Elementary statistics Questions For Railway Exams

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Elementary statistics Questions for RRB NTPC Exams

1) Which of the following relation is true?

a) Mode = Median – Mean

b) Mode = 3Median + 2Mean

c) Mode = 3Median – Mean

d) Mode = 3Median – 2Mean

2) Find the mean of the prime numbers between 9 and 50?

a) 60

b) 30

c) 15

d) None of these

3) Find the arithmetic mean of the series starting from 1 and ending at 34 ?

a) 17.5

b) 12.5

c) 16.5

d) None of these

4) Find the mode of $4x$, $16x^3$, $8x^2$, $2x$ and x ?

a) x

b) 1

c) no mode

d) 4x

5) Find the median of 2 , 10 , 15 , 11 , 5 , 8 ?

a) 9

b) 8

c) 10

d) 1

6) Find the mode of 2,12,15,2,14,2,10,2 ?

a) 10

b) 12

c) 2

d) None of these

7) Find the mode of 1,2,3,5,4,8,7,5,1,2,5,9,15 ?

a) 1

b) 5

c) 3

d) 15

8) What is the arithmetic mean of 2, 4, 6, 8, ……. 24 , 30 ?

a) 55

b) 45

c) 30

d) 16

9) What is the arithmetic mean of 1, 2, 3, 4, ……. 199, 200 ?

a) 100

b) 100.5

c) 102.5

d) 101.5

Elementary statistics Questions For Railway Exams

10) Find the arithmetic mean of the following:

x - 1 , x + 1 , x - 2 , x + 2 , x

(a) 2x

(b) x

(c) 3x

(d) 5x

11) Find the arithmetic mean of the following:

x + 10 , x + 1 , x - 20 , x + 12 , 2 – 4x

(a) x

(b) 5

(c) 2

(d) 1

12) If the heights of five persons are 125 cm, 156 cm , 175 cm , 180 cm and 175 cm then find the arithmetic mean of their heights ?

a) 160.5

b) 162.2

c) 171.5

d) 180.5

13) Find the mean of first five positive numbers which are divisible by 2 and 3 both?

a) 9

b) 21

c) 15

d) 18

14) The value of mode is 10 and median is 5. Find the value of mean?

a) 2.5

b) 5

c) 7.5

d) 1

15) What is the range of marks scored by five students in Reasoning which are as follows –

65 , 75 , 82 , 92 and 80

a) 20

b) 25

c) 27

d) 30

16) What is the range of heights of ten persons in a family which are as follows –

165 , 175 , 182 , 192 , 180 , 170 , 180 , 185 , 145 and 150 cm

a) 42

b) 40

c) 47

d) 45

17) Find the mean of the smallest triplet of right angle triangle ?

a) 4

b) 5

c) 3

d) 12

18) Find the median of 5.25, 2.50, 1.50, 4.50 and 5?

a) 5.25

Elementary statistics Questions For Railway Exams

b) 4.50

c) 5.0

d) None of these

19) Find the median of the following :-

x - 1 , x + 2 , x - 10 , x + 9 , x

(a) 2

(b) 1

(c) 2x

(d) x

20) What is the arithmetic mean of 1, 2, 3, 4, …….49,50 ?

a) 50

b) 25

c) 25.5

d) 27.5

21) **Find the median of the numbers 6, 18, 69, 18, 33, 46, 65, 38, 94, 46, 79, 33, 36 and 46.**

a) 41

b) 44

c) 42

d) 43

22) **Following are the points obtained by a Kabaddi team in a series of matches.**

16, 1, 6, 26, 14, 4, 13, 7, 9, 23, 47, 9, 7, 6, 17, 27

Find the median of the marks obtained by the team.

a) 11

b) 14

c) 13

d) 12

23) Find the median of 26, 24, 27, 30, 32, 40 and 12.

a) 31

b) 27

c) 28

d) 30

24) The wickets taken by a bowler in 12 cricket matches are as follows:

3, 7, 5, 4, 6, 1, 4, 3, 2, 4, 3, 4

Find the mode of this distribution.

a) 4

b) 1

c) 2

d) 5

25) **Find the median of the data -2, 5, 1, 5, -1, -4, 2, 8, 11, 6.**

a) 2

b) 3.5

c) 2.75

d) 3

26) **The median of the following terms 33, 13, 24, 18, 29, 26, 44 was determined:**

Later it was found that 18 was written by mistake instead of 30, now what will be the changed median?

