



## SSC CGL Tier-2 2010 Maths

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## SSC CGL Tier-2 2010 Maths

### Instructions

For the following questions answer them individually

#### Question 1

A General, while arranging his men, who were 6000 in number, in the form of a square, found that there were 71 men left over. How many were arranged in each row?

- A 73
- B 77
- C 87
- D 93

Answer: B

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#### Question 2

A number, when divided successively by 4, 5 and 6, leaves remainders 2, 3 and 4 respectively. The least such number is

- A 1
- B 2
- C 19
- D 31

Answer: D

#### Question 3

A number, when divided by 296, gives 75 as the remainder. If the same number is divided by 37 then the remainder will be

- A 1
- B 2
- C 19
- D 31

Answer: A

#### Question 4

The square root of  $1 - 0.75 + \frac{(0.75)^3}{[0.75 + (0.75)^2 + 1]}$  is

- A 1
- B 2
- C 3
- D 4

Answer: B

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Question 5

The sum and product of two numbers are 12 and 35 respectively. The sum of their reciprocals will be

A  $\frac{1}{3}$

B  $\frac{1}{5}$

C  $\frac{12}{35}$

D  $\frac{35}{12}$

Answer: C

Explanation:

let the 2 numbers be x and y

sum of 2 numbers ,  $x + y = 12$

product of 2 numbers,  $xy = 35$

reciprocal of x and y are  $\frac{1}{x}$  and  $\frac{1}{y}$  respectively

sum of their reciprocals =  $\frac{1}{x} + \frac{1}{y}$

$$= \frac{x+y}{xy}$$

$$= \frac{12}{35}$$

Question 6

If  $a^2 + b^2 + \frac{1}{a^2} + \frac{1}{b^2} = 4$  then the value of  $a^2 + b^2$  will be

A 1

B  $1\frac{1}{2}$

C 2

D  $2\frac{1}{2}$

Answer: C

Question 7

If  $(x + \frac{1}{x})^2 = 3$  then the value  $x^3 + \frac{1}{x^3}$  is

A 3

B 2

C 1

D 0

Answer: D

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### Question 8

$0.1 \times 0.1 \times 0.1 + 0.02 \times 0.02 \times 0.02$   
 $0.2 \times 0.2 \times 0.2 + 0.04 \times 0.04 \times 0.04$  is equal to

- A 0.125
- B 0.250
- C 0.500
- D 0.855

Answer: A

### Question 9

If  $x + \frac{1}{x} = 2$  then the value of  $x^{100} + \frac{1}{x^{100}}$  is

- A 2
- B 0
- C 1
- D -2

Answer: A

### Question 10

If  $x^3 + 3x^2 + 3x = 7$ , then x is equal to

- A 2
- B  $\sqrt[3]{6}$
- C 1
- D -1

Answer: C

## SSC CGL Tier-2 Previous Papers PDF

### Question 11

If  $2x + \frac{2}{x} = 1$  then the value of  $x^3 + \frac{1}{x^3}$  is

- A  $\frac{13}{8}$
- B  $-\frac{11}{8}$
- C  $\frac{11}{8}$
- D  $-\frac{13}{8}$

Answer: B

**Question 12**

The greatest number among  $\sqrt{5}, \sqrt[3]{4}, \sqrt[5]{2}, \sqrt[7]{3}$  is

- A  $\sqrt[3]{4}$
- B  $\sqrt[7]{3}$
- C  $\sqrt{5}$
- D  $\sqrt[5]{2}$

**Answer: C**

**Question 13**

$\sqrt[3]{(13.068)^2 - (13.392)^2}$  is equal to

- A 0.6
- B 0.06
- C 1.8
- D 2.6

**Answer: C**

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**Question 14**

$\left[1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + 99 \times 100\right]$  is equal to

- A  $\frac{1}{9900}$
- B  $\frac{99}{100}$
- C  $\frac{100}{99}$
- D  $\frac{1000}{99}$

**Answer: B**

**Question 15**

The sum of all the digits of the numbers from 1 to 100 is

- A 5050
- B 903
- C 901
- D 900

**Answer: A**

**Explanation:**

Sum of first 'n' natural numbers =  $\frac{n(n+1)}{2}$

here n = 100

substituting,

$$\frac{100(100+1)}{2} = 5050$$

**Question 16**

A shopkeeper sells sugerin such a way that the selling price of 950g of sugar is the same as the cost price of 1 kg of sugar. What is his gain per cent?

A  $\frac{5}{19}$

B  $\frac{1}{5}$

C 5

D  $\frac{1}{419}$

**Answer: A**

**Explanation:**

Selling price (SP), Cost price (CP)

SP of 950 g = CP of 1000 g

$$\frac{SP}{CP} = \frac{1000}{950} = \frac{20}{19}$$

$$\text{gain \%} = \frac{20-19}{19} \times 100 = \frac{100}{19}$$

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**Question 17**

A person bought a horse and a carriage for Rs. 20000. Later, he sold the horse at 20% profit and the carriage at 10% loss. Thus, he gained 2% in the whole transaction. The cost price of the horse was

A Rs. 7200

B Rs. 7500

C Rs. 8000

D Rs. 9000

**Answer: C**

**Explanation:**

cost price of horse and carriage = 20000

assume CP for horse be x

then CP for carriage = 20000 - x

According to the question

$$x \times \frac{120}{100} + (20000 - x) \times \frac{90}{100} = 20000 \times \frac{102}{100}$$

solving,

$$1.2x + 0.9(20000 - x) = 20400$$

$$x = \frac{2400}{0.3} = 8000$$

### Question 18

A sells an article to B at 15% profit. B sells it to C at 10% loss. If C pays Rs. 517.50 for it then A purchased it at

- A 500
- B 750
- C 1000
- D 1250

Answer: A

#### Explanation:

Selling price (SP), Cost price (CP), Profit (P)

SP of A = 115

CP of B = 115

let original price for A be x

A sold item at 15% profit

Cost for B =  $1.15x$  sold at 10% loss

Cost for C =  $0.9(1.15x)$

C paid 517.5

$517.5 = 0.9(1.15x)$

$x = \frac{517.5}{0.9 \times 1.15} = 500$

### Question 19

An article is sold at a certain fixed price. By selling it at  $\frac{2}{3}$  of that price, one loses 10%. The gain per cent on selling it at the original price is

- A 20
- B  $33\frac{1}{3}$
- C  $\frac{200}{9}$
- D 40

Answer: C

#### Explanation:

Cost price (CP), Selling price (SP), Loss (L)

let original SP = x

new SP =  $\frac{2}{3}x$

$CP = \frac{100}{100-L} \times SP$

given L = 10%

$CP = \frac{100}{90} \times \frac{2x}{3} = \frac{20x}{27}$

SP = X

Gain =  $x - \frac{20x}{27} = \frac{7x}{27}$

7x

$$\text{gain \%} = \frac{\frac{27}{20}x - x}{x} \times 100 = 35$$

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### Question 20

A sells an article to B for Rs. 45,000 losing 10% in the transaction. B sells it to C at a price which would have given a profit of 10% to A. By what per cent does B gain?

