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 2017-01-12 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 150 marks hence you should try to score at least 160 marks.

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

Question 1 :

Twenty one times of a positive number is less than its square by 100. The value of the positive number is

Difficulty : Moderate **Average Time : 44 Seconds**

Options :

1. 25
2. 26
3. 42
4. 41

Solution :

The correct answer is **Option 1** i.e. **25**

Understanding	Application

Suppose the given number is 'A'	So we have: $A^2 - 21A = 100$ $A^2 - 21A - 100 = 0$ $A^2 - 25A + 4A - 100 = 0$ $A(A - 25) + 4(A - 25) = 0$ $(A - 25)(A + 4) = 0$ $A = 25$ $A = -4$ (Not Possible as the number is positive) Hence, Number = 25

Question 2 :

Two pipes of length 1.5 m and 1.2 m are to be cut into equal pieces without leaving any extra length of pipes. The greatest length of the pipe pieces of same size which can be cut from these two lengths will be:

Difficulty : Moderate **Average Time : 145 Seconds**

Options :

1. 0.13 m
2. 0.4 m
3. 0.3 m
4. 0.41 m

Solution :

The correct answer is Option 3 i.e. 0.3 m

Understanding	Application

We need to find the HCF of 1.5 m and 1.2 m	1.5 = 0.3 × 5 1.2 = 0.3 × 4 So, HCF of 1.5 and 1.2 = 0.3 Hence, Greatest length of the pipe pieces of same size which can be cut from these two lengths will be 0.3 m.

Question 3 :

A General of an Army wants to create a formation of square from 36562 army men. After arrangement, he found some army men remained unused. Then the number of such army men remained unused was?

Difficulty : Moderate **Average Time : 126 Seconds**

Options :

1. 36
2. 65
3. 81
4. 97

Solution :

The correct answer is **option 3** i.e. **81**

Understanding	Application

Since the general wants to create a formation of square from 36562 army men, we need to find the nearest possible square number near 36562.	190^2 = 36100 is near the number 36562. 191^2 = 36481 So, The nearest square number is 36481. Hence, After arrangement, number of army men remained unused = 36562 – 36481 = 81

Question 4 :

The smallest number, which should be added to 756896 so as to obtain a multiple of 11, is _____.

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

Options :

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

Solution :

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

Understanding	Application
The remainder must be obtained when 756896 is divided by 11.	So, Remainder when 756896 is divided by 11 = 8 We know, 11 – 8 = 3 Hence, 3 must be added in the given number so that the number becomes divisible by 11.

Question 5 :

A boy found the answer for the question "Subtract the sum of 1/4 and 1/5 from unity and express the answer in decimals" as 0.45. The percentage of error in his answer was:

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

Options :

1. (100/11)%
2. 50%
3. 10%
4. (200/11)%

Solution :

The correct answer is Option 4 i.e. (200/11)%

Understanding	Application
Given: Subtract the sum of 1/4 and 1/5 from unity and express the answer in decimals.	So, Answer = 1 – (1/4 + 1/5) = 1 – (9/20) = 11/20 = 0.55
The boy found the answer 0.45.	So, Required percentage = [(0.55 – 0.45)/0.55] × 100 = (200/11)%

Question 6 :

The product of two numbers is 48. If one number equals "The number of wings of a bird plus 2 times the number of fingers on your hand divided by the number of wheels of a Tricycle". Then the other number is:

Difficulty : Moderate **Average Time : 150 Seconds**

Options :

1. 9
2. 10
3. 12
4. 18

Solution :

The correct answer is **Option 3** i.e. **12**

Understanding	Application
One number equals "The number of wings of a bird plus 2 times the number of fingers on your hand divided by the number of wheels of a Tricycle"	So, First number $= (2 + 2 \times 5)/3$ $= 4$
The product of two numbers is 48	Hence, 2^{nd} number = 48/4 = 12

Question 7 :

Natu and Buchku each have certain number of oranges. Natu says to Buchku,"If you give me 10 of your oranges, I will have twice the number of oranges left with you". Buchku replies,"If you give me 10 of your oranges, I will have the same number of oranges as left with you". What is the number of oranges with Natu and Buchku, respectively?

Difficulty : Moderate

Average Time : 147 Seconds

Options :

1. 50, 20
2. 70, 50
3. 20, 50
4. 50, 70

Solution :

The correct answer is Option 2 i.e. 70, 50

Understanding	Application
Suppose Natu and Buchku has P and Q oranges respectively.	So, P + 10 = 2 × (Q – 10) P – 2Q = -30 And P – 10 = Q + 10 P – Q = 20
Solving both the equations.	We get: P = 70 and Q = 50 Hence, number of oranges with Natu and Buchku are 70 and 50 respectively.

Question 8 :

A square play ground measures 1127.6164 sq.m. If a man walks 2 (9/20) m a minutes then time taken by him to complete one round around it is approximately:

Difficulty : Moderate **Average Time : 157 Seconds**

Options :

1. 50.82 min
2. 54.82 min
3. 54.62 min
4. 50.62 min

Solution :

The correct answer is Option 2 i.e. 54.82 min

Understanding	Application
Area of a square playground = 1127.6164 sq. m.	So, Side of the ground = 1127.6164 = 33.58 meter
Perimeter of square = 4 × Side	Hence, Perimeter of ground = 4 × 33.58 = 134.32 m
Speed = 2 (9/20) = 49/20 mtr/min	Hence, Required time = 134.32/(49/20) = 54.82 min

Question 9 :

Three electronic devices make a beep after every 48 sec, 72 sec and 108 sec respectively. They beeped together at 10 a.m. The time when they will next make a beep together at the earliest is?

