Ssc Cgl Tier II Previous Year Question Paper Overview

Here, you can solve all the questions asked in Ssc Cgl Tier II Previous Year Question Paper on 2019-09-13 in the Morning exam. The detailed solutions are also provided for every previous year question and some of these questions can be asked again in your Ssc Cgl Tier II exam. There are 100 questions in the exam and 120 minutes are provided for the Ssc Cgl Tier II exam. The Cutoff of the exam was 140 marks hence you should try to score at least 150 marks.

Ssc Cgl Tier II Previous Year Question Paper : Questions and Solutions

Question 1 :

A vessel contains 32-litre solutions of acid and water in which the ratio of acid and water is 5:3. If 12 litres of the solution is taken out and 7.5 litres of water is added to it, then what is the ratio of acid and water in the resulting solution?

Difficulty : Moderate **Average Time : 51 Seconds**

Options :

1. 8 : 11
2. 5 : 6
3. 4 : 7
4. 4 : 9

Solution :

The correct answer is option **2** i.e. **5 : 6**

Acid : water = 5 : 3

The total solution in the vessel = 32 litres

Acid quantity = 5/8 × 32 = 20 litres

Water quantity = 3/8 × 32 = 12 litres

After taking out 12 litres of the solution,

Quantity of acid = 5/8 × 20 = 12.5 litres

Quantity of water = 3/8 × 20 = 7.5 litres

Now, after adding 7.5 litres of water

The final quantity of acid = 12.5 litres

The final quantity of water = 15 litres

Hence, the ratio of acid : water = 12.5/15 = 5 : 6

Question 2 :

A certain sum amounts to Rs. 4205.55 at 15% p.a. in years (interest compounded annually). The sum is:

Difficulty : Moderate **Average Time : 52 Seconds**

Options :

1. 3,200
2. 2,700
3. 3,000
4. 3,500

Solution :

The correct answer is option **2** i.e. **â‚¹3,000**.

Compound interest formula is:

$A = P(1 + R/100)^T$

where, A = amount, P = principal amount, R = rate, T = time

Now, putting the values in the equation,

$4205.55 = P (1 + 15/100)^{2.4}$

$4205.55 = P(23/20)^{2.4}$

$P = 4205.55/(23/20)^{2.4}$

P = â‚¹3,000

Question 3 :

The radius of the base of a right circular cylinder is intersected by 20%. By what % should height be reduced so that its volume remains the same as before?

Difficulty : Moderate

Average Time : 72 Seconds

Options :

1. $30\frac{5}{9}$
2. 28
3. $30\frac{2}{9}$
4. 25

Solution :

The correct answer is option **1** i.e. $30\frac{5}{9}$.

R = r + r/5 = 6r/5

$r^2h = R^2 H$

$r^2h = (6r/5)^2 H$

$r^2h = (36r^2/25) H$

H/h = 25/36

% height reduced = (11/36) 100 = $30\frac{5}{9}$ %

Question 4 :

The value of is?

Difficulty : Moderate

Average Time : 75 Seconds

Options :

1. 1
2. 0
3. -2
4. 2

Solution :

The correct answer is **option 3** i.e. **-2.**

putting value ,

put = 30°

$$\frac{\sec^2\theta}{cosec^2\theta}+\frac{cosec^2\theta}{sec^2\theta}-(\sec^2\theta+cosec^2\theta)$$

$$\frac{\left(\frac{2}{\sqrt{3}}\right)^2}{(2)^2}+\frac{(2)^2}{\left(\frac{2}{\sqrt{3}}\right)^2}-\left[\left(\frac{2}{\sqrt{3}}\right)^2+(2)^2\right]$$

$$\frac{\frac{4}{3}}{4}+\frac{4}{\frac{4}{3}}-\left[\left(\frac{4}{3}\right)+(4)\right]$$

$$\frac{1}{3}+3-\left[\frac{4}{3}+4\right]$$

= -2

Question 5 :

A man can row a distance of 900 metres against the stream in 12 minutes and return to the starting point in 9 minutes. What is the speed (km/h) of the man in still water?

Difficulty : Moderate **Average Time : 70 Seconds**

Options :

1. $4\frac{1}{2}$
2. 5
3. $5\frac{1}{4}$
4. 6

Solution :

The correct answer is **option 3** i.e. $5\frac{1}{4}$

Let the speed of man in still water be x

Let the speed of stream be y

Relative speed of man upstream

x - y = 0.9/(1/5)

(x - y) = 0.9 × 5

(x - y) = 4.5 eq1

Realtive speed of man downstream

x + y = (0.9/9) × 60

(x + y) = 6 eq2

Solving for x and y from eq1 and eq2

x = 4.5 + y

4.5 + 2y = 6

y = 1.5/2 = 0.725

x = 4.5 + 0.725

x = 5.25 km/hr

Question 6 :

The graph of the equation 5x - 2y + 1 = 0 and 4y - 3x + 5 = 0, intersect at the points (,). What is the value of (2 - 3) ?

Difficulty : Moderate **Average Time : 105 Seconds**

Options :

1. 6
2. 4
3. -3
4. -4

Solution :

The correct answer is option **2** i.e. **4**.

5x - 2y + 1 = 0

5x + 1 = 2y eq 1

4y - 3x + 5 = 0 eq 2

putting the value of eq 1 in eq 2

$2 \times (2y) - 3x + 5 = 0$

$10x + 2 - 3x + 5 = 0$

$7x + 7 = 0$

$x = -1$ eq3

putting value of eq 3 in eq 1

$5(-1) + 1 = 2y$

$-4 = 2y$

$y = -2$

so, the intersection point P(,) = (-1, -2)

hence = -1, = -2

value of 2 - 3 = 2(-1) - 3(-2)

-2 + 6 = 4

Question 7 :

N solid metallic spherical balls are melted and recast into a cylindrical rod whose radius is 3 times that of a spherical ball & height is 4 times the radius of a spherical ball. The value of N is:

Difficulty : Moderate **Average Time : 95 Seconds**

Options :

1. 36
2. 24
3. 27
4. 30

Solution :

The correct answer is option **3** i.e. **27**.

As, N solid balls are melted and recast into a cylindrical rod,

then volume of N balls = volume of cylindrical rods

$$N \times \frac{4}{3}\pi r^3 = \pi R^2 h$$

$$N \times \frac{4}{3}\pi r^3 = \pi (3r)^2 4r$$

as R = 3r

h = 4r

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

$$N = \frac{36 \times 3}{4}$$

N = 27

Question 8 :

In PQR, Q > R, PS is the bisector of P and PT is perpendicular to PQ. If SPT = 28° and R = 23°, then the measure of Q is:

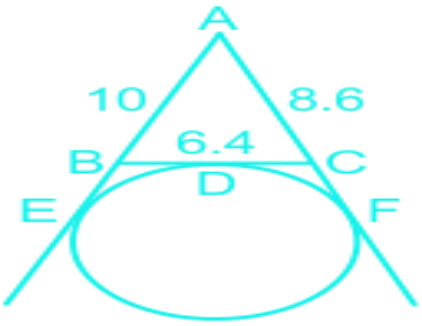
Difficulty : Moderate | **Average Time : 73 Seconds**

Options :

1. 33°
2. 43°
3. 32°
4. 40°

Solution :

The correct answer is **option 1** i.e. **33°**



SPT = 28°

PRS = 23°

Now, as PT is perpendicular to QP:

QPT = 90° = SPT + QPS

90° = 28° + QPS

QPS = 62°

Now,

QPS = P/2

So, P = 62° × 2 = 124°

Hence,

Q = 180° - (124° + 23°) [Angle sum property]

Q = 33°

Question 9 :

To cover a distance of 416km, A train takes hrs more than train B. If the speed of train A is doubled it would take hrs less than B. What is speed (in km/hr) of train A?

Difficulty : Moderate

Average Time : 95 Seconds

Options :

1. 56
2. 54
3. 52

65

Solution :

The correct answer is option **3** i.e. **52**.

Let the time taken by train B be 'x' hrs.

Then the time taken by train A = (x + $2\frac{2}{3}$)hrs

Speed of train B = 416/x

Speed of train A = 416/(x + $2\frac{2}{3}$)

If the speed of train A is doubled:

$$2 \times \frac{416}{x + 2\frac{2}{3}} = \frac{416}{x - 1\frac{1}{3}}$$

$$2\left(x - \frac{4}{3}\right) = \left(x + \frac{8}{3}\right)$$

$$2x - x = \frac{16}{3}$$

hence, x = 16/3

Initial speed of train A

$$= \frac{416}{\frac{16}{3} + \frac{8}{3}}$$

$$\frac{416 \times 3}{24} = 52$$

Question 10 :

Given that: (5x 3)3 + (2x + 5)3 + 27(4 - 3x)3 = 9(3 - 5x)(2x + 5)(4 - 3x), then the value of (2x + 1) is?

Difficulty : Moderate

Average Time : 94 Seconds

Options :

13

2. -15
3. -13
4. 15

Solution :

The correct answer is **option 4** i.e. **15**

Trick:

It is of the form : $a^3 + b^3 + c^3 = 3abc$

In this type of form, a + b + c = 0

Now,

(5x - 3) + (2x + 5) + 3(4 - 3x) = 0

5x - 3 + 2x + 5 + 12 - 9x = 0

2x = 14

x = 7

So,

2x + 1 = 2(7) + 1 = 14 + 1 = 15

Question 11 :

A person covers 40% of the distance from A to B at 8 km/hr. 40% of the remaining distance at 9 km/hr & the rest at 12 km/hr. His average speed (in km/hr) for the journey is?

Difficulty : Moderate | **Average Time : 72 Seconds**

Options :

1. $9\frac{3}{8}$
2. $9\frac{5}{8}$
3. $9\frac{1}{3}$
4.

$9\frac{2}{3}$

Solution :

The correct answer is option **1** i.e. $9\frac{3}{8}$

Let the distance between point A and B be x.

For the 1st part of the journey

$$T_1 = \frac{D_1}{S_1}$$

$$T_1 = \frac{4x}{10\times(8)}$$

$$T_1 = \frac{4x}{80} = \frac{x}{20} \text{ hr}$$

For the 2nd part of the journey

$$D_2 = x - (\frac{4x}{10} + \frac{6x}{25}) = \frac{9x}{25}$$

$$T_2 = \frac{9x}{25\times12} = \frac{3x}{100}$$

$$Average\ speed = \frac{Total\ distance}{Total\ time} = \frac{x}{T1 + T2 + T3}$$

$$= \frac{x}{\frac{x}{20} + \frac{2x}{75} + \frac{3x}{100}}$$

$$= 9\frac{3}{8}$$

Question 12 :

What is the remainder when (12797 + 9797) is divided by 32?

Difficulty : Moderate | **Average Time : 102 Seconds**

Options :

1. 2

4

3. 0

4. 7

Solution :

The correct answer is option **3** i.e. **0**

Trick: $127^{97} + 97^{97}$

$$\frac{a^n+b^n}{a+b}$$

It is of the form :
n = odd

So,

$$\frac{127^{97}+97^{97}}{127+97}$$

gives reamainder 0

i.e. $127^{97} + 97^{97}$ divisible by 224.

Now the given number is divisible by 224 (which itself is a multiple of 32), then the number is also divisible by 32.