A  $\frac{75}{2}$

B  $\frac{100}{3}$

C  $\frac{200}{9}$

D  $\frac{150}{7}$

Answer: C

### Explanation:

Cost price (CP), Selling price (SP), Profit (P)

A sells an article to B for Rs. 45,000 losing 10%

$$\text{therefore A's CP} = 45000 \times \frac{100}{90} = 50000$$

B sells it to C at profit of 10% to A.

$$\text{therefore, B's CP} = 50000 \times \frac{110}{100} = 55000$$

B's CP = A's SP = 45000

$$\text{B's P\%} = \frac{55000 - 45000}{45000} \times 100 = \frac{200}{9}$$

### Question 21

The cost price of an article is 80% of its marked price for sale. How much per cent does the tradesman gain after allowing a discount of 12%?

A 20

B 12

C 10

D 8

Answer: C

### Explanation:

Marked price (MP), Cost price (CP), Selling price (SP), Discount(D)

Let MP = 100

$$\text{CP} = \frac{80}{100} \times 100 = 80$$

Discount = 12%

$$\text{SP} = \text{MP} \times \frac{100 - D}{100}$$

$$= 100 \times \frac{88}{100}$$

$$= 88$$

$$\text{P\%} = \frac{\text{SP} - \text{CP}}{\text{CP}} \times 100$$



$$= \frac{88-80}{80} \times 100$$

$$= 10$$

#### Question 22

The cost price of an article is 80% of its marked price for sale. How much per cent does the tradesman gain after allowing a discount of 12% ?

A 10

B 7

C 6

D 5

**Answer: A**

#### Explanation:

Marked price (MP) , Cost price (CP) , Selling price (SP) , Discount(D)

Let MP = 100

$$CP = \frac{80}{100} \times 100 = 80$$

Discount = 12%

$$SP = MP \times \frac{100-D}{100}$$

$$= 100 \times \frac{88}{100}$$

$$= 88$$

$$P\% = \frac{SP-CP}{CP} \times 100$$

$$= \frac{88-80}{80} \times 100$$

$$= 10$$

## SSC CGL Important Questions PDF

#### Question 23

A merchant purchases a wristwatch for Rs.450 and fixes its list price in a such a way that after allowing a discount of 10%, he earns a profit of 20%. Then the list price (in rupees) of the wristwatch is

A 500

B 600

C 750

D 800

**Answer: B**

#### Explanation:

Cost price (CP) Selling price (SP) List price (LP) Profit (P)

$$SP = LP \times \frac{90}{100}$$

$$\frac{SP-CP}{CP} \times 100 = P$$

Given CP = 450

$$LP \times \frac{90}{100} - 450 = \frac{1}{5} \times 450$$

$$\frac{LP \times 90}{100 \times 450} - 1 = \frac{1}{5}$$

solving, LP = 600

#### Question 24

A reduction of 10% in the price of tea enables a dealer to purchase 25 kg more tea for Rs. 22500. What is the reduced price per kg of tea?

- A 70
- B 80
- C 90
- D 100

Answer: C

#### Explanation:

let the original price of tea = Rs x Kg

After reduction the price becomes =  $x - 10\% \text{ of } x = \frac{9x}{10}$  / kg

Now

$$\left( \frac{22500}{\frac{9x}{10}} \right) - \frac{22500}{x} = 25$$

$$22500 \left( \frac{10}{9x} - \frac{1}{x} \right) = 25$$

solving x = 100

hence new price = 90

#### Question 25

Ram donated 4% of his income to a charity and deposited 10% of the rest in a Bank. If now he has Rs. 8640 left with him, then his income is

- A RS.12,500
- B RS.12,000
- C RS.10,500
- D RS.10,000

Answer: D

#### Explanation:

let the income be 100

Ram donated 4% of his income to a charity =  $\frac{4}{100} \times 100 = 4$

remaining = 96

deposited 10% of the rest in a Bank =  $\frac{10}{100} \times 96 = 9.6$

saving = 100 - 13.6 = 86.4

86.4 === 100

$$1 === \frac{100}{86.4}$$

$$= \frac{100}{86.4} \times 8640 = 10000$$

### Question 26

If the length of a rectangle is increased by 10% and its breadth is decreased by 10%, then its area

- A decreases by 1%
- B increases by 1%
- C decreases by 2%
- D remains unchanged

**Answer: A**

#### Explanation:

assume original length of rectangle = 100

original breadth = 100

original area = 10000

now length of a rectangle is increased by 10%

$$\text{new length} = 100 \times \frac{110}{100} = 110$$

breadth is decreased by 10%

$$\text{new breadth} = 100 \times \frac{90}{100} = 90$$

$$\text{new area} = 110 \times 90 = 9900$$

$$\% \text{ change in area} = \frac{10000 - 9900}{10000} \times 100 = \frac{100}{10000} \times 100 = 1\%$$

### Question 27

Three spherical balls of radius 1 cm, 2 cm and 3 cm are melted to form a single spherical ball. In the process, the loss of material is 25%. The radius of the new ball is

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

**Answer: C**

#### Explanation:

$$\text{material lost} = 25\% = \frac{1}{4}$$

$$\text{remaining} = 1 - \frac{1}{4} = \frac{3}{4}$$

$$\text{volume of sphere} = \frac{4}{3}\pi r^3$$

$$\begin{aligned} \text{volume of new ball} &= \frac{3}{4} \times \frac{4}{3}\pi(r_1^3 + r_2^3 + r_3^3) \\ &= \pi(1^3 + 2^3 + 3^3) \\ &= 36\pi \text{ cm}^3 \end{aligned}$$

$$\frac{4}{3}\pi r^3 = 36\pi$$

solving  $r = 3$  cm

### Question 28

If  $A : B = 2 : 3$ ,  $B : C = 4 : 5$  and  $C : D = 5 : 9$ , then  $A : D$  is equal to

A 11:17

B 8:27

C 5:9

D 2:9

**Answer: B**

**Explanation:**

A : B

B : C

2 : 3

4 : 5

8 : 12 : 15 [(2 × 4 = 8) (3 × 4 = 12) (3 × 5 = 15)]

5 : 9

40 : 60 : 75 : 135 [(8 × 5 = 40) (12 × 5 = 60) (15 × 5 = 75) (15 × 9 = 135)]

== A : B : C : D

8 : 12 : 15 : 27

A : D = 8 : 27

## General Science Notes for SSC CGL

### Question 29

If the length of a rectangle is increased in the ratio 6 : 7 and its breadth is diminished in the ratio 5 : 4 then its area will be diminished in the ratio

A 17:16

B 15:14

C 9:8

D 8:9

**Answer: B**

**Explanation:**

let original length = 6l

original breadth = 5l

original area =  $30 l^2$

new length = 7l

new breadth = 4l

new area =  $28 l^2$

ratio =  $30 l^2 : 28 l^2$

= 15 : 14

**Question 30**

7 years ago, the ages (in years) of A and B were in the ratio 4 : 5; and 7 years hence they will be in the ratio 5 : 6. The present age of B is

