



Number System Questions for SSC CHSL and MTS PDF

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Instructions

For the following questions answer them individually

Question 1

What is the value of

$$4 \text{ of } \left(\frac{1}{3} \div \frac{1}{2} \right) + \left(2 - \frac{2}{5} \right) \times \frac{3}{2} + \frac{2}{3}?$$

A $\frac{107}{30}$

B $\frac{103}{25}$

C $\frac{109}{17}$

D $\frac{101}{6}$

Answer: A

Explanation:

$$4 \text{ of } \left(\frac{1}{3} \div \frac{1}{2} \right) + \left(2 - \frac{2}{5} \right) \times \frac{3}{2} + \frac{2}{3}$$

$$\frac{3}{4} \times \left(\frac{1}{3} \times \frac{2}{1} \right) + \left(\frac{10-2}{5} \right) \times \frac{3}{2} + \frac{2}{3}$$

$$\frac{3}{4} \times \frac{2}{3} + \frac{8}{5} \times \frac{3}{2} + \frac{2}{3}$$

$$\frac{6}{12} + \frac{24}{10} + \frac{2}{3}$$

$$\frac{30+144+40}{60}$$

$$\frac{214}{60} = \frac{107}{30}$$

Therefore option A is the answer.

Question 2

$$\text{What is the value of } \frac{2 \div 3 \times (1+3) + 5 - 6}{2 \text{ of } 3 \div 5 \times 4 + 3 - 2}?$$

A $\frac{36}{89}$

B $\frac{31}{73}$

C $\frac{25}{87}$

D $\frac{27}{92}$

Answer: C

Explanation:

$$\frac{2 \div 3 \times (1+3) + 5 - 6}{2 \text{ of } 3 \div 5 \times 4 + 3 - 2}$$

$$\frac{\frac{2}{3} \times 4 + 5 - 6}{2 \times \frac{3}{5} \times 4 + 3 - 2}$$

$$\frac{\frac{8}{3} + 5 - 6}{\frac{24}{5} + 3 - 2}$$

$$\frac{8+15-18}{24+\frac{15}{5}-10}$$

$$\frac{8+15-18}{3} \times \frac{5}{24+15-10}$$

$$\frac{5}{3} \times \frac{5}{29}$$

Question 3

What is the mode of given data?

4, 3, 7, 13, 16, 23, 3, 4, 7, 4, 3, 3, 9, 6, 9, 6

- A 9
- B 4
- C 3
- D 6

Answer: C

Explanation:

Number 3 is repeated more number of times when compared to other numbers. Therefore 3 is the answer.

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Question 4

What is the mode of the given data?

4, 3, 4, 3, 2, 2, 2, 5, 5, 3, 4, 6, 4, 3, 3

- A 3
- B 2
- C 5
- D 4

Answer: A

Explanation:

The mode of a data set is the number that occurs most frequent in the set

To find the mode :

Step 1: arrange numbers in ascending order

2, 2, 2, 3, 3, 3, 3, 3, 4, 4, 4, 4, 5, 5, 6

Step 2 : count how many times each number occurs

2 three times

3 five times

4 four times

5 two times

6 one time

Step 3 : The number that occurs the most is the mode

3 is the mode

Question 5

What is the value of

$36 \div 8 \times 4 + 2 \div 4 - 1 + 5 \text{ of } 3 \div (4 \times 2 - 3) - 3?$

- A $\frac{31}{2}$
- B 18
- C $\frac{35}{2}$
- D 16

Answer: C

Explanation:

$$\begin{aligned}
 & 36 \div 8 \times 4 + 2 \div 4 - 1 + 5 \text{ of } 3 \div (4 \times 2 - 3) - 3 \\
 &= 36 \div 8 \times 4 + 2 \div 4 - 1 + 5 \text{ of } 3 \div 5 - 3 \\
 &= 36 \div 8 \times 4 + 2 \div 4 - 1 + 15 \div 5 - 3 \\
 &= \frac{9}{2} \times 4 + \frac{1}{2} - 1 + 3 - 3 \\
 &= 18 + \frac{1}{2} - 1 + 3 - 3 \\
 &= 18 + \frac{1}{2} + 3 - 4 \\
 &= \frac{35}{2}
 \end{aligned}$$

Question 6

What is the value of $\frac{39 \div 26 + 22 \div 11 \times 2 + 4 \times 3}{2 \text{ of } 5 - 3(7 + 10 \div 2 - 3 \times 3)}$?

- A $\frac{39}{2}$
- B $\frac{49}{2}$
- C $\frac{61}{2}$
- D $\frac{35}{2}$

Answer: D

Explanation:

$$\begin{aligned}
 & \frac{39 \div 26 + 22 \div 11 \times 2 + 4 \times 3}{2 \text{ of } 5 - 3(7 + 10 \div 2 - 3 \times 3)} \\
 &= \frac{\frac{39}{26} + \frac{22}{11} \times 2 + 4 \times 3}{2 \times 5 - 3(7 + \frac{10}{2} - 3 \times 3)} \\
 &= \frac{\frac{3}{2} + 4 + 12}{10 - 3(7 + 5 - 9)} \\
 &= \frac{3 + 8 + 24}{2} \\
 &= \frac{35}{2} \\
 &= 10 - 9 \\
 &= \frac{35}{2}
 \end{aligned}$$

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Question 7

What is the value of $(24 + 16 \times 5 - 8 \text{ of } 4) \div 84 \times 48 \div 24 \times 6 + 4 + 3$?