a) 29

b) 21

Elementary statistics Questions For Railway Exams

c) 28

d) 26

27) **Find the mode of this distribution.**

26, 46, 59, 88, 46, 55, 66, 13, 26, 60, 43, 61

a) 55, 26

b) 25, 45

c) 26, 46

d) 46, 55

28)**Find the mode of 1,1/2,1/2,3/4,1/4,2,1/2,1/4,2/4.**

a) 1/4

b) 1/2

c) 3/4

d) 1

29) **The details of the number of persons taking loans from the bank are given below based on the interval of their age group.**

age group	**20-30**	**30-40**	**40-50**	**50-60**	**60-70**
Number of person	**37**	**40**	**60**	**50**	**13**

Find the mode.

a) 44.33

b) 46.67

c) 32.64

d) 30.21

30) **If the standard deviation of the population is 9, what will be the variance of the population?**

a) 56

b) 77

c) 39

d) 81

31) **5 out of 6 cricketers have played 12, 13, 9, 5, 11 innings respectively. If the mean of the data set is 9, then the number of innings played by that 6th player is.**

a) 7

b) 9

c) 4

d) 5

32) **Find the range of the figures 10, 6, 10, 4, 5, 8, 9, 5, 9, 10, 6, 10.**

a) 3

b) 5

c) 6

d) 4

33) **Find the range of the first 7 prime numbers**.

a) 16

b) 7

c) 9

d) 15

34) **Find the median, mode and mean of 10, 6, 9, 10, 10, 8, 9, 10, 9.**

a) 8, 10, 9

b) 9, 9, 8

Elementary statistics Questions For Railway Exams

c) 9, 10, 9

d) 9, 9, 9

35) **The mean of a distribution is 14 and the standard deviation is 7. What is the value of variance coefficient?**

a) 50%

b) 65.74%

c) 52.84%

d) 72%

36) **The average of the results of 35 tests is 20. The average of the first 17 results is 18 and the average of the last 17 is 22. What is the value of the result of the 18th test?**

a) 36

b) 20

c) 42

d) 29

37) **If the mean value of the height of 22 men is 1.65 meters and the mean height of 8 women is 1.50 meters. Then what is the sum (in meters) of the total length of 8 women?**

a) 17

b) 12.6

c) 13.5

d) 12

38) **Find the range of 11, 22, 6, 2, 4, 18, 20, 3.**

a) 13

b) 16

c) 20

d) 10

39) **The variance of 6 values is 64. If each value is doubled, find the standard deviation.**

a) 16

b) 11

c) 13

d) 17

40) **The mean of the figures 1, x, 6, 4, y, 9, 7 is 6, where x and y are constant. If x is replaced by 3x + 2 and y is replaced by y + 2, the mean 2 increases. Find the value of x –**

a) 6

b) 9

c) 7

d) 5

41) **The arithmetic mean of a set of numbers is 24. The mean of another set of numbers is 30. If the combined mean of both sets is 25, what will be the ratio of frequency of the two groups?**

a) 4: 3

b) 5: 1

c) 2: 3

d) 5: 4

Elementary statistics Questions For Railway Exams

42) **Find the median of 66, 33, 56, 31, 11, 91, 50, 61, 61, 56, 92 and 5.**

a) 56.5

b) 32

c) 56

d) 62

43) **The mean of the digits will be based on the data given below:**

Score	**0**	**2**	**4**	**6**	**8**	**16**
Number of students	**6**	**5**	**4**	**3**	**2**	**5**

a) 6.3

b) 5.6

c) 3.5

d) 4.2

44) **The mean of 21 observations (all different) is 60. If the value of the median is increased to 21, then the value of the observations increases, the mean of the observations will be:**

a) 50

b) 50.5

c) 30

d) 45

45) **Mean of an observation set $x_1, x_2 \ldots\ldots x_{10}$ is 40. Find out mean of $x_1 + 4, x_2 + 8 \ldots\ldots x_{10} + 40$.**

a) 62

b) 52

c) 82

d) 32

46) **Arithmetical mean of series $y_1, y_2, y_3 + \cdots\cdots y_n$ is 1, then find the arithmetical mean of $y_1/m, y_2/m, y_3/m, \ldots\ldots\ldots\ldots y_n/m$ $(m>0)$**

a) 1/m

b) m

c) 2m

d) m/2

47) **Find the median of the prime numbers from 1 to 55?**

a) 22

b) 20

c) 21

d) 19

48) **Find the mean of the first 10 numbers in the Fibonacci series:**

A Fibonacci number is the sum of the last two numbers in that series. The first two Fibonacci numbers are 0 and 1 respectively.