- A 56
- B 63
- C 90
- D 77

**Answer:** D

**Explanation:**

7 years ago, the ages of A and B were in the ratio  $4x : 5x$

7 years hence they will be in the ratio  $5x : 6x$

forming the equation

$$4x + 7 = 5x - 7$$

solving we get  $x = 14$

$$\text{therefore age of B 7 years ago} = 14 \times 5 = 70$$

$$\text{present age of B} = 70 + 7 = 77$$

**Question 31**

Two numbers are such that their difference, their sum and their product are in the ratio of 1 : 7 : 24. The product of the numbers is

- A 24
- B 36
- C 48
- D 60

**Answer:** C

**Explanation:**

let the numbers be  $x$  and  $y$

$$x - y = a \dots\dots\dots(1)$$

$$x + y = 7a \dots\dots\dots(2)$$

$$xy = 24a \dots\dots\dots(3)$$

solving (1) and (2)

$$\text{we get } x = 4a$$

$$\text{substituting } x = 4a \text{ in equation (2) we get } y = 3a$$

$$x \times y = 4a \times 3a = 12a^2$$

$$\text{from (3) } 12a^2 = 24a$$

$$\text{solving } a = 2$$

$$\text{product of the numbers} = xy = 24a = 24 \times 2 = 48$$

### Question 32

A, B, C are partners in a business. During a particular year, A received one third of the profit, B received one fourth of the profit and C received the remaining Rs. 5000. How much amount of money did A receive

- A RS. 1000
- B RS. 3000
- C RS. 4000
- D RS. 5000

**Answer:** C

**Explanation:**

let the profit be P

A, B, C are partners in a business

A received one third of the profit =  $\frac{1}{3} \times P$

B received one fourth of the profit =  $\frac{1}{4} \times P$

C received the remaining =  $1 - \left(\frac{1}{3} + \frac{1}{4}\right) = \frac{5}{12}$

given  $\frac{5}{12} \times P = 5000$

solving  $P = \frac{5000 \times 12}{5} = 12000$

amount of money A receive =  $\frac{12000}{3} = 4000$

### Question 33

Three horses are tethered at 3 corners of a triangular plot of land having sides 20m, 30m and 40m each with a rope of length 7m. The area (in  $m^2$ ) of the region of this plot, which can be grazed by the horses, is use (  $\pi = \frac{22}{7}$  )

- A  $\frac{77}{3}$
- B 75
- C 77
- D 80

**Answer:** C

**Explanation:**

let A =  $\theta_1^\circ$

B =  $\theta_2^\circ$

C =  $\theta_3^\circ$

area which can be grazed by 3 horses = sum of the areas of 3 sectors with central angles  $\theta_1^\circ$ ,  $\theta_2^\circ$ ,  $\theta_3^\circ$  and each with radius,  $r = 7$  m

$$= \left( \pi r^2 \frac{\theta_1}{360} + \pi r^2 \frac{\theta_2}{360} + \pi r^2 \frac{\theta_3}{360} \right) m^2$$

$$= \frac{\pi r^2}{360} (A + B + C)$$

A + B + C = 180 [sum of angles of triangle]

$$= \frac{\pi r^2}{360} \times 180 = \frac{22}{7} \times 7 \times 7 \times \frac{180}{360}$$

$$= 77 \text{ } m^2$$

**Question 34**

A wire, when bent in the form of a square, encloses a region of area  $121 \text{ cm}^2$ . If the same wire is bent in to the form of a circle, then the area of the circle is use  $(\pi = \frac{22}{7})$

- A  $150 \text{ cm}^2$
- B  $152 \text{ cm}^2$
- C  $154 \text{ cm}^2$
- D  $159 \text{ cm}^2$

**Answer:** C

**Explanation:**

Area of square =  $a^2$

a = side of the square

given area of the square =  $121 \text{ cm}^2$

solving,  $a = 11$

same wire is bent in to the form of a circle

therefore, perimeter of the square = perimeter of the circle

perimeter of the square =  $4a = 4 \times 11 = 44 \text{ cm}$

$44 =$  perimeter of the circle

$$44 = 2 \times \frac{22}{7} \times r$$

solving  $r = 7$

area of the circle =  $\pi r^2$

$$= \frac{22}{7} \times 7^2$$

$$= 154 \text{ cm}^2$$

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**Question 35**

The ratio of the area of a sector of a circle to the area of the circle is 1 : 4. If the area of the circle is  $154 \text{ cm}^2$ , the perimeter of the sector is

- A 20
- B 25
- C 36
- D 40

**Answer:** B

**Explanation:**

area of the circle =  $\pi r^2 = 154$

$$\frac{22}{7} \times r^2 = 154$$

on solving  $r = 7$

angle subtended by the sector at the centre =  $90^\circ$

length of an arc =  $\frac{\pi r \theta}{180}$

$$= \frac{22}{7} \times 7 \times \frac{90}{180} = 11$$

perimeter of sector =  $2r + l = 2 \times 7 + 11 = 25$

### Question 36

The length of the diagonal of a cube is 6 cm. The volume of the cube (in  $\text{cm}^3$ ) is

A  $18\sqrt{3}$

B  $24\sqrt{3}$

C  $28\sqrt{3}$

D  $30\sqrt{3}$

Answer: B

### Explanation:

let the length of the edge of the cube be  $a$

diagonal of cube =  $a\sqrt{3}$

given diagonal = 6cm

$$a\sqrt{3} = 6$$

$$a = \frac{6}{\sqrt{3}} = 2\sqrt{3}$$

$$\text{Volume of cube} = a^3$$

$$V = (2\sqrt{3})^3 = 24\sqrt{3}$$

### Question 37

If a sphere of radius  $r$  is divided into four identical parts, then the total surface area of the four parts is

A  $4\pi r^2$  sq.units

B  $2\pi r^2$  sq.units

C  $8\pi r^2$  sq.units

D  $3\pi r^2$  sq.units

Answer: C

### Explanation:

Sphere of radius  $r$  is divided into 4 identical parts

Radius of each part =  $r$  units

Each part has 1 curved surface and 2 semicircular faces

TSA of each part =  $\frac{1}{4}$  of curved surface area of sphere + 2 area of semicircular face

$$\text{TSA} = \frac{1}{4} \times 4\pi r^2 + 2 \times \frac{1}{2}\pi r^2 = 2\pi r^2$$



TSA of 4 parts =  $4 \times 2\pi r^2 = 8\pi r^2$

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### Question 38

A sum of money, deposited at some rate percent per annum of compound interest, doubles itself in 4 years. In how many years will it become 16 times of itself at the same rate ?

- A 16
- B 12
- C 10
- D 8

Answer: A

### Question 39

What is the difference between the compound interest and simple interest on Rs. 4000 at 5% per annum for 2 years ?

- A 10
- B 11
- C 20
- D 100

Answer: A

### Question 40

The simple and compound interests on a sum of money for 2 year are Rs. 8400 and Rs. 8652 respectively. The rate of interest per annum is

- A 6 %
- B 7.5 %
- C 9 %
- D 4.5 %

Answer: A

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### Question 41

A man can row against the current three fourth of a kilometre in 15 minutes and returns the same distance in 10 minutes. The ratio of his speed to that of the current is

- A 3 : 5
- B 5 : 3

C 1 : 5

D 5 : 1

Answer: D

#### Question 42

Two places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at a constant speed, they meet in 5 hours. If the cars travel towards each other, they meet in 1 hour. What is the speed of the car running faster?