Question 13 :

The value of [(Sin - Cos)(1 + tan + cot)]/[1 + sincos] is _____.

Difficulty : Moderate | **Average Time : 80 Seconds**

Options :

1. sec - cosec

2. sin + cos

3. cosec - sec

4. tan - cot

Solution :

The correct snswer is **option 1** i.e. **sec - cosec**

Value putting:

put =30°

$$\frac{(sin\theta - cos\theta)(1 + tan\theta + cot\theta)}{1 + sin\theta cos\theta} = \frac{(\frac{1}{2} - \frac{\sqrt{3}}{2})(1 + \frac{1}{\sqrt{3}} + \sqrt{3})}{1 + \frac{\sqrt{3}}{4}}$$

$$= \frac{(\frac{1 - \sqrt{3}}{2})(\frac{4 + \sqrt{3}}{\sqrt{3}})}{(\frac{4 + \sqrt{3}}{4})}$$

$$= \frac{(\frac{1 - \sqrt{3}}{2})(\frac{1}{\sqrt{3}})}{(\frac{1}{4})} = \frac{2}{\sqrt{3}}(1 - \sqrt{3}) = (\frac{2}{\sqrt{3}} - 2)$$

Now, checking it by options,

Option 1: Sec - cosec = sec 30° - cosec 30° = 2/3 - 2

Hence Option 1 is correct.

Question 14 :

If 55 x^3 + 22y^3 = (Ax + 2y) (Bx^2 + 2y^2 + Cxy), then the value of (A^2 + B^2 - C^2) is?

Difficulty : Moderate **Average Time : 86 Seconds**

Options :

1. 30
2. 40
3. 20
4. 15

Solution :

The correct answer is option **3** i.e. **20**.

Trick:

$(5x + 2y)^3 = (5x + 2y)(5x^2 + 2y^2 - 10xy)$

On comparing we get

A = 5, B = 5, C = -10

$A^2 + B^2 - C^2 = 5 + 25 - 10$

= 20

Question 15 :

A solid cylinder of base radius 12 cm and height 15 cm is melted and recast into n toys each in shape of right circular cone of height 9 cm mounted on a hemisphere of radius 3cm. The value of n is:

Difficulty : Moderate **Average Time : 64 Seconds**

Options :

1. 48
2. 64
3. 54
4. 27

Solution :

The correct answer is **1** i.e. **48**

Volume of cylinder = r^2h

$= \pi \times 12^2 \times 15 = 2160\pi$

Volume of n right circular cone = $(1/3)\ r^2\ h \times n$

$= (1/3) \times 9 \times 9 \times n = 27\pi \times n$

Volume of hemisphere = $(2/3)\ \pi \times (3)^2 \times n$

$=(2/3) \times 9 \times 3 \times \pi \times n = 18\pi \times n$

$2160\pi = (27\pi \times n) + (18\pi \times n)$

$2160\pi = n(27\pi + 18\pi)$

$n = 2160\pi/45\pi$

$n = 48$

Question 16 :

Two positive numbers differ by 2001. When the larger number is divided by the smaller number, the quotient is 9 and the remainder is 41. The sum of the digits of larger number is?

Difficulty : Moderate **Average Time : 89 Seconds**

Options :

1. 11
2. 15
3. 10
4. 14

Solution :

The correct answer is option **4** i.e. **14**

x - y = 2001 -(1) [where x=larger ,y=smaller]

x = 9y + 41 -(2)

from (1)

x = 2001 + y -(3)

putting (3) in (2)

2001 + y = 9y + 41

8y = 1960

y = 245

x = 2246

sum of the digits = 2 + 2 + 4 + 6 = 14

Question 17 :

A certain loan was returned in two equal half-yearly instalments each of Rs 6760. If the rate of interest was 8% pa compounded half-yearly, how much was the interest paid on the loan?

Difficulty : Moderate **Average Time : 68 Seconds**

Options :

1. Rs.750
2. Rs.770
3. Rs.810

Rs.790

Solution :

Note: The question has been modified since it was incorrect according to the answer key released by SSC.

The correct answer is **option 2** i.e. **770**.

Rate = 8% p.a.

Let the initial amounts for both the half-yearly instalments be x_1 & x_2

$x_1 = (25/26) \times 6760$

$= 6500$

$x_2 = (25/26)^2 \times 6760$

$= 6250$

Interest = (6760 + 6760) - (6500 + 6250)

= Rs. 770

Question 18 :

In ABD, C is the midpoint of BD. If AB = 10cm, AD = 12cm & AC = 9cm, then BD = ?

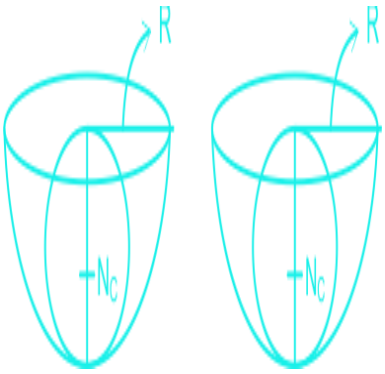
Difficulty : Moderate | **Average Time : 75 Seconds**

Options :

1. 241 cm
2. 210 cm
3. 41cm
4. 10 cm

Solution :

The correct answer is **option 1** i.e. **241 cm**



As we know:

$AB^2 + AD^2 = 2(BC^2 + AC^2)$

$10^2 + 12^2 = 2(BC^2 + 9^2)$

$100 + 144 = 2(BC^2 + 81)$

$2BC^2 = 244 - 162$

$2BC^2 = 82$

$BC^2 = 41$

$BC = 41$

Hence,

BD = 2BC = 241 cm

Question 19 :

Study the following graph and answer the question given: The total production of motorcycles of companies C, D, E is what per cent less than the total demand of motorcycles of all the companies ?

Difficulty : Moderate | **Average Time : 101 Seconds**

Options :

1. 38
2. 43
3. 47
4. 32

Solution :

Note: This question has been modified since it was incorrect according to the answer key released by SSC

The correct answer is option **4** i.e. **32**

Total production of motorcycles by companies C, D, E = 72 + 75 + 40 = 187

The total demand for motorcycles of all the companies = 50 + 55 + 45 + 60 + 65 = 275

Difference = 275 - 187 = 88

% difference = (88/275) × 100 = 32%

Question 20 :

S is the incentre of PQR, If PSR = 125°, then the measure of PQR is:

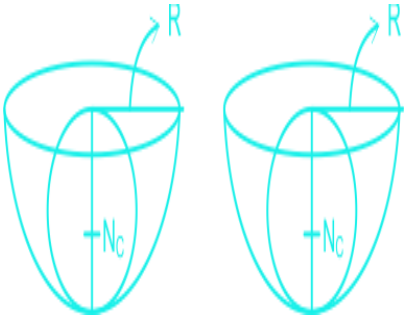
Difficulty : Moderate **Average Time : 63 Seconds**

Options :

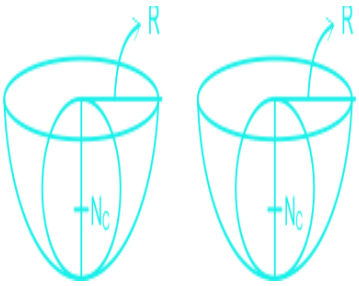
1. 80°
2. 55°
3. 75°
4. 70°

Solution :

The correct answer is **option 4** i.e. **70°**



Points to remember:



AIC = 90° + 1/2B

AIB = 90° + 1/2C

AIC = 90° + 1/2A

Now,

PSR = 90° + 1/2 × PQR

125° = 90° + 1/2 × PQR

1/2 × PQR = 35°

PQR = 70°

Question 21 :

In quadrilateral ABCD, C = 72°, D = 28°. The bisectors of A and B meet in O. What is the measure of the AOB?

Difficulty : Moderate

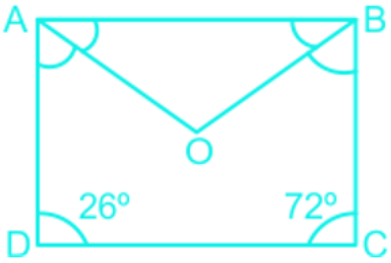
Average Time : 89 Seconds

Options :

1. 48°
2. 54°
3. 36°
4. 50°

Solution :

The correct answer is **option 4** i.e. **50°**



Angle sum of the quadrilateral = 360°

A + B + C + D = 360°

A + B + 100º = 360°

A + B = 260°

Now,

In AOB:

(A/2) + (B/2) + AOB = 180°

[(A + B)/2] + AOB = 180°

(260/2) + AOB = 180°

AOB = 180° - 130° = 50°

Question 22 :

A sector of radius 10.5cm with the central angle 120° is folded to form a cone by joining the two bounding radii of the sector. What is the volume (in cm3) of the cone so formed?

Difficulty : Moderate

Average Time : 93 Seconds

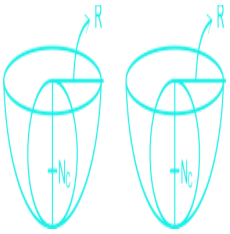
Options :

1. $\frac{343\sqrt{2}}{6}\pi$
2. $\frac{343\sqrt{2}}{12}\pi$
3. $\frac{343\sqrt{3}}{6}\pi$

$\frac{343\sqrt{2}}{12}\pi$

Solution :

The correct answer is option **4** i.e. $\frac{343\sqrt{2}}{12}\pi$



When the sector of the circle is folded to form a cone,

the slant height of the cone = radius of the cone = 10.5 cm

Perimeter of the sector of the circle = length of base of cone

2 r x angle/360 = 2r [R = 10.5/3 = 3.5]

Height of cone = h

By Pythogorous Theorem

$h^2 = (10.5)^2 - (3.5)^2$

$h^2 = 110.25 - 12.25$

h = 98

Volume of cone = 1/3 x r^2h

= 1/3 x x $(3.5)^2$ x 98

$\frac{343\sqrt{2}}{12}\pi$

Question 23 :

The bisector of A in ABC meets BC in D. If AB = 15 cm, AC = 13 cm & BC = 14 cm, then DC = ?

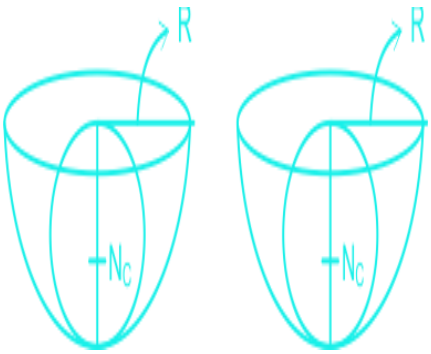
Difficulty : Moderate | **Average Time : 118 Seconds**

Options :

1. 6.5 cm
2. 8.5 cm
3. 8 cm
4. 7.5 cm

Solution :

The correct answer is **option 1** i.e. **6.5 cm**



[x/y = c/b] property

Now ,

c = AB = 15 cm

b = AC = 13 cm

Putting the values:

x/y = 15/13

And

x + y = BC = 14

15z + 13z =14

z = 0.5

Hence,

x = BD = 15 x 0.5 = 7.5 cm

y = DC = 13 x 0.5 = 6.5 cm

Question 24 :

In triangle ABC, D and E are the points on AB and AC respectively such that AD x AC = AB x AE. If ADE = ACB + 30° and ABC = 78°, then A= ?