a) 4

b) 3

c) 5

d) 4.5

49) **Find the mode of 12, 1, 10, 1, 9, 3, 4, 9, 7, 9.**

a) 10

b) 12

Elementary statistics Questions For Railway Exams

c) 9

d) 7

50) **If the mean of 3, 4, a, b, 10 is 6 and the median is 4 and a <b, then the values of a and b are _____ and _____ respectively**.

a) 4, 6

b) 4, 9

c) 4, 7

d) 4, 5

ANSWER

1) Answer: D

We know that:

Mode = 3Median – 2Mean

2) Answer: B

Prime numbers = 11 , 13 , 17 , 19 , 23 , 29 , 31 , 37 , 41 , 43 , 47 , 49

Total terms = 12

Total sum = 360

Mean = (Total sum)/(Number of terms)

Mean = 360/12

Mean = 30

3) Answer: A

Series = 1,2,3 ……..33,34.

Total number of term (n) = 34

First term (a) = 1

Difference (d) = 1

Sum = n x [2a + (n-1)d] / 2

Sum = 17 x 35

Sum = 595

Arithmetic mean= Sum/Total numbers = 595/34=17.5

4) Answer: C

Mode = "The number which appears most of the times in a series".

Series = $4x$, $16x^3$, $8x^2$, $2x$ and x

Mode = no mode

5) Answer: A

Series = 2 , 10 , 15 , 11 , 5 , 8

Median = "The median is the middle number or the average of middle numbers in a sorted, ascending or descending, list of numbers "

Sorted series = 2 , 5 , 8 , 10 , 11 , 15

Median = (8 + 10)/2

Median = 9

6) Answer: C

Mode = "The number which appears most of the times in a series".

Series = 2, 12,15,2,14,2,10,2

Mode = 2

7) Answer: B

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Mode = "The number which appears most of the times in a series".

Series = 1,2,3,5,4,8,7,5,1,2,5,9,15

Mode = 5

8) Answer: D

First term (a) = 2

Last term (l) = 30

this is a series of consecutive even numbers.

So, mean = (a+l)/2

= (2+30)/2

= 16

9) Answer: B

Total terms = 200

First term = 1

Last term = 200

mean = (1+200)/2

= 100.5

10) Answer: B

Series = x - 1 , x + 1 , x - 2 , x + 2 , x

Sum = 5x

Total terms = 5

Mean = Sum/total no. of terms

Mean = 5x/5

Mean = x

11) Answer: D

Series = x + 10 , x + 1 , x - 20 , x + 12 , 2 – 4x

Sum = 5

Total no. of terms = 5

Mean = Sum/total no. of terms

Mean = 5/5

Mean = 1

12) Answer: B

Observations: 125 cm , 156 cm , 175 cm , 180 cm and 175 cm.

Sum = 811

Total observation = 5

Mean = Sum of observation/total observation ……(1)

Mean = 811/5

Mean = 162.2

13) Answer: D

First five numbers divisible by 2 and 3 = 6 , 12 , 18 , 24 and 30

Sum of observations = 90

Total observations = 5

Mean = Sum of observations/Number of observations

Mean = 18

14) Answer: A

Mode = 3Median – 2Mean

2Mean = 3 x 5 – 10

Mean = 2.5

15)Answer: C

Range = Highest observation – Lowest observation ……(1)

Elementary statistics Questions For Railway Exams

Highest observation = 92

Lowest observation = 65

Range = 92 – 65

Range = 27

16) Answer: C

Range = Highest observation – Lowest observation ……(1)

Highest observation = 192

Lowest observation = 145

Range = 192 – 145

Range = 47

17) Answer: A

Smallest triplet = 3 , 4 , 5.