A 60 km/hr

B 50 km/hr

C 40 km/hr

D 32 km/hr

Answer: A

#### Question 43

A can complete a piece of work in 12 days. B is 60% more efficient than A. The number of days that B will take to complete the same work, is

A 6

B  $7\frac{1}{2}$

C 8

D  $8\frac{1}{2}$

Answer: B

### SSC CGL Free Mock Test (Latest Pattern)

#### Question 44

Two pipes can fill an empty tank separately in 24 minutes and 40 minutes respectively and a third pipe can empty 30 gallons of water per minute. If all the three pipes are open, empty tank becomes full in one hour. The capacity of the tank (in gallons) is

A 800

B 600

C 500

D 400

Answer: B

#### Question 45

A batsman, in his 12<sup>th</sup> innings, makes a score of 63 runs and thereby increases his average score by 2. The average of his score after 12<sup>th</sup> innings is

A 41

- B 42
- C 34
- D 35

**Answer: A**

**Explanation:**

Assume total runs in 11 innings be 'x'

then the average score in 11 innings =  $11x$

score of 12th inning = 63

after 12th inning average score increased by 2

thus the average of 12 innings =  $\frac{11x+63}{12} = x + 2$

on solving  $x = 39$

therefore average score after 12th inning =  $39 + 2 = 41$

**Question 46**

The greatest number, that divides 43, 91 and 183 so as to leave the same remainder in each case, is

- A 9
- B 8
- C 4
- D 3

**Answer: C**

**Explanation:**

3 numbers are 43, 91, 183

largest number is 183

smallest number is 43

subtract smallest number from both the highest number

so  $183 - 43 = 140$

$91 - 43 = 48$

91 is smaller than 183, so subtract 91 from 183

$183 - 91 = 92$

now we have 3 numbers 140, 48, 92

so HCF of 140, 48, 92 = 4

thus the greatest number, that divides 43, 91 and 183 so as to leave the same remainder in each case, is 4

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**Question 47**

$\sqrt{16+6\sqrt{7}} - \sqrt{16-6\sqrt{7}}$  is equal to

- A  $\frac{1}{2}$

B  $\frac{1}{3}$

C  $\frac{1}{4}$

D  $\frac{1}{5}$

Answer: A

**Question 48**

The sum of the areas of the 10 squares of the lengths of whose sides are 20 cm, 21 cm, ..... 29 cm respectively is

A  $6085 \text{ cm}^2$

B  $8555 \text{ cm}^2$

C  $2470 \text{ cm}^2$

D  $11025 \text{ cm}^2$

Answer: A

**Explanation:**

sides of the 10 squares are 20, 21, 22, ..... 29 respectively

area of the square =  $\text{side}^2$

area of the 10 squares are  $20^2, 21^2, 22^2, \dots, 29^2$  = sum of squares of first 29 natural numbers - sum of squares of first 19 natural numbers

$$\text{sum of squares of first } n \text{ natural numbers} = \frac{n(n+1)(2n+1)}{6}$$

$$\text{sum of squares of first 29 natural numbers} = \frac{29(29+1)(2 \times 29+1)}{6} = \frac{29 \times 30 \times 59}{6} = 8555$$

$$\text{sum of squares of first 19 natural numbers} = \frac{19(19+1)(2 \times 19+1)}{6} = \frac{19 \times 20 \times 39}{6} = 2470$$

$$\text{area of the 10 squares are } 20^2, 21^2, 22^2, \dots, 29^2 = 8555 - 2470 = 6085$$

**Question 49**

The square root of  $\frac{9.5 \times 0.0085 \times 18.9}{0.0017 \times 1.9 \times 2.1}$  is

A 15

B 45

C 75

D 225

Answer: A

**Explanation:**

$$\frac{95 \times 85 \times 189}{17 \times 19 \times 21} = 225$$

$$\sqrt{225} = 15$$

**SSC CGL Previous Papers (DOWNLOAD PDF)**

**Question 50**

If  $2x + \frac{1}{3x} = 6$ , then  $3x + \frac{1}{2x}$  is equal to

- A 4
- B 8
- C 9
- D 12

Answer: C

**Question 51**

If  $x = (\sqrt{2} - 1)^{-\frac{1}{2}}$  then the value of  $(x^2 - \frac{1}{x^2})$  is

- A 2
- B  $-2\sqrt{2}$
- C  $2\sqrt{2}$
- D  $-\sqrt{2}$

Answer: A

**Explanation:**

$$x = (\sqrt{2} - 1)^{-\frac{1}{2}} = \sqrt{\frac{1}{\sqrt{2}-1}}$$

$$x^2 = \frac{1}{\sqrt{2}-1}$$

$$\frac{1}{x^2} = \frac{\sqrt{2}-1}{1}$$

$$x^2 - \frac{1}{x^2} = \frac{1}{\sqrt{2}-1} - \frac{\sqrt{2}-1}{1}$$

$$\text{solving} \quad = 2$$

**Question 52**

$\frac{3}{4} (1 + \frac{1}{3}) (1 + \frac{2}{3}) (1 - \frac{2}{5}) (1 + \frac{6}{7}) (1 - \frac{12}{13})$  is equal to

- A  $\frac{2}{13}$
- B  $\frac{1}{7}$
- C  $\frac{1}{6}$
- D  $\frac{1}{5}$

Answer: B

**Explanation:**

$$\frac{3}{4} \times \frac{4}{3} \times \frac{5}{3} \times \frac{3}{5} \times \frac{13}{7} \times \frac{1}{13} = \frac{1}{7}$$

## SSC CGL Tier-2 Previous Papers PDF

**Question 53**

$\frac{(0.87)^3 + (0.13)^3}{(0.87)^2 + (0.13)^2 - (0.87) \times (0.13)}$  is equal to

- A  $\frac{1}{2}$
- B 2
- C 1
- D  $2\frac{1}{2}$

Answer: C

**Explanation:**

using identity  $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

here  $a = 0.87$

$b = 0.13$

$$\frac{(0.87)^3 + (0.13)^3}{(0.87)^2 + (0.13)^2 - (0.87) \times (0.13)} = \frac{(0.87 + 0.13)(0.87)^2 + (0.13)^2 - (0.87) \times (0.13)}{(0.87)^2 + (0.13)^2 - (0.87) \times (0.13)} = 0.87 + 0.13 = 1$$

**Question 54**

If  $x^2 + y^2 - 2x + 6y + 10 = 0$ , then the value of  $(x^2 + y^2)$  is

- A 4
- B 6
- C 8
- D 10

Answer: D

**Question 55**

The largest among the numbers  $\sqrt{7} - \sqrt{5}$ ,  $\sqrt{5} - \sqrt{3}$ ,  $\sqrt{9} - \sqrt{7}$ ,  $\sqrt{11} - \sqrt{9}$  is

- A  $\sqrt{7} - \sqrt{5}$
- B  $\sqrt{5} - \sqrt{3}$
- C  $\sqrt{9} - \sqrt{7}$
- D  $\sqrt{11} - \sqrt{9}$

Answer: B

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**Question 56**

If  $x^{\frac{1}{3}} + y^{\frac{1}{3}} = z^{\frac{1}{3}}$ , then  $(x + y - z)^3 + 27xyz$  is equal to