Difficulty : Moderate

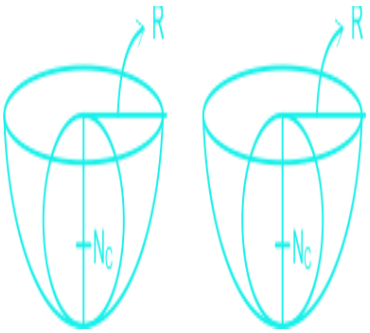
Average Time : 92 Seconds

Options :

1. 56°
2. 54°
3. 68°
4. 48°

Solution :

The correct answer is option **2** i.e. **54°**.



AD × AC = AB × AE

AD/AB = AE/AC

Hence triangle ABC is similar to triangle ADE.

So,

ADE = ABC And AED = ACB

ADE = 78° and ADE = ACB + 30° [Given]

ACB = 78° - 30° = 48°

In triangle ABC:

ABC + ACB + A = 180°

A = 180° - ABC + ACB

A = 180° - (78° - 48°)

A = 54°

Question 25 :

If sec + tan = p , (p > 1), then =?

Difficulty : Moderate

Average Time : 102 Seconds

Options :

1. p^2
2. $\frac{p+1}{p-1}$
3. $2p^2$
4. $\frac{p-1}{p+1}$

Solution :

The correct answer is option **1** i.e. **p²**

we know that

sec² - tan² = 1 eq1

(sec - tan)(sec + tan) = 1

$$(sec\theta + tan\theta) = \frac{1}{(sec\theta - tan\theta)}$$

$$p = \frac{1}{(sec\theta - tan\theta)}$$

$$(sec\theta - tan\theta) = \frac{1}{p}$$ eq 2

Now,

$$\frac{cosec\theta+1}{cosec\theta-1} = \frac{\frac{1}{sin\theta}+1}{\frac{1}{sin\theta}-1} = \frac{1+sin\theta}{1-sin\theta}$$ eq 3

Now,

sec + tan = p

$$\frac{1}{\cos\theta} + \frac{\sin\theta}{\cos\theta} = p$$

(1 + sin) = p cos eq 4

(1 - sin) = cos/p eq 5

Putting values of eq4 and eq5 in eq 3:

$$\frac{1+sec\theta}{1-sec\theta} = \frac{pcos\theta}{\frac{cos\theta}{p}} = p^2$$

Question 26 :

Two numbers are in the ratio 3 : 5. If 13 is subtracted from each, the new numbers are in the ratio 10 : 21. If 15 is added to each of the original numbers, then the ratio becomes?

Difficulty : Moderate

Average Time : 116 Seconds

Options :

1. 23 : 33
2. 24 : 35
3. 5 : 7
4. 4 : 5

Solution :

The correct answer is option **2** i.e. **24 : 35**.

Let the numbers be 3x and 5x

$$\frac{3x-13}{5x-13} = \frac{10}{21}$$

63x - 273 = 50x - 130

13x = 143

x = 11

The numbers are :

3 × 11 = 33

5 × 11 = 55

Ratio after adding 15 to both the sides :

$$\frac{33+15}{55+15} = \frac{48}{70} = \frac{24}{35}$$

Question 27 :

If x + y + z = 6, xyz = -10 and x2 + y2 + z2 = 30 , then what is the value of x3 + y3 + z3 = ?

Difficulty : Moderate **Average Time : 77 Seconds**

Options :

1. 135
2. 130
3. 127
4. 132

Solution :

The correct answer is option **4** i.e. **132**.

$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(ab + bc + ac)$

$6^2 = 30 + 2(ab + bc + ac)$

$ab + bc + ac = 3$

$x^3 + y^3 + z^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$

$x^3 + y^3 + z^3 = 6(30 - 3) + 3(-10)$

$x^3 + y^3 + z^3 = 162 - 30 = 132$

Question 28 :

35% of the goods are sold at a profit of 65%, while the remaining were sold at x% loss. If the overall loss is 12%, then what is the value of x?

Difficulty : Moderate **Average Time : 75 Seconds**

Options :

1. 53.5
2. 52.4
3. 51.8
4. 50.6

Solution :

The correct answer is option **1** i.e. **53.5**

$$\frac{35\%\ of\ goods\ sold\ at\ profit}{65\%\ goods\ sold\ at\ loss} = \frac{7}{13}$$

Trick: 7 : 13

65% : x%

455 - 13 x = - 20 (12)

13x = 455 + 240

x = 53.5%

Question 29 :

The given graph shows the weights of students in a school on a particular day. The number of students weighing less than 50 kg is what per cent less than the number of students weighing 55 kg or more?

Difficulty : Moderate | **Average Time : 66 Seconds**

Options :

1. 30
2. 44
3. 40
4. 55

Solution :

The correct answer is option **2** i.e. **44**.

No. of students weighing less than 50 kg= 30 + 40 = 70

No of students weighing less than 55 kg = 55 + 45 + 25 = 125

% less = (125 - 70)(100)/125

= 5500/125

= 44 %

Question 30 :

The value of is?

Difficulty : Moderate **Average Time : 50 Seconds**

Options :

1. 25.48
2. 24.24
3. 25.42
4. 24.42

Solution :

The correct answer is option **1** i.e. **25.48**.

$$\frac{(4.6)^2 + (5.4)^2 + (24.84)^2}{(4.6)^2 + (5.4)^2 + 24.84}$$

It is of the form :

$$= \frac{x^4 + y^4 + x^2y^2}{x^2 + y^2 + xy}$$

$$= \frac{(x^2 + y^2 + xy)(x^2 + y^2 - xy)}{x^2 + y^2 + xy}$$

= $x^2 + y^2 - xy$

= $(x + y)^2 - 3xy$

= $(10)^2 - 3(24.84)$

= 25.48

Question 31 :

The given pie-chart shows the break up of total marks obtained by a student in five subjects A,B,C,D,E. The maximum marks in each subject is 150 and he obtained a total of 600 marks What is the difference between the marks obtained by the students in subjects B and D?

Difficulty : Moderate

Average Time : 74 Seconds

Options :

1. 30
2. 20
3. 27
4. 12

Solution :

The correct answer is option **2** i.e. **20**

Marks obtained in subject B = $\frac{84^\circ}{360^\circ} \times 600 = 140$

Marks obtained on subject D = $\frac{72^\circ}{360^\circ} \times 600 = 120$

Difference = 140 - 120 = 20

Question 32 :

The value of (1 + cot - cosec) (1 + cos + sin) sec?

Difficulty : Moderate

Average Time : 55 Seconds

Options :

1. 2
2. sin cos
3. sec cosec
4. - 2

Solution :

The correct answer is **option 1** i.e. **2**

(1 + cot - cosec) (1 + cos + sin) sec

putting = 135°

(1 + cot - cosec) (1 + cos + sin) sec

= (1 - 1 - 2) (1)(-2)

= 2

Question 33 :

The LCM of two number x & y is 204 times their HCF. If their HCF is 12 and the difference between the numbers is 60, then x + y = ?

Difficulty : Moderate **Average Time : 61 Seconds**

Options :

1. 852
2. 348
3. 426
4. 660

Solution :

The correct answer is **option 2** i.e. **348**.

x = 12a , y = 12b

LCM(x, y) = 12ab

12ab = 204(12)

ab = 204

12a - 12b =60

12(a - b) = 60

a - b = 5

a = 17, b = 12

x + y = 12(17) + 12 (12)

= 204 + 144 = 348

Question 34 :

In triangle ABC, BE is perpendicular to AC, CD perpendicular to AB and BE and CD intersect each other at O. The bisectors of OBC and OCB meet at P. If BPC = 148°, then what is the measure of A?

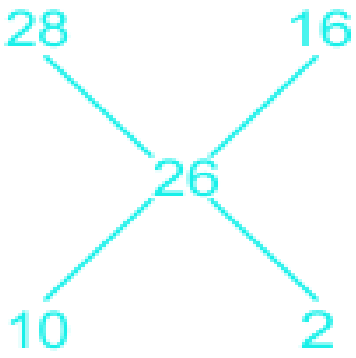
Difficulty : Moderate **Average Time : 71 Seconds**

Options :

56°

2. 28°
3. 32°
4. 64°

Solution :
The correct option is **4** i.e. **64°**



BPC = 148°

OBC + BCO + BOC = 180°

BOC + 2(PBC + PCB) = 180°

BOC + 2(180° - 148°) = 180°

BOC = 180 - 64 = 116°

And

DOE = BOC = 116°

Hence,

A = 180 - DOE = 180 - 116 = 64°

Question 35 :
In an examination A obtained 10% more marks than B, B obtained 20% more marks than C & C obtained 32% less marks than D. If A obtained 272 more marks than C, then find the marks obtained by B.

Difficulty : Moderate | **Average Time : 91 Seconds**

Options :

1. 1020
2. 850
3. 816
4. 952

Solution :

The correct answer is **option 1** i.e. **1020**.

Explanation:

Let D obtained 100% marks

Marks of C = 68%

Marks of B = 120 × (68)/100 = 81.6%

Marks of A = 81.6 × (110/100) = 89.76%

Difference of marks of A & C = 272

89.76% - 68% = 272

21.76% = 272

81.6% = (272/21.76) × 81.6 = 1020

So, marks of B = 1020

Question 36 :

The value of is:

Difficulty : Moderate | **Average Time : 62 Seconds**

Options :

1. $0.61\bar{5}$
2. $0.6\overline{15}$
3. d30 Image not found or type unknown
4.

$0.\overline{615}$

Solution :

The correct option is **3** i.e. $0.6\overline{25}$

$$0.4\bar{7} + 0.5\overline{03} - 0.3\bar{9} \times 0.\bar{8}$$

$$0.4\bar{7} + 0.50\bar{3} - \frac{36}{90} \times \frac{8}{9}$$

$$0.4\bar{7} + 0.50\bar{3} - \frac{32}{90}$$

$$0.4\bar{7} + 0.50\bar{3} - 0.3\bar{5}$$

$$0.4\overline{77} + 0.50\bar{3} - 0.3\overline{55}$$

$$0.6\overline{25}$$

Question 37 :

Two parallel chords on the same side of the centre of a circle are 12 cm and 20 cm long and the radius of the circle is 513 cm. What is the distance (in cm) between the chords?

Difficulty : Moderate | **Average Time : 71 Seconds**

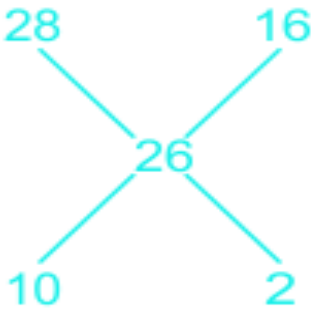
Options :

1. 1.5
2. 3
3. 2
4. 2.5

Solution :

The correct answer is **3** i.e. **2**.

Length of the chords: RS = 12 cm, PQ = 20 cm



Radius = 513 cm

Lenghth of VS = RS/2 = 6 cm

Length of TQ = PQ/2 = 10 cm [Radius divides the chords in 2 equal parts]

In OVS using the pythagoras theorem:

$OS^2 = OV^2 + US^2$

$(513)^2 = OV^2 + 6^2$

$OV = 289 = 17$ cm

In OTR using the pythagoras theorem:

$OQ^2 = OT^2 + TQ^2$

$(513)^2 = OT^2 + 10^2$

$OT^2 = 325 - 100 = 225$

$OT = 225 = 15$ cm

Hence,

Distance between chords = OV - OT = 17 - 15 = 2 cm

Question 38 :

If x is the remainder when 361284 is divided by 5 and y is the remainder when 496 is divided by 6, then what is the value of 2x - y?