Total observation = 3

Sum of observation = 12

Mean = Sum of observation/number of observation

Mean = 12/3

Mean = 4

18) Answer: B

Series = 5.25 , 2.50 , 1.50 , 4.50 and 5

Median = "The median is the middle number or the average of middle numbers in a sorted, ascending or descending list of numbers. "

Sorted series = 1.50 , 2.50 , 4.50 , 5.0 , 5.25

Median = 4.50

19) Answer: D

Series = x - 1 , x + 2 , x - 10 , x + 9 , x

Median = "The median is the middle number or the average of middle numbers in a sorted, ascending or decending list of numbers. "

Sorted series = x - 10 , x - 1 , x , x + 2 , x + 9

Median = x

20) Answer: C

First term = 1

Last term = 50

Mean = (1+50)/2

= 25.5

21) Answer: C

Writing numbers in ascending order -

6, 18, 18, 33, 33, 36, 38, 46, 46, 46, 65, 69, 79, 94

Number of term =14 (Even)

Median = $1/2[n/2^{th}$ term + $(n/2+1)^{th}$ term]

= $1/2(7^{th}$ term + 8^{th} term)

= 1/2 [38 + 46] = 42

22) Answer: A

On writing the digits in ascending order -

1, 4, 6, 6, 7, 7, 9, 9, 13, 14, 16, 17, 23, 26, 27, 47

Total number of terms (n) = 16 is even.

Median = $[(n/2)^{th}$ term + $(n/2+1)^{th}$ term]÷2

= (9 + 13)/2 = 22/2 = 11

23) Answer: B

Writing in ascending order

12, 24, 26, 27, 30, 32, 40

Number of terms = 7 (Odd)

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∴ Median = ((7+1)/2) th term = 4 th term = 27

24) Answer: A

Mode means that the number has come more often or has a higher frequency. Hence the frequency of 4 is more in the given data.

∴ Mode of data = 4

25) Answer: B

Writing data in ascending order -

-4, -2, -1, 1, 2, 5, 5, 6, 8, 11

n = 10 (Even)

∴ Median = 1/2 [n/2 th term + (n/2+1)th term]

=1/2[5 th term + 6 th term]

=1/2 × [2+5] = 3.5

26) Answer: A

Arranged in ascending order,

13, 24, 26, 29, 30, 33, 44

n = 7 (odd)

Median = ((n+1)/2)th term

= ((7+1)/2) th term

= 4th term = 29

27) Answer: C

Given data- 26, 46, 59, 88, 46, 55, 66, 13, 26, 60, 43, 61

Maximum score of 26 is 2 times and maximum score of 46 is 2 times.

Hence desired mode is 26, 46.

28) Answer: B

∴ The frequency of 1/2 is the highest (3) in the data.

∴ Mode = 1/2

29) Answer: B

age group	Number of person
20-30	37
30-40	40
40-50	60 mode group
50-60	50
60-70	13

Here – L = Lower limit of mode group = 40

F_1 = Number of mode group = 60

F_0 = Number of group above mode group = 40

f_2 = Number of persons below group of mode group = 50

i = High limit - Lower limit (quadratic) = 10

mode (z) = L + $(f_1 - f_0)/(2f_1 - f_0 - f_2) \times I$

= 40 + ((60 – 40)/120 – 40 – 50) × 10

= 40 + (20/30) × 10

= 40 + 6.67 = 46.67

30) Answer: D

Standard deviation of population = 9

Population variance = (Standard deviation)² = (9)² = 81

31) Answer: C

Total number of innings played by all five players = 6 × 9 = 54

Total number of innings of four players = 12 + 13 + 9 + 5 + 11 = 50

Elementary statistics Questions For Railway Exams

∴ Total number of fifth player's innings = 54 – 50 = 4

32) Answer: C

Range of the figures = Highest value - Lowest value = 10 – 4 = 6

33) Answer: D

First 7 prime number = 2, 3, 5, 7, 11, 13, 17

Range = maximum number - minimum number

Range = 17 – 2 = 15

34) Answer: C

Writing data in ascending order,

6, 8, 9, 9, 9, 10, 10, 10, 10

∵ Number of term = 9 (odd)

∴ Median = $((n+1)/2)^{th}$ term

= $(9+1)/2 = 5^{th}$ term = 9

Mode = 10 (Most often involved.)

Mean = (6 + 8 + 9 + 9 + 9 + 10 + 10 + 10 + 10)/9

= 81/9 = 9

35) Answer: A

Variance coefficient = (Standard deviation / mean) × 100

= (7/14) × 100 = 50%

36) Answer: B

Average of 35 tests = 20

Sum of 35 tests = 35 × 20 = 700

Average of 17 tests = 18

Total sum of 17 tests = 17 × 18 = 306

Average of last 17 tests = 22

Total = 17 × 22 = 374

Value of 18th test = 700 – 306 – 374 = 20

37) Answer: D

Total sum = Number × Mean

Total length of 8 women = 8 × 1.50 = 12.0 m.