- A 0
- B 1
- C -1
- D 27



### Question 57

If  $\sqrt{7\sqrt{7\sqrt{7\sqrt{7...}}}}$  =  $(343)^{y-1}$ , then y is equal to

- |          |               |
|----------|---------------|
| <b>A</b> | $\frac{2}{3}$ |
| <b>B</b> | 1             |
| <b>C</b> | $\frac{4}{3}$ |
| <b>D</b> | $\frac{3}{4}$ |

**Answer: C**

**Explanation:**

$$\sqrt{7\sqrt{7\sqrt{7\sqrt{7\dots}}}} = x$$

$$x = \sqrt{7}x$$

$$x^2 = 7x$$

$$x^2 - 7x = 0$$

$x=0,7$

neglect 0  $x = 7$

now  $7 = (343)^{y-1}$

$$(343)^{\frac{1}{3}} = (343)^{y-1}$$

$$\frac{1}{3} = y - 1$$

$$y = \frac{4}{3}$$

### Question 58

If  $a^2 = 2$ , then  $(a + 1)$  is equal to

- A**  $a - 1$
- B**  $\frac{2}{a-1}$
- C**  $\frac{a+1}{3-2a}$
- D**  $\frac{a-1}{3-2a}$

**Answer: D**

### Question 59

**The missing term in the sequence 2, 3, 5, 7, 11, ... 17, 19 is**

- |          |    |
|----------|----|
| <b>A</b> | 16 |
| <b>B</b> | 15 |

C 14

D 13

Answer: D

Explanation:

2, 3, 5, 7, 11, 13, 17, 19

all are consecutive prime numbers

Question 60

The wrong number in the sequence 8, 13, 21, 32, 47, 63, 83 is

A 32

B 47

C 63

D 83

Answer: B

Explanation:

8, 13, 21, 32, 47, 63, 83

$8 + 5 = 13$

$13 + 8 = 21$  ( $5 + 3 = 8$ )

$21 + 11 = 32$  ( $8 + 3 = 11$ )

$32 + 14 = 46$  ( $11 + 3 = 14$ )

$46 + 17 = 63$  ( $14 + 3 = 17$ )

$63 + 20 = 83$  ( $17 + 3 = 20$ )

Here wrong term is 47

Question 61

When the price of a toy was increased by 20%, the number of toys sold was decreased by 15%. What was its effect on the total sales of the shop?

A 2% increase

B 2% decrease

C 4% increase

D 4% decrease

Answer: A

Explanation:

$\text{price of toys} \times \text{number of toys} = \text{total sales of the shop}$

Assume that initial price of the toy = 100

Assume number of toys = 100

then total sales =  $100 \times 100 = 100$

price of a toy was increased by 20%, new price =  $100 \times \frac{120}{100} = 120$

number of toys sold was decreased by 15%, new number =  $100 \times \frac{85}{100} = 85$



then new sales =  $120 \times 85 = 10200$

effect on the total sales of the shop =  $\frac{10200 - 10000}{10000} \times 100 = \frac{200}{10000} \times 100 = 2$

thus 2% increase

## SSC Free Preparation App

### Question 62

A person sold a horse at a gain of 15%. Had he bought it for 25% less and sold it for Rs. 60 less, he would have made a profit of 32%. The cost price of the horse was

- A Rs. 370
- B Rs. 372
- C Rs. 375
- D Rs. 378

Answer: C

### Question 63

A sells an article to B at a gain of 25% B sells it to C at a gain of 20% and C sells it to D at a gain of 10%. If D pays Rs. 330 for it, how much did it cost to A ?

- A Rs.200
- B Rs.250
- C Rs.275
- D Rs.290

Answer: A

#### Explanation:

Cost price (CP), Selling price (SP), Gain (G)

Assume CP of A was 100

Then CP for B =  $100 + 25\%$  of 100

$$\begin{aligned} &= 100 + \frac{25}{100} \times 100 \\ &= 125 \end{aligned}$$

CP for C =  $125 + 20\%$  of 125

$$\begin{aligned} &= 125 + \frac{20}{100} \times 125 \\ &= 150 \end{aligned}$$

CP for D =  $150 + 10\%$  of 150

$$\begin{aligned} &= 150 + \frac{10}{100} \times 150 \\ &= 165 \end{aligned}$$

But D pays Rs 330

therefore,  $165 = 330$

$$1 = \frac{330}{165}$$

$$100 = \frac{330}{165} \times 100 = 200$$

CP for A = 200

#### Question 64

By selling an article for Rs. 21, a man lost such that the percentage loss was equal to the costprice. The cost price of the article was

- A Rs. 30 or Rs. 70
- B Rs. 35 or Rs. 60
- C Rs. 45
- D Rs. 50

**Answer:** A

#### Explanation:

Cost price (CP), Selling price (SP), Loss (L)

Given that SP = 21

Assume CP = X

$L = CP - SP$

% loss was equal to the CP,  $\frac{CP-SP}{CP} = CP$

Substituting,

$$\frac{x-21}{x} = 100$$

On solving,

$$x^2 = 100x - 2100$$

$$x^2 - 70x - 30x + 2100 = 0$$

$$x(x-70) - 30(x-70) = 0$$

$$(x-30)(x-70) = 0$$

$x = \text{Rs } 30 \text{ or Rs } 70$

## SSC CGL Important Questions PDF

#### Question 65

Half of the 100 articles sold at a profit of 20% and the rest at a profit of 40%. If all the articles had been sold at a profit of 25%, the total profit would have been Rs. 100 less than earlier profit. The cost price of each article was

- A Rs.10
- B Rs.15
- C Rs.20
- D Rs.30

**Answer:** C

#### Explanation:

Assume cost price of each article be 'x'

According to question,

$$50 \text{ articles sold at a profit of } 20\% = \frac{50x \times 120}{100}$$

50 articles sold at a profit of 40% =  $\frac{50x \times 140}{100}$

If all the articles sold at 25% =  $\frac{100x \times 125}{100}$ , the total profit would have been Rs. 100 less than earlier profit.

Substituting,

$$\frac{50x \times 120}{100} + \frac{50x \times 140}{100} - \frac{100x \times 125}{100} = 100$$

$$60x + 70x - 125x = 100$$

$$130x - 125x = 100$$

$$5x = 100$$

$$x = \frac{100}{5} = 20$$

#### Question 66

The market price of a clock is Rs. 3200. It is to be sold at Rs. 2448 at two successive discounts. If the first discount is 10%, then the second discount is

- A 5%
- B 10%
- C 15%
- D 20%

**Answer:** C

#### Explanation:

Selling price (SP), Marked price (MP), Discount % (D)

Given MP = 3200

SP = 2448

1st D% = 10%

Assume 2nd D% = x%

$$MP \times \frac{100-10}{100} \times \frac{100-x}{100} = 2448$$

Substituting,

$$3200 \times \frac{90}{100} \times \frac{100-x}{100} = 2448$$

On solving

$$100 - x = 85$$

$$x = 15\%$$

Thus 2nd D% = 15%

#### Question 67

A dealer marks his goods 30% above his cost price and then allows 15% discount on it. What is the cost price of an article on which he gains Rs. 84?