Difficulty : Moderate **Average Time : 129 Seconds**

Options :

1. -2

2

3. -4

4. 4

Solution :

The correct answer is option **1** i.e. **- 2**.

$3^{61284}/5$ can be compared to 3^{4n}

3^{4n} unit digit is always 1

so,

$3^{61284}/5$ gives remainder 1

i.e, x =1

Now,

$\frac{4^{96}}{6} = \frac{4^{n}}{6}$ always gives remainder 4

Hence $4^{96}/6$ gives remainder 4

y = 4

2x - y = 2(1) - 4 = -2

Question 39 :

25 persons can complete a work in 60 days. They started the work. 10 persons left the work after x days. If the whole work is completed in 80 days, then what is the value of x?

Difficulty : Moderate | **Average Time : 78 Seconds**

Options :

1. 30

2. 40

3. 20

4. 35

Solution :

The question has been modified since it was incorrect according to the answer key released by the SSC.

The correct answer is option **1** i.e. **30**.

25 x 60 = 1500

25 x 60 = (25x) + 15(80 - x)

1500 = 25x +1200-15x

300 = 10x

x = 30

Question 40 :

Study the following bar graph and answer the given question The no of companies whose production of motorcycles is equal to or more than the average demand of motorcycles is:

Difficulty : Moderate **Average Time : 60 Seconds**

Options :

1. 3
2. 4
3. 1
4. 2

Solution :

Note: This question has been modified since it was incorrect according to the answer key provided by SSC.

The correct answer is option **1** i.e. **3**

Average demand of motorcycles = (50 + 45 + 60 + 65 + 55)/5 = 275/5 = 55

No. of companies whose production is greater than 55 = 3

Question 41 :

The internal diameter of a hollow hemispherical vessel is 2.4 cm. It is made of a steel sheet which is 0.5 cm thick. What is the total surface area (in cm2) of the vessel?

Difficulty : Moderate **Average Time : 55 Seconds**

Options :

600.5

2. 600.2
3. 468.75
4. 612.75

Solution :

The correct answer is **4** i.e. **612.75**

Explanation :

Internal diameter of hollow hemispherical vessel = 24 cm

Internal radius (r)=24/2=12 cm

External Radius (R)= r + thickness of sheet

= 12 + 0.5 = 12.5 cm

Surface area of internal vessel = $2 \times r^2 = 2 \times 12^2 = 288$

Surface area of external vessel = $2R^2 = 2(12.5)^2 = 312.5$

Surface area of ring = $(R^2 - r^2)$

$= (12.5^2 - 12^2)$

$= (156.25 - 144)$

$= 12.25$

T.S.A = 288 + 312.5 + 12.25

= 612.75

Question 42 :

In a triangle ABC, D & E are the points on AB & AC respectively such that DE is parallel to AC & AD : AB = 3 : 8, then (area of ADE) : (area of quad DEBC) is :

Difficulty : Moderate

Average Time : 107 Seconds

Options :

1. 9 : 55
2. 9 : 64

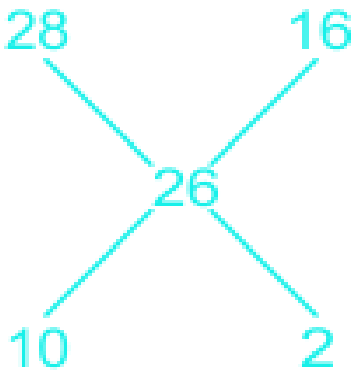
25 : 39

4. 8 : 13

Solution :

Note: The question has been modified since it was incorrect according to the answer key released by SSC

The correct answer is option **1** i.e **9 : 55**



Given, AD : AB = 3 : 8

As triangle ADE is similar to triangle ABC,

by the property of similar triangles,

$(AD: AB)^2$ = area (triangle ADE) / area (triangle ABC)

9 : 64 = area(triangle ADE) / area (triangle ABC)

From this, area of quadrilateral (DEBC) = 64 - 9 = 55

Hence,

Area of the triangle (ADE) / Area of quadrilateral (DEBC) = 9: 55

Question 43 :

Monika spends 72% of her income. If her income increases by 20% & savings increases by 15%, then her expenditure increases by:

Difficulty : Moderate | **Average Time : 83 Seconds**

Options :

1. 19.8%

20.2%

3. 21.9%
4. 20.8%

Solution :

The correct answer is **option 3** i.e. **21.9%**.

Let monika's total income be 100

with 20% increase her income is 120

Initial expenditure = 100 × 72% = 72

Initial savings = 100 - 72 = 28

After increasement

New savings = 28 + 28 × 15% = 28 + 4.2 = 32.2

New expenditure = 120 - 32.2 = 87.8

Increase in expenditure = 87.8 - 72 = 15.8

Percentage increase = (15.8/72) 100 = 21.9%

Question 44 :

The marked price of an article is Rs. 1500. If the two successive discounts each of x% on the marked price is equal to a single discount of Rs. 587.40, then what will be the selling price of the article of a single discount of x% is given on the marked price?

Difficulty : Moderate | **Average Time : 60 Seconds**

Options :

1. Rs.1025
2. Rs.1155
3. Rs.1200
4. Rs. 1170

Solution :

The correct option is **4** i.e. **Rs1170**.

Explanation:

MP= 1500

After two successive discounts of x %

- x % , -x% Rs. 587.40

$$\frac{587.40}{1500} \times 100 = 39.16\%$$

-x% + (-x)% = -39.16%

x = 22%

= 1500 × 0.70

= 1170

Question 45 :

Pipes A and B are filling pipes while pipe C is an emptying pipe. A and B can fill a tank in 72 and 90 min respectively. When all the three pipes are opened together, the tank gets filled in 2 hrs. A and B are opened together for 12 minutes, then closed and C is opened. The tank will be empty after ?

Difficulty : Moderate **Average Time : 76 Seconds**

Options :

1. 12 minutes
2. 18 minutes
3. 16 minutes
4. 15 minutes

Solution :

The correct answer is **option 2** i.e. **18 minutes.**

A: 72 5

B: 90 4 LCM 360

A + B work in 2 hrs = (5 + 4) 120

= 1080

But the capacity of tank is 360

= 1080 - 720 = 360

(720 = work done by C)

= 720/120 = 6 units/minute

(A + B)'s 12 min work = 9 × 12 = 108

C's time to complete 108 work = 108/6

= 18 min

Question 46 :

Sudha brought 80 articles at the same price. She sold some of them at 8% profit and the remaining at 12% loss resulting in the overall profit of 6%. The number of items sold at 8% profit is?

Difficulty : Moderate **Average Time : 86 Seconds**

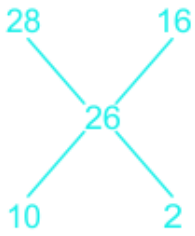
Options :

1. 60
2. 64
3. 72
4. 70

Solution :

The correct answer is **option 3** i.e. **72**

Explanation:



9 : 1

9x + 1x = 80

x = 8

9x = 9 × 8 = 72

Question 47 :

In an office, 5/8 of the total number of employees are males and the rest are females, 2/5 of the males are non-technical workers while 2/3 of the numbers of females are technical workers. What fraction of the total no. of the employees are technical workers ?

Difficulty : Moderate **Average Time : 67 Seconds**

Options :

1. 1/2
2. 3/8
3. 5/8
4. 2/5

Solution :

The correct answer is option **3** i.e. **5/8**.

Let the total no. employees be 8

Let the total no. of male employees = 8 × 8/5 = 5

Let the total no. of female employees = 8 - 5 = 3

No of technical workers = 5 × 2/5 = 2

Technical male workers = 5 - 2=3

Technical female workers = 3 × 2/3 = 2

Total no. of technical workers = 3 + 2 = 5

Fraction of the total no of technical worker = (Total number of workers)/(Total number of employees) = 5/8

Question 48 :

A sum is divided among A, B, C, D such that the ratio of the shares of A & B is 2 : 3, that of B and C is 1 : 2 and that of C and D is 3 : 4. If the difference b/w the shares of A& D is 648, then the sum of the shares of A, B, C, D is:

Difficulty : Moderate **Average Time : 81 Seconds**

Options :

1. Rs. 2052
2. Rs. 2484

Rs. 1944

4. Rs. 2160

Solution :

Note: The question has been modified since it was incorrect according to the answer key released by the SSC.

The correct answer is option **1** i.e **Rs 2,052**

A : B : C : D

2 : 3 : 6 : 8

Diff bw A & D = 8 - 2 = 6

6 parts = 648

1 part = 648/6 = 108

Sum of the shares of A, B, C, D = (2 + 3 + 6 + 8) × 108

= 19 × 108

= Rs. 2,052

Question 49 :

P & Q are two points on the ground on either side of a pole. The angles of elevation of the top of the pole as observed from P & Q are 60 and 30 respectively and the distance between them is 843 m. What is the height (in m) of the pole?

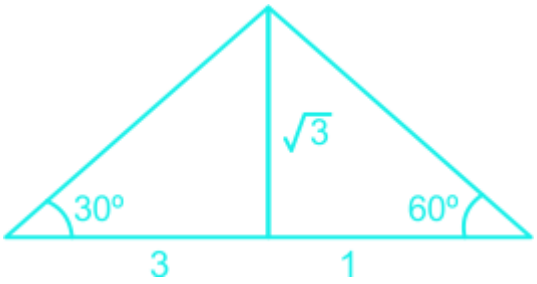
Difficulty : Moderate | **Average Time : 90 Seconds**

Options :

1. 60
2. 63
3. 73.5
4. 52.5

Solution :

The correct option is **2** i.e. **63**.



3 + 1 4x

4x 843

x 213

3x = 213 × 3 = 63

Question 50 :

A person invested one-fourth of the sum of Rs. 25000 at a certain rate of simple interest and the rest at 4% p.a higher rate. If total interest received for 2 years is Rs. 4125, What is the rate at which the second sum was invested?

Difficulty : Moderate **Average Time : 64 Seconds**

Options :

1. 9.25%
2. 7.5%
3. 5.25%
4. 9.5%

Solution :

Thje correct option is **1** i.e. **9.25%**.

1 : 3

(x%) (x+4)%

$\frac{4125}{25000} \times 100 = 16.5\%$ for 2 yrs

for 1 yr = 8.25%

$$\frac{1\times x+3\times(x+4)}{4}=8.25$$

x = 5.25

x + 4 = 9.25

Question 51 :

The average age of 120 students in a group in 13.56 yrs, 35% of the number of students are girls and the rest are boys. If the ratio of the average age of boys and girls is 6 : 5, then what is the average age (in yrs) of the girls?