- A $\frac{139}{3}$

B $\frac{121}{7}$

C $\frac{56}{3}$

D $\frac{156}{5}$

Answer: B

Explanation:

$$(24 + 16 \times 5 - 8 \text{ of } 4) \div 84 \times 48 \div 24 \times 6 + 4 + 3$$

$$\frac{(24+16 \times 5 - 8 \times 4)}{84} \times \frac{48}{24} \times 6 + 4 + 3$$

$$\frac{24+80+32}{7} + 4 + 3$$

$$\frac{72+28+21}{7}$$

$$\frac{121}{7}$$

Question 8

If $X : Y : Z = 1 : 2 : 3$ and, $X^2 + Y^2 + Z^2 = 224$, then what is the value of $X + Y + Z$?

A 24

B 48

C 36

D 32

Answer: A

Explanation:

$$X : Y : Z = 1 : 2 : 3$$

$$\text{let } X = a, Y = 2a, Z = 3a$$

$$\text{now } X^2 + Y^2 + Z^2 = 224 = (a)^2 + (2a)^2 + (3a)^2 = 224$$

$$a^2 + 4a^2 + 9a^2 = 224$$

$$14a^2 = 224, a^2 = \frac{224}{14}, a^2 = 16$$

$$a = 4$$

$$X + Y + Z = a + 2a + 3a = 6a = 6 \times 4 = 24$$

Question 9

What is the value of $(3 \times 4 \text{ of } 12 \div 2) \div 9 \times 4 + 4 \div 8 + 3 \times 2$?

A $\frac{37}{2}$

B $\frac{77}{2}$

C $\frac{89}{3}$

D $\frac{94}{3}$

Answer: B

Explanation:

using the BODMAS rule { priority brackets > of > division > multiplication > addition > subtraction }

solving the bracket first (1st priority brackets)

$(3 \times 4 \text{ of } 12 \div 2)$, now since 'of' is the priority hence it should be solved first

simplifying it we get

$$(3 \times 4 \times 12 \div 2) \text{ (here 4 of 12 is } 4 \times 12) = (3 \times 4 \times 6)$$

substituting in original question we get

$$(3 \times 4 \times 6) \div 9 \times 4 + 4 \div 8 + 3 \times 2$$

simplifying it further we get

$$\frac{(3 \times 4 \times 6)}{9} \times 4 + \frac{4}{8} + 3 \times 2$$

$$= 32 + \frac{1}{2} + 6 = \frac{77}{2}$$

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Question 10

If $A = 8 \div 4 \times (3 - 1) + 6 \times 3 \div 2 \text{ of } 3$ and $B = 4 \div 8 \times 2 + 7 \times 3$, then what is the value of $A + B$?

A 33

B 29

C 31

D 35

Answer: B

Explanation:

Applying the BODMAS { priority brackets > of > division > multiplication > addition > subtraction }

To solve A, first solve the subtraction in the brackets i.e $(3-1) = 2$

simplifying A, we get

$$A = 8 \div 4 \times 2 + 6 \times 3 \div 2 \text{ of } 3 = \frac{8}{4} \times 2 + \frac{6 \times 3}{2} \text{ (here 2 of 3 is } 2 \times 3 = 6)$$

$$A = 7$$

similarly applying BODMAS we solve for B

$$B = 4 \div 8 \times 2 + 7 \times 3 = B = \frac{4}{8} \times 2 + 7 \times 3 = 22$$

$$B = 22$$

$$A+B = 7+22 = 29$$

Question 11

What is the least number of four digits which is exactly divisible by 2, 4, 6 and 8?

A 1016

B 1024

C 1008

D 1096

Answer: C

Explanation:

For a number to be divisible 2,4,6,8 should be multiple of 2 and 3, as numbers 2,4,8 have common factor 2 and number 6 is a multiple of

2 and 3.

So, from the options given we get 1008 as a multiple of 2 and 3 both.

Hence option C is a correct choice

Question 12

What is the value of $\frac{3}{4} \div \left(\frac{1}{2} + \frac{1}{16} \right) + \frac{2}{3} \text{ of } \frac{4}{9} \div \left(\frac{1}{3} - \frac{11}{81} \right) + \frac{1}{4} \times \frac{2}{3}$?