- A Rs. 800
- B Rs. 560
- C Rs. 373.33
- D Rs. 280

**Answer:** A

**Explanation:**

Cost price (CP), Selling price (SP), Marked price (MP), Profit (P)

Assume CP = 100

$$MP = CP \times \frac{130}{100} = 100 \times \frac{130}{100} = 130$$

$$SP = MP \times \frac{100-15}{100} = 130 \times \frac{85}{100} = 110.5$$

When CP = 100 gain, P = 110.5 - 100 = 10.5

But here gain = 84

then it must be equal to

$$10.5 = 84$$

$$1 = \frac{84}{10.5} = 8$$

Therefore CP = 100 × 8 = 800

## SSC CHSL Previous Papers (DOWNLOAD PDF)

**Question 68**

A shopkeeper wishes to give 5% commission on the marked price of an article but also wants to earn a profit of 10%. If his cost price is Rs. 95, then the marked price is

- A Rs.100
- B Rs.110
- C Rs.120
- D Rs.130

**Answer:** B

**Explanation:**

Cost price(CP) = 95

$$\text{Selling price(SP)} = MP \times \frac{95}{100}$$

Profit = 10 %

$$\frac{SP - CP}{CP} \times 100 = 10$$

Substituting,

$$\frac{MP \times \frac{95}{100} - 95}{95} = \frac{10}{100}$$

Solving, MP = 110

**Question 69**

Krishnamurthy earns Rs. 15000 per month and spends 80% of it. Due to pay revision, his monthly income has increased by 20%, but due to price rise, he has to spend 20% more. His new savings are

- A Rs. 3400
- B Rs. 3000
- C Rs. 3600
- D Rs. 4000

**Answer:** C

**Explanation:**

Initial income = Rs 15000

$$\begin{aligned}\text{Initial expenditure} &= 15000 \times \frac{80}{100} \\ &= 12000\end{aligned}$$

$$\begin{aligned}\text{New income} &= 15000 \times \frac{120}{100} \\ &= 18000\end{aligned}$$

$$\begin{aligned}\text{New expenditure} &= 12000 \times \frac{120}{100} \\ &= 14400\end{aligned}$$

$$\begin{aligned}\text{New savings} &= 18000 - 14400 \\ &= 3600\end{aligned}$$

**Question 70**

Two numbers are respectively  $12\frac{1}{2}\%$  and  $25\%$  more than a third number. The first number is how much per cent of the second number ?

- A 90
- B 87.5
- C 25
- D 12.5

**Answer: A**

**Explanation:**

Given that there are 2 numbers x and y

They are  $12.5\%$  and  $25\%$  higher than 3rd number z respectively

So,

$$x = \left[1 + \left(\frac{12.5}{100}\right)\right]z = 1.125z \dots\dots\dots(1)$$

$$y = \left[1 + \left(\frac{25}{100}\right)\right]z = 1.25z \dots\dots\dots(2)$$

Therefore from (1) and (2)

$$\begin{aligned}\left(\frac{x}{y}\right) \times 100 &= \left(\frac{1.125z}{1.25z}\right) \times 100 \\ &= (0.9) \times 100 \\ &= 90\%\end{aligned}$$

## General Science Notes for SSC CGL

**Question 71**

Population of a town increases  $2.5\%$  annually but is decreased by  $0.5\%$  every year due to migration. What will be the percentage of increase in 2 years?

- A 5
- B 4.04
- C 4
- D 3.96

**Answer: B**

**Explanation:**

Net % increase in population =  $(2.5 - 0.5) = 2\%$

Let original population = 100

$$\begin{aligned}\text{Population of town after 2 yrs} &= 100 \times \frac{102}{100} \times \frac{102}{100} \\ &= 104.04\end{aligned}$$

$$\begin{aligned}\text{Now \% increase in population} &= \frac{4.04}{100} \times 100 \\ &= 4.04\%\end{aligned}$$

**Question 72**

72% of the students of a certain class took Biology and 44% took Mathematics. If each student took at least one of Biology or Mathematics and 40 students took both of these subjects, the total number of students in the class is

- A 200
- B 240
- C 250
- D 320

**Answer: C**

**Explanation:**

% of students took biology = 72%

% of students took mathematics = 44%

$$\begin{aligned}\text{\% of students took both subjects} &= (72 + 44) - 100 \\ &= 16\%\end{aligned}$$

According to the question

let the total number of students be N

Then, 16% of N = 40

On solving, N=250

**Question 73**

Rs. 1050 are divided among A, B and C in such a way that the share of A is  $\frac{2}{5}$  of the combined share of B and C. A will get

- A RS.200
- B RS.300
- C RS.320
- D RS.420

**Answer: B**

**Explanation:**

Rs. 1050 are divided among A, B and C

share of B and C = x

share of A = 1050 - x

$$1050 - x = \frac{2}{5} \times x$$

$$1050 = \frac{7x}{5}$$

On solving  $x = 750$

Share of A =  $1050 - 750 = 300$

## Free SSC Study Material (18,000 Solved Questions)

### Question 74

The sides of a right-angled triangle forming right angle are in the ratio 5 : 12. If the area of the triangle is  $270 \text{ cm}^2$ , then the length of the hypotenuse is

A 39 cm

B 42 cm

C 45 cm

D 51 cm

**Answer:** A

**Explanation:**

length of base =  $5x$

length of height =  $12x$

$$\text{area} = \frac{1}{2} \times 5x \times 12x = 270$$

$$30 \times x^2 = 270$$

$$x = 3$$

$$\text{base} = 5 \times 3 = 15$$

$$\text{height} = 12 \times 3 = 36$$

We know that for a right angled triangle,  $\text{hypotenuse}^2 = \text{side}^2 + \text{side}^2$

$$h^2 = b^2 + l^2$$

$$= 15^2 + 36^2$$

$$= 225 + 1296$$

$$= 1521$$

$$h = \sqrt{1521} = 39$$

### Question 75

Two numbers are in the ratio 5 : 6. If their H.C.F is 4, then their L.C.M. will be

A 90

B 96

C 120

D 150

**Answer:** C

**Explanation:**

We know that  $\text{LCM} = \text{HCF} \times (\text{product of ratio})$

$$= 4 \times (5 \times 6)$$

$$= 120$$

**Question 76**

If  $a + b + c = 1$  and  $ab + bc + ca = \frac{1}{3}$  then  $a : b : c$  is

A 1 : 2 : 2

B 2 : 1 : 2

C 1 : 1 : 1

D 1 : 2 : 1

Answer: C

## SSC CHSL Free Mock Test

**Question 77**

A and B enter into partnership with capitals in the ratio 5 : 6. At the end of 8 months A withdraws his capital. They received profits in the ratio 5 : 9. B invested the capital for

A 6 months

B 8 months

C 10 months

D 12 months

Answer: D

**Explanation:**

$$\text{Profit ratio}[P] = \text{Investment ratio}[I] \times \text{Time period}[T]$$

A and B enter into partnership with capitals in the ratio 5 : 6

Investment ratio of A = 5

Investment ratio of B = 6

A withdraws his capital after 8 months

Therefore, time period of A = 8 months

Assume time period of B as 'n'

$$\text{Ratio of profit} = \text{ratio of investment} \times \text{ratio of time period}$$

Profit received by A and B in the ratio 5:9

$$\frac{\text{Profit ratio of A}}{\text{Profit ratio of B}} = \frac{I_a \times T_a}{I_b \times T_b}$$

Substituting,

$$\frac{5 \times 8}{6 \times n} = \frac{5}{9}$$

Solving, n = 12 months

**Question 78**

What is the length of the radius of the circumcircle of the equilateral triangle, the length of whose side is  $6\sqrt{3}$  cm ?