Difficulty : Moderate

Average Time : 77 Seconds

Options :

1. 10
2. 14.4
3. 11.6
4. 12

Solution :

The correct answer is **4** i.e. **12**

Total students = 120

No. of girls = 120 (35/100) = 42

No. of boys = 120 - 42 = 78

Total age of 120 student = 13.56 (120) = 1627.2

Let the average age of boys and girls be 6x & 5x

Total age of girls = 42(5x) = 210x

Total age of all boys = 78(6x) = 468x

Total age of 120 student = Total age of all girls + total age of all boys

1627.2 = 210x + 468x

x = 2.4

Average age of girls = 5x = 5 × 2.4 = 12

Question 52 :

The value of is closest to?

Difficulty : Moderate **Average Time : 72 Seconds**

Options :

1. 7.2
2. 5.8
3. 6.1
4. 6.5

Solution :

The correct answer is option **4** i.e. **6.5**

$$\sqrt{(28+10\sqrt{5})}-\sqrt{7-4\sqrt{3}}$$

$$\sqrt{(5+\sqrt{3})^2}-\sqrt{(2-\sqrt{3})^2}$$

$$5+\sqrt{3}-(2-\sqrt{3})$$

$$=3+2\sqrt{3}$$

$$3+2\times(1.71)$$

3 + 3.42 = 6.42

Question 53 :

The value of 24 × 2 ÷ 12 + 12 ÷ 6 of 2 ÷ (15 ÷ 8 × 4) of (28 ÷ 7 of 5) is ?

Difficulty : Moderate **Average Time : 47 Seconds**

Options :

1. $4\frac{2}{3}$

$4\frac{32}{75}$

3. $4\frac{8}{75}$
4. $4\frac{1}{6}$

Solution :

The correct answer is option **4** ie $4\frac{1}{6}$

24 × 2 ÷ 12 + 12 ÷ 6 of 2 ÷(15 ÷ 8 × 4) of (28 ÷ 7 of 5)

Using BODMAS

= 24 × 2 ÷ 12 + 12 ÷ 12 ÷ (15 ÷ 8 × 4) of (28 ÷ 35)

= 24 × 2 ÷ 12 + 12 ÷ 12 ÷ (7.5) of (0.8)

= 24 × 2 ÷ 12 + 12 ÷ 12 ÷ 6

= 4 + 1/6

= $4\frac{1}{6}$

Question 54 :

A can do one third of a work in 15 days, B can do 75% of the same work in 18 days and C can do the same work in 36 days. B & C work together for 8 days. In how many days will A alone complete the remaining work?

Difficulty : Moderate | **Average Time : 104 Seconds**

Options :

1. 18
2. 20
3. 16
4. 24

Solution :

The correct answer is option **2** i.e. **20 days**.

A = 45 days

B = 24 days

C = 36 days

LCM = 360

B + C work for 8 days

Totak work done = (15 + 10) 8 unit

= 25 × 8 = 200 units

Work left = 360 - 200 = 160 units

Days for A to complete the remaining work = 160/8 = 20 days

Question 55 :

A circle touches the side BC of triangle ABC at D & AB and AC is produced to E and F respectively to touch the circle. If AB = 10 cm, AC = 8.6 cm & BC = 6.4 cm then BE = ?

Difficulty : Moderate **Average Time : 73 Seconds**

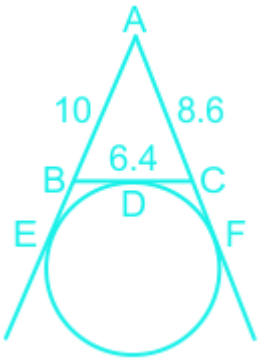
Options :

1. 3.5 cm
2. 2.2 cm
3. 3.2 cm
4. 2.5 cm

Solution :

Note: The question has been modified since it was incorrect according to the answer key released by the SSC.

The correct answer is option **4** i.e **2.5 cm**.



Given: AB = 10 cm, BC = 6.4 cm, AC = 8.6 cm

As the circle touches side BC at D, let BD = x, DC = y

BD + DC = 6.4 (Given in the question)

x + y = 6.4 ---------- eqn (1)

Then,

BE = x, CF = y (Lengths of tangents from the same point outside the circle are equal)

As AE touches the circle at point E and AF touches the circle at point F only:

AE = AF

AB + BE = AC + CE

10 + x = 8.6 + y

y - x = 1.4 ---------- eqn (2)

From eqn 1 and eqn 2, we get,

x = 2.5 cm = BE

Question 56 :

A 15 m deep well with radius 2.8 m is dug and the earth taken out from it is spread evenly to form a platform of breadth 8 cm and height 1.5 m. What will be the length of the platform?

Difficulty : Moderate **Average Time : 114 Seconds**

Options :

1. 28.4
2. 28.8
3. 30.8
4. 30.2

Solution :

The correct answer is option **3** i.e. **30.8 m**.

Volume of earth is equal to the volume of the well so

r = 2.8 h = 15m

Volume of earth = $r^2 h = 22/7 \times 2.8^2 \times 15 = 369.6\ cm^3$

Volume of earth = Volume of platform

so,

platform volume = length × breadth × height

369.6 = 8 × 1.5 × length

length = 369.6/12

length = 30.8 m

Question 57 :

An article was sold at a profit of 14%. Had it been sold for Rs. 121 less , a loss of 8% would have been incurred. If the same article would have been sold for Rs. 536.25, then the profit/loss percent would have been?

Difficulty : Moderate **Average Time : 86 Seconds**

Options :

1. Loss 5%
2. Loss 2.5%
3. Profit 2.5%
4. Profit 5%

Solution :

The correct answer is **option 2** i.e. **loss 2.5%**.

Trick:

14% + 8% = 121

22% = 121

1% = 5.5

Now,

550 = normalizing prize

if the product have been sold at 536.25

Then

[(550 - 536.25)/550] × 100 = [13.75/550] × 100 = 2.5%

Hence, loss of 2.5% would have been incurred.

Question 58 :

A, B & C started a business. Thrice the investment of A is equal to twice the investment of B and also equal to four times the investment of C. If C's share out of the total profit is Rs. 4863, then the share of A in the profit is:

Difficulty : Moderate **Average Time : 74 Seconds**

Options :

1. Rs.7272
2. Rs.9726
3. Rs.8105
4. Rs. 6484

Solution :

The correct answer is option **4** i.e. **Rs 6484**.

A : B : C

4 : 6 : 3

3 parts = 4863

1 part = 4863 /3 = 1621

share of A = 4 × 1621

= 6484

Question 59 :

If then the value of is ?

Difficulty : Moderate **Average Time : 53 Seconds**

Options :

1. 11/3
2. 35/3
3. 31/3

25/3

Solution :

The correct answer is option **3** i.e. **31/3**.

$$\frac{3(x^2+1)-7x}{3x} = 6$$

$$\frac{x(3(x+\frac{1}{x})-7)}{3x} = 6$$

$$(x+\frac{1}{x}) - \frac{7}{3} = 6$$

$$x+\frac{1}{x} = \frac{25}{3}$$

$$x+\frac{1}{x} = +2 = \frac{25}{3} + 2$$

$$\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{\frac{31}{3}}$$

Question 60 :

What is the area (in sq. units) of the triangular region enclosed by the graphs of the equations x + y = 3, 2x + 5y = 12 & the x axis?

Difficulty : Moderate

Average Time : 55 Seconds

Options :

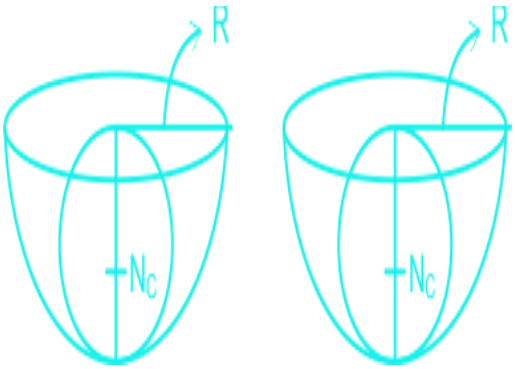
1. 4
2. 3
3. 2
4. 6

Solution :

The correct answer is **option 2** i.e. **3**

Now x + y = 3 can be written as $\frac{x}{3} + \frac{y}{3} = 1$

2x + 5y = 12 can be written as $\frac{x}{6} + \frac{y}{(\frac{12}{5})} = 1$



Point of intersection

x = 3 - y

6 - 2y + 5y = 12

y = 2

x = 1

Point of Intersection = (1, 2)

Area of triangle = 1/2 × base × height

= 1/2 × 3 × 2 = 3 sq. unit

Question 61 :

The value of cosec(67° +) - sec(23°-) + cos15°cos35°cosec55°cos60°cosec75° is ?

Difficulty : Moderate

Average Time : 88 Seconds

Options :

1. 0
2. 2
3. 1
4. 1/2

Solution :

The correct answer is option **4** i.e. **1/2**.

We know that,

cos (x)- sec (y)=0 , if [x° + y° =90°]

so,

= cosec(67° +) - sec(23°-) = 0

= cos15° cos35° cosec55° cos60° cosec75°

= cos15° cos35° sec35° cos60° sec15° [as cosec (90 -)=sec]

= cos15°sec15° cos35° sec35° cos60°

= cos 60° [cos sec =1]

= 1/2

Question 62 :

The value of is?

Difficulty : Moderate **Average Time : 78 Seconds**

Options :

1. 1
2. - 1
3. 2
4. - 2

Solution :

The correct answer is option **1** i.e. **1**.

Put = 0°

$$\frac{2(\sin^6\theta+\cos^6\theta)-3(\sin^4\theta+\cos^4\theta)}{\cos^4\theta-\sin^4\theta-2\cos^2\theta}$$

$$=\frac{2(0+1)-3(0+1)}{1-0-2}$$

$$=\frac{2-3}{-1}=-\frac{1}{-1}=1$$

Question 63 :

Let x = ({27}^{1/6} - {sqrt{6 {3over4}}}) and y =({{sqrt {45}} + {sqrt {605}} +{sqrt {245}}}over {{sqrt {80}}+ {sqrt {125}}}), then the value of $x^2 + y^2$ is?

Difficulty : Moderate

Average Time : 51 Seconds

Options :

1. 221/9
2. 227/9
3. 221/36
4. 223/36

Solution :

The correct answer is **option 4** i.e. **223/36**

x = \({27}^{1/6} - {\sqrt{6 {3\over4}}}\)

= \({\sqrt 3} - {\sqrt{27\over4}}\)

= \({\sqrt 3} - {3\over2}{\sqrt{3}}\)

= \(- {{\sqrt{3}}}\over 2\)

$x^2 = 3/4$

y = \({{\sqrt {45}} + {\sqrt {605}} +{\sqrt {245}}}\over {{\sqrt {80}}+ {\sqrt {125}}}\)

y = \({3{\sqrt {5}} + {11\sqrt {5}} +{7\sqrt {5}}}\over {{4\sqrt {5}}+ {5\sqrt {5}}}\)

y = \({21{\sqrt {5}}}\over {9\over5}\)

$y^2 = 2205/405 = 49/9$

Now, $x^2 + y^2 = 3/4 + 49/9 = (196 + 27)/36 = 223/36$

Question 64 :

The price of oil is increased by 20%. However , its consumption decreased by 8.33%. What is the % increase or decrease in the expenditure on it?

Difficulty : Moderate

Average Time : 84 Seconds

Options :

1. Increase by 10%
2. Increase by 5%
3. Decrease by 10%

Decrease by 5%

Solution :

The correct answer is option **1** i.e. **increase by 10%**.

