) 1

The maximum probability an event can have is $\frac{100}{100} = \frac{1}{1} = 1$

75 The number of times an observation occurs in a data is called its

(A) Range (B) Raw data (C) Interval (D) Frequency

ANS : (D) Frequency

76 Suppose in a game of ludo, the player requires 1, 3, 5 and 6 to be safe. What is the probability of being unsafe ?

(A) $\frac{4}{6}$ (B) $\frac{3}{6}$ (C) $\frac{2}{6}$ (D) 1

ANS : (C) $\frac{2}{6}$

Since the safe places are 4, unsafe places are 2. So probability $= \frac{2}{6}$

77 When a coin is thrown, total number of possible outcomes is _____.

(A) 5 (B) 2 (C) 6 (D) None of these

ANS : (B) 2

78 Represent the frequency : 29 in Tally Marks.

(a) 𝍸 𝍸 𝍸 ||||
(b) 𝍸 𝍸 𝍸 𝍸 𝍸 ||||
(c) 𝍸 𝍸 ||||
(d) 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸

ANS .

(b) 𝍸 𝍸 𝍸 𝍸 𝍸 ||||

10 = 𝍸 𝍸, 20 = 𝍸 𝍸 𝍸 𝍸, 29 = 𝍸 𝍸 𝍸 𝍸 𝍸 ||||

79 There are 2 red, 3 blue and 5 black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a non-blue ball?

(A) $\frac{3}{5}$ (B) $\frac{7}{10}$ (C) $\frac{2}{5}$ (D) None of these

ANS : (B) $\frac{7}{10}$

80 Hari is playing snakes and ladders. He wants a six on first dice and a four on other so as to win. What is the probability for him to win if 2nd dice already has a 4 ?

(A) $\frac{6}{6}$ (B) $\frac{1}{6}$ (C) $\frac{4}{6}$ (D) $\frac{1}{2}$

ANS : (B) $\frac{1}{6}$

81 The mean of 6, y, 7, x and 14 is 8. Which of the following is true?

(A) $x+y = 13$ (B) $x-y = 13$ (C) $2x+3y = 13$ (D) $x^2+y = 15$

ANS : (A) $x+y = 13$

82 There are 2 red, 3 blue and 5 black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a non-red ball?

(A) $\frac{4}{5}$ (B) $\frac{2}{5}$ (C) $\frac{3}{5}$ (D) None of these

ANS : (A) $\frac{4}{5}$

83 If 1 cm = 15 students, what will be the length of line for 90 students ?

(A) 4 cm (B) 6 cm (C) 6 students (D) 9 cm

ANS : (B) 6 cm
1 cm = 15 students, 3 cm = 45 students, 6 cm = 90 students.

84 The mean of five numbers is 27. If one of the numbers is excluded, the mean gets reduced by 2. What is the excluded number?

(A) 35 (B) 27 (C) 25 (D) 40

ANS : (A) 35

85 Find the mean if the sum of 18 observations is 90.

(A) 5 (B) 4 (C) 6 (D) 9

ANS : (A) 5

86 The arithmetic mean of five given numbers is 85. What is their sum?

(A) 425 (B) 85 (C) A number between 85 and 425.(D) A number greater than 500.

ANS : (A) 425

87 What is the probability of getting a sum of 13 when 2 dice are rolled ?

(A) $\frac{13}{12}$ (B) $\frac{1}{12}$ (C) $\frac{4}{12}$ (D) none of these

ANS : (D) none of these
Two dice can give a maximum of 6 + 6 = 12 as outcome.

88 Two dice are thrown, find and number of outcomes.

(A) 12 (B) 6 (C) 36 (D) None of these

ANS: (C) 36

89 If we represent the following in Tally Marks : 𝍸 𝍸 𝍸 𝍸 𝍷 What would it mean in whole numbers ?

(A) 24 (B) 22 (C) 28 (D) 23

ANS : (D) 23

𝍸 = 5, 𝍸 𝍸 = 10, 𝍸 𝍸 𝍸 = 15, 𝍸 𝍸 𝍸 𝍸 = 20,
𝍸 𝍸 𝍸 𝍸 𝍷 = 23

90 There are 2 red, 3 blue and 5 black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a black ball?

(A) $\frac{2}{5}$ (B) $\frac{3}{5}$ (C) $\frac{1}{2}$ (D) None of these

ANS : (C) $\frac{1}{2}$

91 How many possible outcomes can we get if we toss a coin and throw a dice respectively ?

(A) 6, 2 (B) 2, 6 (C) 1, 3 (D) 3, 1

ANS : (B) 2, 6

A coin has 3 sides and hence 2 outcomes and a dice has 6 faces, so 6 outcomes.

Questions 25-28 are based on the given table :

Favourite Sport	Cricket	Basket Ball	Swimming	Hockey	Athletics
Watching	1240	470	510	430	250
Participating	620	320	320	250	105

92 Find the Median of people watching sports

(A) 1240 (B) 470 (C) 510 (D) 430

ANS : (B) 470
When arranged in ascending order, 470 is middle term.

93 Which sport is least popular ?

(A) Athletics (B) Cricket (C) Basket Ball (D) Hockey

ANS : (A) Athletics
Athletics is watched by 250 people.

94 Find Mean of people participating in sports.

(A) 320 (B) 330 (C) 323 (D) 340

ANS : (C) 323

$$\frac{620+320+320+250+105}{5}=\frac{1615}{5}=323$$

95 Which sport is most popular ?

(A) Cricket (B) Basket Ball (C) Swimming (D) Hockey

Answer: (A) Cricket
Cricket is watched by 1240 people.

96 In the class-interval 70-80, 80 is the

(A) lower limit (B) upper limit (C) frequency (D) range

ANS : (B) upper limit

97 Mode of the observations 1, 2, 2, 4, 4, 5, 6, 7, 7, 7, 8, 8, 9 is :

(A) 2 (B) 4 (C) 7 (D) 8

ANS :(C) 7
7 is repeated the most number of times.

98 The heights of six mountains are 8200 m, 6000 m, 8600 m, 7500 m, 8800 m and 6500 m. Based on this information, answer the questions given. Rakesh and Sanjay planned to go trekking on any of these mountains. They wrote the heights on chits of paper, shuffled them and picked one. What is the probability that the height picked is the maximum?

(A) $\frac{1}{3}$ (B) $\frac{2}{3}$ (C) $\frac{1}{6}$ (D) $\frac{1}{4}$

ANS : (C) $\frac{1}{6}$

99. The median of 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 is :

(A) 5 (B) 6 (C) 7 (D) 8

SOL. There are 11 obs. So Median = $\left(\frac{11+1}{2}\right)^{th} obs = 6^{th}\, obs = 6$

ANS : B

100. A dice thrown at random. What is the probability of getting of 2?

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

Ans :C