A  $6\sqrt{3}$  cm



- B 6 cm  
C 5.4 cm  
D  $3\sqrt{6}$  cm

Answer: B

**Explanation:**

Area of an equilateral triangle =  $\frac{\sqrt{3}}{4} \times a^2$

a = side of the triangle

length of the radius of a circumcircle in an equilateral triangle

$$R = \frac{4 \times \text{area of equilateral triangle}}{3a}$$

$$R = \frac{4 \times \frac{\sqrt{3}}{4} \times 6 \times 6}{3 \times 6}$$

$$= 6$$

**Question 79**

If the measure of a diagonal and the area of a rectangle are 25 cm and 168 cm<sup>2</sup> respectively, what is the length of the rectangle ?

- A 31 cm  
B 24 cm  
C 17 cm  
D 7 cm

Answer: B

**Explanation:**

Let the length and breadth of the rectangle be 'l' and 'b' respectively. Let 'd' be the diagonal of the rectangle.

$$d^2 = l^2 + b^2$$

$$l^2 + b^2 = 625$$

$$l \times b = 168$$

$$(l + b)^2 = l^2 + b^2 + 2lb$$

Substituting,

$$(l + b)^2 = 625 + 2 \times 168 = 961$$

$$l + b = 31 \dots \dots \dots (1)$$

$$(l - b)^2 = l^2 + b^2 - 2lb$$

Substituting,

$$(l - b)^2 = 625 - 2 \times 168 = 289$$

$$l - b = 17 \dots \dots \dots (2)$$

On solving (1) and (2)

$$l = 24$$

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**Question 80**

The number of coins, each of radius 0.75 cm and thickness 0.2 cm, to be melted to make a right circular cylinder of height 8 cm and radius 3 cm, is

- A 640
- B 600
- C 500
- D 480

**Answer:** A

**Explanation:**

We know that Volume of a cylinder =  $\pi r^2 h$

let the number of coins be n

$$n \times \frac{22}{7} \times 0.75 \times 0.75 \times 0.2 = \frac{22}{7} \times 3 \times 3 \times 8$$

$$n = \frac{22 \times 3 \times 3 \times 8 \times 7}{7 \times 22 \times 0.75 \times 0.75 \times 0.2}$$

On solving, n = 640

**Question 81**

If the radius of a sphere is increased by 2 m, its surface-area is increased by  $704 \text{ m}^2$ . What is the radius of the original sphere? (Use  $\pi = \frac{22}{7}$ )

- A 16 m
- B 15 m
- C 14 m
- D 13 m

**Answer:** D

**Explanation:**

We know that surface area of a sphere =  $4\pi r^2$

According to the question,

$$4\pi(r + 2)^2 - 4\pi r^2 = 704$$

$$(r + 2)^2 - r^2 = \frac{704}{4\pi}$$

$$r^2 + 4r + 4 - r^2 = \frac{704}{4\pi}$$

Use value of  $\pi = \frac{22}{7}$

On solving r = 13

**Question 82**

A right circular cylinder is circumscribing a hemisphere such that their bases are common. The ratio of their volumes is

- A 1 : 3
- B 1 : 2
- C 2 : 3

D 3 : 4

Answer: C

Explanation:

Volume of cylinder =  $\pi r^2 h$

here h = r bases are common

Volume of hemisphere =  $\frac{2}{3} \pi r^3$

Ratio,  $\frac{2}{3} \pi r^3 : \pi r^2 r$

= 2 : 3

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### Question 83

A man invested  $\frac{1}{3}$  of his capital at 7%,  $\frac{1}{4}$  at 8% and the remaining at 10% rate of simple interest. If his annual income from interests is Rs. 561, the capital invested was

A RS.6000

B RS.5600

C RS.6600

D RS.7200

Answer: C

Explanation:

Let total capital be x

According to the question

$$\frac{x}{3} \times 7 \times \frac{1}{100} + \frac{x}{4} \times 8 \times \frac{1}{100} + \left(1 - \frac{1}{3} - \frac{1}{4}\right) \times x \times \frac{10}{100} = 561$$

$$\frac{7x}{3 \times 100} + \frac{8x}{4 \times 100} + \frac{5x \times 10}{12 \times 100} = 561$$

On solving, x = 6600

### Question 84

The compound interest on Rs. 6250 at 12% per annum for 1 year, compounded halfyearly is

A Rs. 772.50

B Rs. 772

C Rs. 672.50

D Rs. 672

Answer: A

Explanation:

Principal amount = 6250

Half yearly r =  $\frac{12}{2} = 6$

t = 2 years

$$6\% \text{ of } 6250 = 6250 \times \frac{6}{100} = 375$$

$$\text{Amount} = 6250 + 375 = 6625$$

$$6\% \text{ of } 6625 = 6625 \times \frac{6}{100} = 397.5$$

$$\text{Amount} = 6625 + 397.5 = 7022.5$$

$$\text{Compound interest} = 7022.5 - 6625 = 772.5$$

**Question 85**

A sum of money lent at compound interest amounts to Rs. 1460 in 2 years and to Rs. 1606 in 3 years. The rate of interest per annum is

- A 12%
- B 11%
- C 10.5%
- D 10%

**Answer:** D

## SSC CGL Free Mock Test (Latest Pattern)

**Question 86**

If A travels to his school from his house at the speed of 3 km/hr. then he reaches the school 5 minutes late. If he travels at the speed of 4 km/hr, he reaches the school 5 minutes earlier than school time. The distance of his school from his house is

- A 1 km
- B 2 km
- C 3 km
- D 4 km

**Answer:** B

**Explanation:**

Let assume distance from house to school be x

When A travels at 3 km/hr he takes  $\frac{x}{3}$  hrs to reach school

When A travels at 4 km/hr he takes  $\frac{x}{4}$  hrs to reach school

$$\frac{x}{3} - \frac{x}{4} = 10$$

On solving x = 2 km

**Question 87**

A train travelling with a speed of 60 km/hr catches another train travelling in the same direction and then leaves it 120 m behind in 18 seconds. The speed of the second train is

- A 26 km/hr
- B 35 km/hr
- C 36 km/hr
- D 63 km/hr

**Answer:** C

**Explanation:**

Speed of 2nd train be  $S$  m/sec

$$\text{And } 60 \text{ km/hr} = 60 \times \frac{5}{18} = \frac{50}{3} \text{ m/sec}$$

As trains are traveling in same distance then,

$$\text{Relative distance} = \frac{50}{3} - S = \frac{120}{18}$$

On solving,  $S = 10$  m/sec

$$\text{Speed of 2nd train} = 10 \times \frac{18}{5} = 36 \text{ km/hr}$$

**Question 88**

A and B together can complete a piece of work in 12 days and B and C together in 15 days. If A is twice as good a workman as C, then in how many days will be alone complete the same work ?