P × C = E

where P = price

C = consumption

E = expenditure

$$\left(P+\frac{P}{5}\right)\times\left(C-\frac{25}{300}C\right)=E$$

$$\frac{6P}{5}\times\frac{11C}{12}=E$$

$$\frac{11}{10}PC=E$$

$$PC\times\frac{11}{10}=E$$

i.e. increases by 10%.

Question 65 :

The sides of a triangle are 12, 35 and 37 cm. What is the circumradius of the triangle?

Difficulty : Moderate | **Average Time : 62 Seconds**

Options :

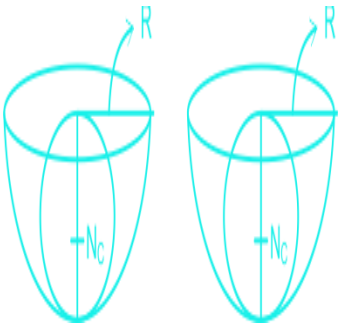
1. 18.5 cm
2. 17.5 cm
3. 19 cm
4. 17 cm

Solution :

The correct answer is option **1** i.e. **18.5 cm**.

Sides of the triangle are 12 cm , 35 cm, and 37 cm

As these numbers form a Pythogoreon triplet. So the triangle in the question is Right Angled Triangle.



Now, Circumradius = 1/2 × Hypotenuse [For a right angled triangle]

Hence,

Circumradius = 37/2 = 18.5 cm

Question 66 :

The selling price of an article is 32% more than its cost price & the discount offered on its marked price is 12%, then what is the ratio of its cost price to the marked price?

Difficulty : Moderate **Average Time : 75 Seconds**

Options :

1. 2 : 3
2. 4 : 5
3. 3 : 8
4. 1 : 2

Solution :

The correct answer is **option 1** i.e. **2 : 3**

SP = 132% of CP

SP = 88% of MP

Now

132% of CP = 88% of MP

CP/MP = 88/132

CP/MP = 2/3

CP : MP = 2 : 3

Question 67 :

The given pie chart shows the break up of total marks obtained by a student in five subjects A,B,C,D,E. The maximum marks in each subject is 150 & he obtained a total of 600 marks In how many subjects did the student obtain more than his average score?

Difficulty : Moderate

Average Time : 55 Seconds

Options :

1. 2
2. 3
3. 4
4. 1

Solution :

The correct option is **1** i.e. **2**

Average angle = 360/5 = 72°

Subjects having more than 72° angle = 2

Question 68 :

A tank is in the form of a cuboid with length 12 m. If 18 kilolitre of water is removed from it, the water level goes down by 80 cm. What is the width (in m) of the tank?

Difficulty : Moderate

Average Time : 48 Seconds

Options :

1. 4.5
2. 4
3. 5.5
4. 5

Solution :

The correct answer is option **4** i.e. **5**.

Volume of water = 18 kl = 18 cubic meter

length of cuboid = 12 m

Height = 30 cm = 0.3 m

Volume of water = length × width × Height

18 = 12 × 0.3 × width

width = 5 m

Question 69 :

A person buys 80 kg of rice and sells it at a profit of as much money he paid for 30 kg. His profit % is?

Difficulty : Moderate **Average Time : 58 Seconds**

Options :

1. 37.5
2. 40
3. 27.27
4. 35

Solution :

The correct answer is **option 1** i.e. **37.5**

Given:

Cost price of 30 kg = profit

Let us assume

1 kg = 1 Rs. (CP)

80 kg = 80 Rs. (CP)

SP = 80 + 30 + 110

Profit percentage = (30/80)100 = 37.5%

Question 70 :

The radius of the base of a right circular cylinder is 3 cm & its curved surface area is 60 cm^2. The volume of cylinder (in cubic cm) is:

Difficulty : Moderate **Average Time : 49 Seconds**

Options :

72

2. 90
3. 60
4. 81

Solution :

The correct answer is option **2** i.e. **90**

Radius (r) = 3 cm

Curved surface area = 2 × r × h

60 = 2 × r × h

h = 10

Volume of cylinder = $r^2 h$ = × 3^2 × 10 = 90

Question 71 :

Walking at 60% of his usual speed, a man reaches his destination 1 hr 40 minutes late. His ususal time (in hrs.) to reach the destination is:

Difficulty : Moderate | **Average Time : 62 Seconds**

Options :

1. 2 hour 15 minutes
2. 3 hour 30 minutes
3. 3 hour 15 minutes
4. 2 hour 30 minutes

Solution :

The correct answer is option **4** i.e. **2 hour 30 minutes.**

Speed = 3 : 5

Time = 5 : 3

Difference of time = 2 unit = 1 hr 40 min

1 unit = 50 min

Actual time = 3 unit = 2 h 30 min

Question 72 :

Study the graph and answer the question: The ratio of the total demand of motorcycle of companies A, C and F to the total production of motorcycles of B & C is?

Difficulty : Moderate

Average Time : 54 Seconds

Options :

1. 2 : 1
2. 11 : 10
3. 3 : 2
4. 1 : 1

Solution :

The correct answer is option **3** i.e. **3 : 2**.

Demand of A, C, F is 50, 60, 55 respectively.

Production of B & C is 38 & 72

Ratio = 165/110 = 3/2

Question 73 :

The radius & the height of a right circular cone are in the ratio 5 : 12. Its curved surface area is 816.4cm2. What is the volume (cm3) of the cone?

Difficulty : Moderate

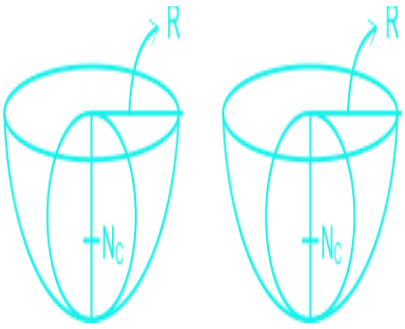
Average Time : 50 Seconds

Options :

1. 1256
2. 3140
3. 628
4. 2512

Solution :

The correct answer is option **4** i.e. **2512.**



Given: $\frac{Radius}{Height} = \frac{5}{12}$

CSA of cone = rl

$$\pi rl = 816.4$$

$$\pi \times 5k \times 13k = 816.4$$

$$3.14 \times 5k^2 = \frac{816.4}{13}$$

$$5k^2 = \frac{\cancel{62.8}}{\cancel{3.14}} 20$$

$$k^2 = \frac{20}{5} = 4$$

$$k = 2$$

Radius = 10 , Height = 24 , l = 26

Volume of cone = 1/3 x 3.14 x 100 x 24 = 314 x 8 = 2512 cm^3

Question 74 :

If in triangle PQR, P = 120º, PS is perpendicular to QR at S and PQ + QS = SR, the measure of Q is:

Difficulty : Moderate | **Average Time : 77 Seconds**

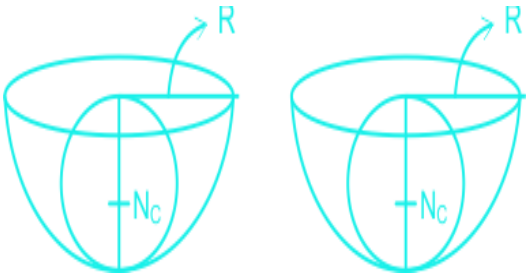
Options :

1. 40°
2. 50°
3. 20°

30°

Solution :

The correct answer is option **1** i.e. **40°**



Let the PQ = x & QS = y then SR = PQ + QS = x + y

Take a point T on the SR so that QS = ST = y

TR = SR - ST = x + y - y = x

PT = TR = x [Since QS = ST]

Now,

TPR + TRP + PTR = 180

(TPR = TRP = x)

PTR = 180 - 2x

So,

PTS = 180 - (180 - 2xâ€‹â€‹â€‹â€‹â€‹) = 2x

PTS = PQS = 2x (QP = PT)

Now,

PQR + QRP + RPQ = 180

2x + x = 180 - 120

x = 20

Hence,

Q = 2x = 40°

Question 75 :

The value of is?

Difficulty : Moderate

Average Time : 110 Seconds

Options :

1. 0
2. 1
3. -1
4. 1/2

Solution :

The correct option is **2** i.e. **1**

Putting = 45°

$$\frac{\sin\theta+\cos\theta-1}{\sin\theta-\cos\theta+1}\times\frac{\tan^2\theta\,(\csc^2\theta-1)}{\sec\theta-\tan\theta}$$

$$=\frac{\sin\theta+\cos\theta-1}{\sin\theta-\cos\theta+1}\times\frac{\tan^2\theta\cot^2\theta}{\sec\theta-\tan\theta}$$

$$=\frac{\sin\theta+\cos\theta-1}{\sin\theta-\cos\theta+1}\times\frac{1}{\sec\theta-\tan\theta}$$

$$\sqrt{2}-1\times\frac{1}{\sqrt{2}-1}\ [\theta=45°]$$

$$=1$$

Question 76 :

In a circle with centre O, ABCD is a cyclic quadrilateral & AC is a diameter. Chords AB & CD are produced to meet at E. If CAE = 34º and E = 30º, then CBD is equal to?

Difficulty : Moderate

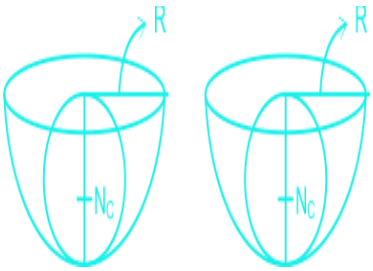
Average Time : 54 Seconds

Options :

1. 36°
2. 24°
3. 26°
4. 34°

Solution :

The correct answer is option **3** i.e. **26°**



CAE = 34º and E = 30º

ADC = 90º [Since AC is the diameter]

ACD = CAE + E [External angle theorem]

ACD = 34 + 30 = 64º

Now,

DAC = 180 - (90 + 64) = 180 - 154 = 26º

Now, arc CD makes an angle 26° i.e. DAC

We know that an arc subtends equal angles

Hence, CBD = 26° (angles subtended by an arc are equal)

Question 77 :

A, B & C started a business with their capitals in the ratio 2 : 3 : 5. A increased his capital by 50% after 4 months, B increased his capital by 33.33 % after 6 months and C withdrew 50% of his capital after 8 months, from the start of the business. If the total profit at the end of the year was 86800, then the difference between the shares of A & C in the profit was?

Difficulty : Moderate

Average Time : 102 Seconds

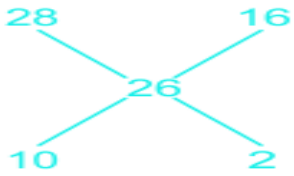
Options :

1. 12600
2. 7000
3. 8400
4. 9800

Solution :

The correct answer is option **1** i.e. **12600**

Investment ratio = 2 : 3 : 5



16 : 21 : 25

16x + 21x + 25x = 86800

62x = 86800

x = 1400

Difference = 25x - 16x

Difference = x(25 - 16)

Difference = 1400 × 9 = 12600

Question 78 :

The base of a right pyramid is an equilateral triangle with area 163 cm2. If the area of one of its lateral faces is 30 cm2 then its height (in cm) is?