38) Answer: C

Range of number = High limit - Lower limit

= 22 – 2 = 20

39) Answer: A

Variance = σ^2

Standard deviation = $\sqrt{(\sigma^2)} = \sqrt{64}$

Standard deviation = $\sigma = 8$

New standard deviation = $\lambda\sigma$ (where λ= n times each value)

= 2 × 8

= 16

40) Answer: D

Mean = Sum of digits / Sum of number

6 = (1 + x + 6 + 4 + y + 9 + 7)/7

x + y + 27 = 42

x + y = 15…….(i)

According to question,

(27 + 3x + 2 + y + 2)/7 = 8

3x + y = 25…….(ii)

From equation (i) and (ii) -

x=5

41) Answer: B

Elementary statistics Questions For Railway Exams

Let the number of terms in the first set of numbers (frequency) =n_1

And the number of terms in the second set of numbers (frequency) = n_2

According to Question –

$\Rightarrow 24 \times n_1 + 30 \times n_2 = (n_1 + n_2) \times 25$

$\Rightarrow 24n_1 + 30n_2 = 25n_1 + 25n_2$

$\Rightarrow 30n_2 - 25n_2 = 25n_1 - 24n_1$

$\Rightarrow 5n_2 = n_1 \Rightarrow n_1/n_2 = 5/1$

Hence the ratio of frequency of both groups = 5: 1

42) Answer: C

Writing the given numbers in ascending order

5,11,31,33,50,**56**,**56**,61,61,66,91,92

Total numbers (n) = 12 Even

Median =[(n/2)th term +(n/2+1)th term]/2

= (6th term +7th term)/2

= (56 + 56)/2 = 56

43) Answer: B

Score(x)	0	2	4	6	8	16	
Number of students (f)	6	5	4	3	2	5	∑f = 25
Fx	0	10	16	18	16	80	∑fx = 140

Mean = (∑fx) / (∑f) = 140/ 25 = 5.6

44) Answer: A

Total of 21 observations = 21 × 60 = 1260

Mean of 21 observations = 11

If the value of the median is increased to 21, the value of observations increases.

Increased value of observations = (21-11) × 21 = 210

Mean of observations = (1260 + 210)/21

= (1260 + 210)/21 = 70

45) Answer: A

$(x_1 + x_2 + x_3 + ----x_{10})/10 = 40$

$x_1 + x_2 + x_3 + \cdots x_{10} = 400$ …… (i)

Then, mean = $(x_1 + 4) + (x_2 + 8) + (x_3 + 12) + ----(x_{10} + 40))/10$

= (400 + 5(4 + 40))/10 [from eq. (i)]

= (400 + 220)/10 = 620/10 = 62

46) Answer: A

Mean = Sum of terms/number of terms

$1 = (y_1 + y_2 + y_3 + \cdots\cdots y_n)/n$ ----- (I)

So,

Mean = $(y_1/m + y_2/m + ----y_n/m)/n$

Mean = $1/m\ (y_1 + y_2 + y_3 + --- y_n)/n$

Hence, mean =1/m

47) Answer: C

According to question,

All prime numbers from 1 to 55 = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53

n = 16 even

∴ median = $(n/2)^{th}$ term + $(n/2+1)^{th}$ term)/2

= $(16/2)^{th}$ term +$(16/2+1)^{th}$ term)/2

Elementary statistics Questions For Railway Exams

= 8^{th} term + 9^{th} term

= (19 + 23)/2

= 42/2

= 21

Hence the median of the total prime numbers from 1 to 55 = 21

48) Answer: A

Fibonacci series = a_0, a_1, a_2, a_3, a_4 …..

where,

$a_0 = 0$

$a_1 = 1$

$a_n = a_{(n-2)} + a_{(n-1)}$

In this, the next number is sum of first two numbers..

So, Fibonacci numbers = 0, 1, 1, 2, 3, 5, 8, 13, 21, 34

Number of terms (n) =10 (even)

Median = (5 th term + 6 th term)/2 = (3 + 5)/2 = 4

49) Answer: C

Data 12, 1, 10, 1, 9, 3, 4, 9, 7, 9 have the highest (3 times) frequencies of 9. Hence, mode of the given data is 9.

50) Answer: B

The mean of 3, 4, a, b, 10 is 6 and the median is 4

Mean = Sum of total numbers / total numbers

6 = (3 + 4 + a +b + 10)/5

30 = 17 + a + b

a + b = 13

Median is 4 -

Median = (5+1)/2)th term = 3^{rd} term = a = 4

a + b = 13

b = 9

Hence a = 4, b = 9