A 3

B 1

C 2

D 4

Answer: A

Explanation:

$$\frac{3}{4} \div \left(\frac{1}{2} + \frac{1}{16} \right) + \frac{2}{3} \text{ of } \frac{4}{9} \div \left(\frac{1}{3} - \frac{11}{81} \right) + \frac{1}{4} \times \frac{2}{3}$$

$$\Rightarrow \frac{3}{4} \div \frac{9}{16} + \frac{8}{27} \div \frac{16}{81} + \frac{1}{6}$$

$$\Rightarrow \frac{3}{4} \times \frac{16}{9} + \frac{8}{27} \times \frac{81}{16} + \frac{1}{6}$$

$$\Rightarrow \frac{4}{3} + \frac{3}{2} + \frac{1}{6}$$

$$\Rightarrow 3.$$

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Question 13

What is the difference of mean and median of the given data : 4, 13, 8, 15, 9, 21, 18, 23, 35, 1?

A 0.7

B 1.7

C 1.2

D 2.1

Answer: A

Explanation:

Mean:

No. of samples (n) = 10

$$\text{Mean} = \frac{\sum x}{n} = \frac{4+13+8+15+9+21+18+23+35+1}{10} = \frac{147}{10} = 14.7$$

Median:

Arranging the data in ascending order, we get:

1, 4, 8, 9, 13, 15, 18, 21, 23, 35

n = 10 (even)

Therefore, median is the average of 5th and 6th term.

$$\text{Median} = \frac{13+15}{2} = 14$$

$$\text{Mean} - \text{Median} = 14.7 - 14 = 0.7$$

Therefore, Option A is correct.

Question 14

60% of a number is 168, then what is the number?

- A 280
- B 320
- C 240
- D 200

Answer: A

Explanation:

60% of the number is 168.

Let's assume the number is 'y'.

$$60\% \text{ of } y = 168$$

$$0.6y = 168$$

$$y = 280$$

Question 15

What is the value of: $5 \text{ of } 5 \text{ of } 5 \div 5 + 5 - 6 \div 3 \times 4 + 2 + (3 \div 6 \times 2)$?

- A 21
- B 25
- C 28
- D 19

Answer: B

Explanation:

$$5 \times 5 \times \frac{5}{5} + 5 - \frac{6}{3} \times 4 + 2 + \frac{3}{6} \times 2$$

$$25 + 5 - 8 + 2 + 1$$

$$25$$

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Question 16

The mode of 2, 2, 3, 3, 5, 5, 5, 7, 8, 8, 9, 10 is:

- A 5
- B 2
- C 3
- D 6

Answer: A

Explanation:

Mode : The value that appears most often in a set of given data values.

Given Data : 2, 2, 3, 3, 5, 5, 5, 7, 8, 8, 9, 10

Most number repeated in above data is 5.

So, Mode of the given data is 5.

Hence, **Option A** is correct.

Question 17

The mode of the following data is 36. What is the value of x ?

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	13	10	10	16	x	8

A 11

B 15

C 13

D 12

Answer: D

Explanation:

As per given data,

Class interval of 30-40 has highest frequency, that's why it is modal class

As we know,

$$M = l + \left\{ \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right\} \times h$$

where, h = size of the class interval,

l = lower limit of the modal class,

f_1 = frequency of the modal class,

f_0 = frequency of the class preceding the modal class

f_2 = frequency of the class succeeding the modal class

putting the values from the given data :

$$36 = 30 + \frac{(16-10)}{2 \times 16 - 10 - x} \times 10$$

$$36 - 30 = \frac{6}{22-x} \times 10$$

$$22 - x = 10$$

$$x = 12$$

Hence, **Option D** is correct.

Question 18

When 6892, 7105 and 7531 are divided by the greatest number x, then the remainder in each case is y. What is the value of (x - y)?

A 123

B 137

C 147

D 113

Answer: B

Explanation:

We have to find HCF of given numbers : 6892, 7105, 7531

$$7105 - 6892 = 213$$

$$7531 - 7105 = 426$$

$$426 - 213 = 213$$

So, Either the difference or the factor of difference is the HCF of those given number.

Here , 213 is the HCF.

When 6892, 7105, 7531 is divided by 213 we get 76 as an remainder

So, $x = 213$ and $y = 76$

According to Question :

$$x - y = 213 - 76 = 137$$

Hence, **Option B** is correct.

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Question 19

The sum of the perfect square between 120 and 300 is:

A 1400

B 1024

C 1296

D 1204

Answer: A

Explanation:

Sum of the squares of n consecutive numbers =

$$\text{The sum of the perfect square between 120 and 300} = 11^2 + 12^2 + 13^2 + 14^2 + 15^2 + 16^2 + 17^2$$

$$= \frac{17(17+1)(2(17+1))}{6} - \frac{10(10+1)(2(10)+1)}{6}$$

$$= \frac{17(18)(35)}{6} - \frac{10(11)(21)}{6}$$

$$= 51 \times 35 - 11 \times 35$$

$$= 35(51 - 11)$$

$$= 35(40)$$

$$= 1400$$

Hence, the correct answer is Option A

Question 20

The difference between the greatest and the least four digit numbers that begins with 3 and ends with 5 is:

A 990

B 900

C 909

D 999

Answer: A

Explanation:

The greatest four digit number that begins with 3 and ends with 5 = 3995

The least four digit number that begins with 3 and ends with 5 = 3005

∴ The difference between the greatest and the least four digit numbers that begins with 3 and ends with 5 = $3995 - 3005 = 990$

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