Difficulty : Moderate

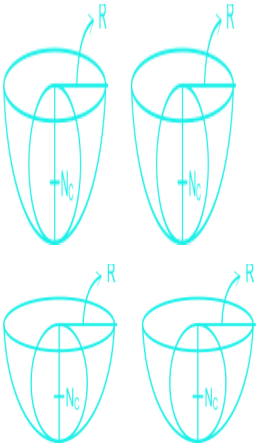
Average Time : 68 Seconds

Options :

1. 611/12
2. 643/12
3. 209/12
4. 739/12

Solution :

The correct answer is option is **1** i.e. **611/12**



Base = Equilateral triangle

Area = 163 cm²

$\frac{\sqrt{3}}{4}a^2 = 16\sqrt{3}$, $a = \sqrt{16 \times 4} = 8$

$\frac{1}{2} \times l \times 8 = 30$

$l = \frac{30 \times 2}{8} = l = \frac{15}{2}$

r = a/23 = 8/23 = 4/3

Now

$h^2 + r^2 = l^2$

$h^2 = l^2 - r^2$

$h^2 = 225/4 - 16/3 = 611/3$

h = (611/3)

Question 79 :

A, B, C spend 80%, 85% & 75% of their incomes respectively. If their savings are in the ratio 8 : 9 : 20 & the difference between the incomes A & C is 18000, then the income of B is?

Difficulty : Moderate | **Average Time : 120 Seconds**

Options :

30000

2. 36000
3. 24000
4. 27000

Solution :

The correct answer is option **4** i.e. **27000**

Let the salary of A, B & C be a, b, c respectively.

Saving of A = a(20/100)

Saving of B = b(15/100)

Saving of C = c(25/100)

According to question:

a(20/100) : b(15/100) : c(25/100) = 8 : 9 : 20

a(1/5) : b(3/20) : c(1/4) = 8 : 9 : 20

a : b : c = 40 : 60 : 80 = 2 : 3 : 4

Let the income of A, B & C be 2x, 3x, 4x

Difference between the incomes of A & C = 18000

2x = 18000

x = 9000

Income of B = 3 × 9000 = 27000

Question 80 :

The value of $\sin^2 64° + \cos 64° \sin 26° + 2\cos 43° \operatorname{cosec} 47°$ is?

Difficulty : Moderate

Average Time : 78 Seconds

Options :

1. 2
2. 3
3. 1

4

Solution :

The correct answer is **option 2** i.e. **3**

$\sin^2 64° + \cos 64°\sin 26° + 2\cos 43°\text{cosec}47°$

$= \sin^2 64° + \cos 64°\sin 26° + 2\cos 43°/\sin 47°$

$= \sin^2 64° + \cos 64°\sin 26° + 2 \times 1$

as cosx/siny = 1, if x + y = 90°

$= \sin^2 64° + 2 + \cos 64°\cos 64°$

$= 2 + \sin^2 64° + \cos^2 64°$

$= 2 + 1 = 3$

Question 81 :

A sphere of maximum volume is cut out from a solid hemisphere. What is the ratio of the volume of the sphere to that of the remaining solid?

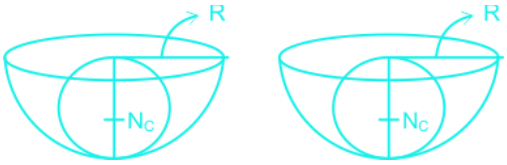
Difficulty : Moderate **Average Time : 73 Seconds**

Options :

1. 1 : 1
2. 1 : 2
3. 1 : 4
4. 1 : 3

Solution :

The correct answer is option **3** i.e. **1 : 4**



Volume of sphere = $\frac{4}{3}\pi \times \left(\frac{R}{2}\right)^3$

$$\frac{4}{3}\pi \times \left(\frac{R}{8}\right)^3 = \frac{\pi R^3}{6}$$

Volume of hemishpere = $\frac{2}{3}\pi R^3$

Ratio $= \frac{\pi R^3}{6 \times 2\pi R^3} \times 3 = \frac{3}{12} = \frac{1}{4}$

Question 82 :

A sum of Rs. 10500 amounts to Rs. 13825 inyrs at a certain rate percent per annum simple interest. What will be the simple interest on the same sum for 5 yrs at double the earlier rate?

Difficulty : Moderate **Average Time : 84 Seconds**

Options :

1. Rs. 8470
2. Rs.8560
3. Rs. 8750
4. Rs.8670

Solution :

The correct answer is option **3** i.e. **Rs. 8750**

According to the first statement,

$S.I._1 \times 100 = (P \times R_1 \times T_1)$

S.I. = 13825 - 10500

$R_1 = (3325 \times 100) / (10500 \times 19/5)$

$R_1 = (3325 \times 100) / (2100 \times 19)$

$R_1 = 3325 / (21 \times 19)$

According to the second statement,

$S.I._2 \times 100 = (P \times R_2 \times T_2)$

$S.I._2 \times 100 = (P \times 2R_1 \times 5)$ âˆµ $R_2 = 2R_1$ & $T_2 = 5$

$S.I._2 \times 100 = 10500 \times 2\ [3325 / (21 \times 19)] \times 5$

$S.I._2$ = Rs. 8750

Shortcut Method:

$$R \times \frac{19}{5} = 13825 - 10500$$

$$\frac{R \times \frac{19}{5}}{10R} = \frac{3325}{x}$$

$$x = 50 \times 175 = 8750$$

Question 83 :

If the measure of each interior angle of a regular polygon is , then the ratio of the no. of its diagonals to the number of its sides is:

Difficulty : Moderate **Average Time : 137 Seconds**

Options :

1. 3 : 1
2. 13 : 6
3. 5 : 2
4. 2 : 1

Solution :

The correct answer is option **4** i.e. **2 : 1**

Exterior angle of a regular polygon = 360/n

(n = number of sides of polygon)

Then,

$51\frac{3}{7}^{\circ}$ = 360/n

360/7 = 360/n

n = 7

No. of diagonals = $\frac{[n(n-3)]}{2} = \frac{7(7-3)}{2} = 14$

Hence,

Ratio of the no. of its diagonals to the number of sides = 14 : 7 = 2 : 1

Question 84 :

A right prism has height 18 cm and its base is a triangle with sides 5 cm, 8 cm and 12 cm. What is the lateral surface area in cm2?

Difficulty : Moderate **Average Time : 84 Seconds**

Options :

1. 450
2. 468
3. 486
4. 436

Solution :

The correct answer is option **1** i.e. **450**

LSA = Base area × Height

LSA = 25 × 18 = 450

Question 85 :

ab(a - b) + bc(b - c) + ca(c - a) is equal to:

Difficulty : Moderate **Average Time : 43 Seconds**

Options :

1. (b - a)(b - c)(c - a)
2. (a + b)(b - c)(c - a)
3. (a - b)(b + c)(c - a)
4. (a - b)(b - c)(c - a)

Solution :

The correct answer is option **1** i.e. **(b - a)(b - c)(c - a).**

Trick: Asumes values of a, b, c

Let us assume a = 1, b = 2, c = 3

= 2(-1) + 6(-1) + 3(2)

= - 2

Now check the value of options

Question 86 :

Basir's working hours per day were increased by 15% and his wages per hour were increased by 20%. By how much percent did his earnings increase?

Difficulty : Moderate **Average Time : 65 Seconds**

Options :

1. 40
2. 36
3. 38
4. 35

Solution :

The correct answer is option **3** i.e. **38**

increment in working hour = 15%

increment in wages = 20%

Let the working hours before the increment be 10 hours and daily wages per hour be Rs10

Daily wages of basir = 10 × 10 = 100

working hours after increment = 10 × (115/100) = 11.5

Daily wages per hour before increment = 10 × (120/100) = 12

Daily wages of Basir after increment = 11.5 × 12 = 138

increment in his daily earning = 138 - 100 = 38

% increment in his daily earning = (38/100) × 100 = 38%

Question 87 :

If $2\cos^2 + 3\sin = 3$ where 0° 90 , then what is the value of $\sin^2 2 + \cos^2 + \tan^2 2 + \text{cosec}^2 2$?

Difficulty : Moderate

Average Time : 77 Seconds

Options :

1. 35/6
2. 29/6
3. 35/12
4. 29/3

Solution :

The correct answer is option **1** i.e. **35/6**

$2\cos^2 + 3\sin = 3$

putting the value of = 30°

$$2 \times \frac{3}{4} + \frac{3}{2} = 3$$

LHS = RHS

Now,

$\sin^2 2 + \cos^2 + \tan^2 2 + \text{cosec}^2 2 = \sin^2 60 + \cos^2 30 + \tan^2 60 + \text{cosec}^2 60$

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

$$= \frac{9+9+36+16}{12}$$

$$= \frac{18+36+16}{12} = \frac{35}{6}$$

Question 88 :

If 25% of half of x is equal to 2.5 times the value of 30% of one fourth of y, then what % more or less than y?

Difficulty : Moderate

Average Time : 106 Seconds

Options :

1. 50% more
2.

$33\frac{1}{3}\%$ more

3. $33\frac{1}{3}\%$ less

4. 50% less

Solution :

The correct answer is option **1** i.e. **50% or more**.

According to question,

$$x \times \frac{1}{2} \times \frac{25}{100} = y \times 2.5 \times \frac{1}{4} \times \frac{30}{100}$$

$$\frac{x}{8} = \frac{3y}{40} \times 2.5$$

$$x = \frac{3y}{2}$$

$$x = \frac{3y}{2} \times 100 = 150\% \ of \ y$$

Hence, x is 50% more than y.

Question 89 :

a, b and c are three fractions such that a b c. If c is divided by a, the result is 9/2, which exceeds b by 23/6. The sum of a, b and c is 19/12. What is the value of (2a + b - c)?

Difficulty : Moderate

Average Time : 69 Seconds

Options :

1. 1/3

2. 1/12

3. 1/4

4. 1/2

Solution :

The correct answer is **option 3** i.e. **1/4**

$$\frac{c}{a}=\frac{9}{2}$$

$$c=\frac{9a}{2}$$

$$b+\frac{23}{6}=\frac{9}{2}$$

$$b=\frac{9}{2}-\frac{23}{6}=\frac{2}{3}$$

$$a+b+c=\frac{19}{12}$$

$$a+\frac{2}{3}+\frac{9a}{2}=\frac{19}{2}$$

$$\frac{11a}{2}=\frac{19}{2}-\frac{2}{3}$$

$$\frac{11a}{2}=\frac{11}{12}$$

$$a=\frac{1}{6}$$

$$c=\frac{9}{2}\times\frac{1}{6}=\frac{3}{4}$$

$$2a+b-c=\frac{2}{6}+\frac{2}{3}-\frac{3}{4}=\frac{3}{12}=\frac{1}{4}$$

Question 90 :

If (5x + 2y) : (10x + 3y) = 5 : 9, then (2x2 + 3y2) : (4x2 + 9y2) = ?