- A 30
- B 25
- C 24
- D 40

Answer: D

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**Question 89**

4 men and 6 women together can complete a work in 8 days while 3 men and 7 women together can complete it in 10 days. 20 women working together will complete it in

- A 36 days
- B 32 days
- C 24 days
- D 20 days

Answer: D

**Explanation:**

$$(4m + 6w)8 = (3m + 7w)10$$

$$32m + 48w = 30m + 70w$$

$$32m - 30m = 70w - 48w$$

$$2m = 22w$$

$$\frac{1}{11} = \frac{w}{m}$$

$$\text{Total work done} = (4 \times 11 + 6 \times 1) \times 8 = 400$$

$$\text{work done} = \text{efficiency} \times \text{time}$$

$$\text{time} = \frac{400}{20} = 20 \text{ days}$$

**Question 90**

The average of two numbers A and B is 20, that of B and C is 19 and of C and A it is 21. What is the value of A?

- A 24

- B 22
- C 20
- D 18

**Answer:** B

**Explanation:**

average of two numbers A and B is 20

sum of two numbers A and B =  $20 \times 2 = 40$

average of two numbers B and C is 19

sum of two numbers B and C =  $19 \times 2 = 38$

average of two numbers C and A is 21

sum of two numbers C and A =  $21 \times 2 = 42$

$2(A + B + C) = 120$

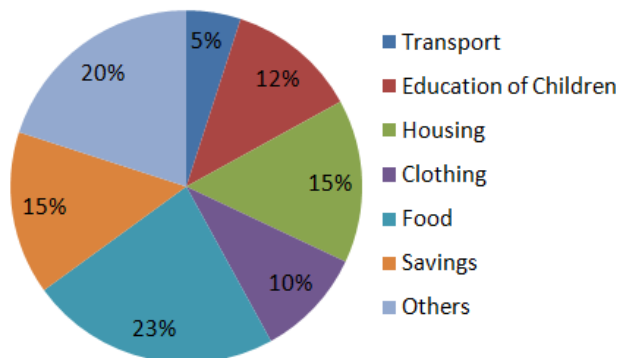
$A + B + C = 60$

$A = 60 - 38 = 22$

**Instructions**

The pie chart given below, shows the expenditure on various items and savings of a family during the year 2009. Study the pie chart and answer these questions.

**PERCENTAGE OF MONEY SPENT ON VARIOUS ITEMS AND SAVINGS BY A FAMILY DURING 2009**



**Question 91**

If the total income of the family for the year 2009 was Rs. 1,50,000 then the difference between the expenditures on housing and transport was

- A Rs. 15,000
- B Rs. 10,000
- C Rs. 12,000
- D Rs. 7500

**Answer:** A

**Explanation:**

percentage of money spent on housing = 15%

percentage of money spent on transport = 5%

difference in percentage = 10%

total income = 150000

$$\frac{10}{100} \times 150000 = 15000$$

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### Question 92

Maximum expenditure of the family other than on food, was on

- A Housing
- B Clothing
- C Others
- D Education of children

**Answer:** C

**Explanation:**

maximum expenditure of family on food = 23%

then 20% of money spent on others

### Question 93

The savings of the family for the year were equal to the expenditure on

- A Food
- B Housing
- C Education of children
- D Clothing

**Answer:** B

**Explanation:**

percentage of amount spent on savings and housing are same = 15%

### Question 94

The percentage of the income which was spent on clothing, education of children and transport together is

- A 17
- B 20
- C 22
- D 27

**Answer:** D

**Explanation:**

percentage of the income spent on clothing = 10%

percentage of the income spent on education of children = 12%

percentage of the income spent on transport = 5%

percentage of the income which was spent on clothing, education of children and transport together = 27%

## SSC CGL Tier-2 Previous Papers PDF

### Question 95

If the total income of the family was Rs.1,50,000 then the money spent on food was

- A Rs. 20,000
- B Rs. 23,000
- C Rs. 30,000
- D Rs. 34,500

Answer: D

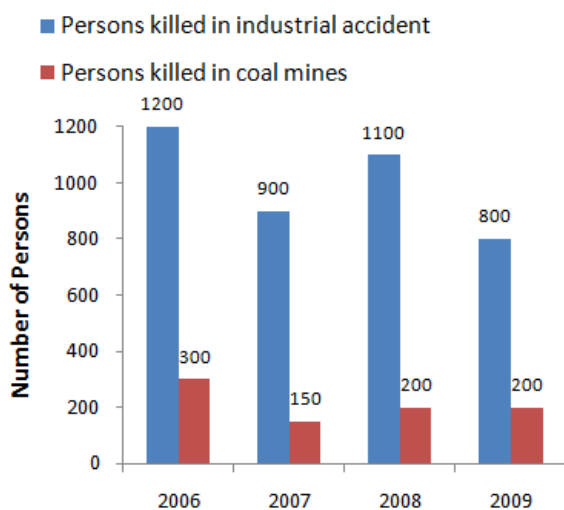
### Explanation:

total income of the family = Rs.1,50,000

$$\begin{aligned}\text{money spend on food} &= \frac{23}{100} \times 150000 \\ &= 34500\end{aligned}$$

### Instructions

Study the bar diagram and answer these questions.



### Question 96

The number of persons killed in coal mines in 2006 was what per cent of those killed in industrial accidents in that year ?

- A 4
- B 25
- C 36
- D 300

Answer: B

### Explanation:

$$\begin{aligned}\frac{300}{1200} \times 100 \\ = \frac{300}{12} = \frac{100}{4} = 25\end{aligned}$$

### Question 97

In which year, minimum number of persons were killed in industrial accidents and coal mines together?



- A 2006
- B 2007
- C 2008
- D 2009

**Answer:** D

**Explanation:**

In 2009, minimum number of persons were killed in industrial accidents and coal mines together  
minimum number of persons were killed in industrial accidents and coal mines together = 1000

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**Question 98**

In which year, maximum number of persons were killed in industrial accidents other than those killed in coal mines?

- A 2006
- B 2007
- C 2008
- D 2009

**Answer:** A

**Explanation:**

In 2006, maximum number of persons were killed in industrial accidents other than those killed in coal mines  
maximum number of persons killed in industrial accidents = 1200

**Question 99**

In which years, minimum number of persons were killed in coalmines other than those killed in industrial accidents?

- A 2006
- B 2007
- C 2008
- D 2009

**Answer:** B

**Explanation:**

In 2007 minimum number of persons were killed in coalmines other than those killed in industrial accidents  
The minimum number of persons killed in coal mines is 150

**Question 100**

In a year, on average, how many persons were killed in industrial accidents and coal mines together ?

- A 121.25
- B 1212
- C 1212.5

D 1000

Answer: C

Explanation:

Average persons were killed in industrial accidents =  $\frac{1200+900+1100+800}{4}$

$$= \frac{4000}{4} = 1000$$

Average persons were killed in coal mines =  $\frac{300+150+200+200}{4}$

$$= \frac{850}{4} = 212.5$$

Total = 1000 + 212.5 = 1212.5

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