Difficulty : Moderate

Average Time : 43 Seconds

Options :

1. 16 : 47
2. 10 : 27
3. 1 : 3
4. 31 : 87

Solution :

The correct answer is option **4** i.e. **31 : 87**

(5x + 2y) : (10x + 3y) = 5 : 9

$$\frac{5x+2y}{10x+3y}=\frac{5}{9}$$

$$45x+18y=50x+15y$$

$$3y=5x$$

$$\frac{y}{x}=\frac{5}{3}$$

$$\frac{y^2}{x^2}=\frac{25}{9}$$

Now,

$(2x^2 + 3y^2) : (4x^2 + 9y^2)$

$$\frac{2x^2+3y^2}{4x^2+9y^2}=\frac{x^2\ (2+3\frac{y^2}{x^2})}{x^2(4+9\frac{y^2}{x^2})}$$

$$=\frac{(2+3\frac{y^2}{x^2})}{(4+9\frac{y^2}{x^2})}$$

From the ratio of y^2 and x^2

$$=\frac{(2+3\frac{25}{9})}{(4+9\frac{25}{9})}$$

$$=\frac{6+25}{29\times 3}=\frac{31}{87}$$

Question 91 :

The given pie chart shows the breakup of total marks obtained by a student in five subjects A, B, C, D, E. The maximum marks in each subject is 150 & he obtained a total of 600 marks The total marks obtained by the student in subjects C & E i.e approx. how much per cent more than what he obtained in A & D together?

Difficulty : Moderate **Average Time : 86 Seconds**

Options :

1. 7.26%
2. 8.33%
3. 10.25%
4. 9.09%

Solution :

The correct answer is option **4** i.e. **9.09%**

C & E = 76 + 68 = 144

A & D = 60 + 72 = 132

Differance = (12/132) × 100 = 9.09%

Question 92 :

The average of 18 numbers is 37.5. If six numbers that have an average of x are added to them, the average of all the numbers increases by one. The value of x is:

Difficulty : Moderate **Average Time : 49 Seconds**

Options :

1. 38.5
2. 42
3. 41.5
4. 40

Solution :

The correct answer is option **3** i.e. **41.5**

Sum of the numbers = 37.5 × 18 $\left[Av = \frac{Sum\ of\ no.}{total\ no.}\right]$

Sum of the six numbers = 6 × x = 6x

Average of all numbers = 37.5 + 1 = 38.5

$$= \frac{675 + 6x}{24} = 38.5$$

675 + 6x = 24 × 38.5

6x = 924 - 675

6x = 249

x = 249/6 = 41.5

Question 93 :

A is as efficient as B & C together. Working together A & B can complete a work 36 days & C alone can complete it in 60 days. A & C work together for 10 days. B alone will complete the remaining work in:

Difficulty : Moderate **Average Time : 77 Seconds**

Options :

1. 110 days
2. 90 days
3. 84 days
4. 88 days

Solution :

The correct answer is option **1** i.e. **110 days**

Given A = B + C

now, A + B = 36

C = 60

LCM (36, 60) = 180

A + B's 1 day work = 180 ÷ 36 = 5 unit/day

C's 1 day work = 180 ÷ 60 = 3

A + B + C 1 day work = 5 + 3 = 8

B's 1 day work = 1 unit

A + C's 1 day work = 7 units

10 days work = 70 units

Work left = 180 - 70 = 110

B's 1 day work = 1 unit

hence time taken = 110 days

Question 94 :

If , then the value of is :

Difficulty : Moderate **Average Time : 79 Seconds**

Options :

1. 3 - 2
2. 3 + 2
3. 2 + 3
4. 2 - 3

Solution :

The correct answer is option **4** i.e $2-\sqrt{3}$

$$\frac{Sin\Phi}{1+Cos\Phi}+\frac{1+Cos\Phi}{Sin\Phi}=\frac{4}{\sqrt{3}}, 0°<\Phi<90°$$

$Sin^2 + (1 + Cos)^2/(1 + Cos)Sin = 4/3$

$Sin^2 + 1 + Cos^2 + 2Cos/(1 + Cos)Sin = 4/3$

$2 + 2Cos/(1 + Cos)Sin = 4/3$

$2/Sin = 4/3$

$= 60^o$

$$\left[\frac{1}{\sec\emptyset+\tan\emptyset}=\sec\emptyset-\tan\emptyset\right]$$

Putting the value of $\emptyset = 60$

$= \sec 60 - \tan 60 = 2 - \sqrt{3}$

Question 95 :

If finding the HCF of two numbers by division method, the last divisor is 17 & the quotients are 1, 11 & 2 resp. What is the sum of the two numbers?

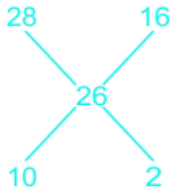
Difficulty : Moderate **Average Time : 107 Seconds**

Options :

1. 867
2. 816
3. 901
4. 833

Solution :

The correct answer is option **2** i.e. **816**



425 + 391 = 816

Question 96 :

A shopkeeper allows 18% discount on the marked price of an article & still makes a profit of 23%. If he earns Rs. 18.40 as a profit, then what is the marked price of the article?

Difficulty : Moderate **Average Time : 49 Seconds**

Options :

1. Rs. 125
2. Rs. 120
3. Rs.140

Rs.146

Solution :

The correct answer is option **2** i.e **Rs. 120**

23% of CP = 18.40

$$\Rightarrow \frac{23CP}{100} = 18.40$$

$$\Rightarrow CP = \frac{18.40 \times 100}{23} = 80$$

CP = 80

S.P = C.P + 18.40

S.P = 98.40

S.P after deduction of 18% from marked price.

MP - 18MP/100 = 98.40

82MP/100 = 98.40

MP = 120

Marked price of article = Rs. 120

Question 97 :

The value of is:

Difficulty : Moderate

Average Time : 78 Seconds

Options :

1. $\sqrt{2}$
2. $2 + \sqrt{2}$
3. $\sqrt{7}$

$2\sqrt{5}$

Solution :

The correct answer is option **1** i.e. $\sqrt{2}$

$A=\frac{2\sqrt{10}}{\sqrt{5}+\sqrt{2}-\sqrt{7}}$ $B=\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}}$ $C=\frac{3}{\sqrt{7}+2}$

Multiply and divide by $\sqrt{7}+2$ in C and by $\sqrt{5}-2$ in B and

by $\sqrt{5}+\sqrt{2}+\sqrt{7}$ in A. we get

$C=\frac{3}{\sqrt{7}-2}\times\frac{\sqrt{7}+2}{\sqrt{7}+2}=\frac{3\sqrt{7}+6}{3}=\sqrt{7}+2$

$B=\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}\times\frac{\sqrt{5}-2}{\sqrt{5}-2}}=\sqrt{(\sqrt{5}-2)^2}=\sqrt{5}-2$

$A=\sqrt{5}+\sqrt{2}+\sqrt{7}$

Hence we get,

A + B - C = 2

Question 98 :

A student was asked to find the value of . His answer was . What is the difference between his answer and the correct answer?

Difficulty : Moderate **Average Time : 109 Seconds**

Options :

1. $6\frac{1}{3}$

2.

$7\frac{3}{4}$

3. $6\frac{2}{3}$

4. $7\frac{1}{2}$

Solution :

The correct answer is option **2** i.e. $7\frac{3}{4}$

$$9\frac{4}{9} \div 11\frac{1}{3} \ of \frac{1}{6} + \left(1\frac{1}{3} \times 1\frac{1}{4} \div \frac{3}{5}\right) \times \frac{2}{6} of \frac{2}{3} \div \frac{4}{3} \ of \frac{2}{3}$$

$$\frac{85}{9} \div \frac{34}{3} \ of \frac{1}{6} + \left(\frac{4}{3} \times \frac{9}{5} \div \frac{3}{5}\right) \times \frac{13}{6} \ of \ \frac{2}{3} \div \frac{4}{3} \ of \frac{2}{3}$$

$$\frac{85}{9} \div \frac{34}{18} + 4 \times \frac{13}{9} \div \frac{8}{9}$$

$$\frac{85}{9} \div \frac{34}{18} + \frac{13}{2}$$

$$5\frac{13}{2} = \frac{23}{2}$$

Answer of student = 77/4

Difference = $\frac{77}{4} - \frac{23}{2} = \frac{31}{4} = 7\frac{3}{4}$

Question 99 :

If a 10-digit number 5432Y1749X is divisible by 72, then what is the value of (5X - 4Y)?

Difficulty : Moderate | **Average Time : 71 Seconds**

Options :

1. 10
2. 14
3. 9

15

Solution :

The correct answer is **option 2** i.e. **14**

When a number is divisible by 72 it means it will be also divisible by 8 × 9

When last 3 digit of any number is divisible by 8 then the number is also divisible by 8

When the sum of all digit of any number is divisible by 9 then the number is also divisible by 9

Given number = 5432Y1749X

The given number will be divisible by 8 when 49X is divisible by 8

If we put X = 6 then 496 will be divisible by 8

Now

The number = 5432Y17496

Sum of its digit = 5 + 4 + 3 + 2 + Y + 1 + 7 + 4 + 9 + 6 = 41 + Y

Minimum possible value of Y = 4

Because 41 + 4 = 45 will be divisible by 9

X = 6 and Y = 4

5X - 4Y = 5 × 6 - 4 × 4 = 30 - 16 = 14

Question 100 :

How many kgs of salt costing Rs. 28/kg must be mixed with 39.6 kg of salt costing Rs. 16/kg, so that the selling the mixture at Rs. 29.90 there is a gain of 15%?

Difficulty : Moderate | **Average Time : 73 Seconds**

Options :

1. 190 kg
2. 192 kg
3. 196 kg
4. 198 kg

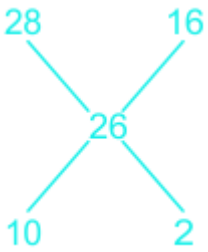
Solution :
The correct answer is option **4** i.e **198**

According to the ques,

1.15 × C.P. = 29.90

C.P. = (29.90) / (1.15)

= 26



5 1

Given, 1 part = 39.6 kg

Then, 5 parts = 39.6 × 5

= 198 kg

Ssc Cgl Tier II Previous Year Question Paper Analysis

The analysis of Ssc Cgl Tier II Previous Year Question Paper held on 2019-09-13 in the Morning exam is as follows:

1. 100 questions were moderate.
2. The safe score is 140 marks.
3. 100 questions were asked from Quantitative Aptitude and 100 questions were asked from Quantitative Aptitude
4. 0 questions should have been skipped if you were short of time.

Ssc Cgl Tier II Previous Year Question Paper Topic Wise Weightage

Quantitative Aptitude

1. Simplification - 7
2. Average - 1
3. Percentage - 2
4. Data Interpretation - 1
5. Time And Work - 3
6. Time Speed And Distance - 7
7. Interest - 4
8. Ratios And Proportion - 2
9. Geometry - 15
10. Trigonometry - 19
11. Mensuration - 4
12. Algebra - 4
13. Number System - 7
14. Coordinate Geometry - 6
15. Quadratic Equation - 1
16. MIxtures And Alligations - 3
17. Profit And Loss - 9
18. Statistics - 2
19. Data Sufficiency - 3

Ssc Cgl Tier II Previous Year Question Paper Tips and Tricks

Try to solve Ssc Cgl Tier II Previous Year Question Paper without taking any help from the solutions.

2. Ssc Cgl Tier II Previous Year Question Paper require proper usage of concept so firstly read the question thoroughly and then use the right concept.
3. In case you're not able to solve the question in less than 30 seconds in the exam then you should skip the question and move to the next question.

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Neetu Mam is primarily passionate for the English language and teaching from the last 20 years however for the Ssc Cgl Tier II Previous Year Question Paper. She has guided her team to provide the best explanation for the question.