Difficulty : Moderate **Average Time : 183 Seconds**

Options :

1. 10:07:12 hrs
2. 10:07:24 hrs
3. 10:07:36 hrs
4. 10:07:48 hrs

Solution :

The correct answer is **option 1** i.e. **10:07:12 hrs**

Understanding	Application
Three electronic devices make a beep after every 48 sec, 72 sec and 108 sec respectively.	So, LCM of 48, 72 and 108 = 432 The devices will beep together after 432 seconds or 7 min 12 seconds
They beeped together at 10 a.m.	So, Time when they will next make a beep together at the earliest = 10:07:12 hrs

Question 10 :

Two baskets together have 640 oranges. If (1/5)th of the oranges in the first basket be taken to the second basket so the oranges becomes equal in both basket. The number of oranges in the first basket is

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

Options :

1. 800
2. 600
3. 400
4. 300

Solution :

The correct answer is Option 3 i.e. 400

Understanding	Application
Suppose the number of oranges in 2 baskets are x and y respectively. And Two baskets together have 640 oranges.	So, x + y = 640 ……. (1)

1/5th of the oranges in the first basket be taken to the second basket so the oranges becomes equal in both basket.	So, (x – x/5) = (y + x/5) y = 3x/5 ……. (2)
From both the equations:	x + 3x/5 = 640 8x/5 = 640 x = 400 So, y = 640 – 400 = 240 Hence, Number of oranges in first basket = 400

Question 11 :

P can do 1/4th of work in 10 days, Q can do 40% of work in 40 days and R can do 1/3rd of work in 13 days. Who will complete the work first?

Difficulty : Moderate **Average Time : 204 Seconds**

Options :

1. P
2. Q
3. R
4. Both P and R

Solution :

The correct answer is **Option 3** i.e. **R**

Understanding Application

P can do 1/4th of work in 10 days, Q can do 40% of work in 40 days and R can do 1/3rd of work in 13 days.	So, Number of days in which P can do whole work = 10 × 4 = 40 days Number of days in which Q can do whole work = 40/0.4 = 100 days Number of days in which R can do whole work = 13 × 3 = 39 days Hence, R will complete the work first.

Question 12 :

Working 7 hours in a day, 4 men can do a piece of work in 8 days. Working 8 hours in a day, the required number of men to perform the same work in 4 days will be?

Difficulty : Moderate

Average Time : 65 Seconds

Options :

1. 8
2. 4
3. 7
4. 9

Solution :

The correct answer is **option 3** i.e. **7**

Understanding	Application

We have: M1 = 4, D1 = 8 and H1 = 7 And D2 = 4, H2 = 8 and M2 = ?	We know: M1D1H1 = M2D2H2 (4 × 8 × 7) = (M2 × 4 × 8) M2 = 7 Hence, Required men = 7

Question 13 :

35 persons are engaged to complete a work in 60 days. After 32 days it is observed that only (2/5)th part of the work has been done. The number of persons to be engaged to complete the remaining work in the said period is

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

Options :

1. 20
2. 35
3. 30
4. 25

Solution :

The correct answer is **Option 4** i.e. **25**

Understanding	Application
35 persons are engaged to complete a work in 60 days. After 32 days, it is observed that only 2/5th of the work has been done.	So, Remaining time = 60 – 32 = 28 days And Remaining work = 1 – 2/5 = 3/5th

So,

We know:

$[M1 \times D1]/W1 = [M2 \times D2]/W2$

$[35 \times 32]/(2/5) = [M2 \times 28]/(3/5)$

$M2 = (35 \times 32 \times 3)/(2 \times 28)$

$M2 = 60$

Hence,

Number of more workers needed = 60 – 35 = 25

Question 14 :

The time taken by 4 men to complete a job is double the time taken by 5 children to complete the same job. Each man is twice as fast as a woman. How long will 12 men, 10 children and 8 women take to complete a job. (Given that a child would finish the job in 20 days.)

Difficulty : Moderate

Average Time : 73 Seconds

Options :

1. 4 days
2. $2\ ^{1}/_{8}$ days
3. 2 days
4. 1 day

Solution :

The correct answer is **Option 4** i.e. **1 day**

Understanding	Application

Suppose the efficiencies of a man, a woman, and a child are M, W, and C. The time taken by 4 men to complete a job is double the time taken by 5 children to complete the same job. Each man is twice as fast as a woman.	So, 4M × 2 = 5C M : C = 5 : 8 And M : W = 2 : 1 So, M : W : C = 10 : 5 : 16 So, M = 5C/8 and W = 5C/16
A child would finish the job in 20 days.	So, Total work = 20C

Suppose 12 men, 10 children, and 8 women take to x days to complete the job.	So, (12M + 10C + 8W) × x = 20C (12 × 5C/8 + 10C + 8 × 5C/16) × x = 20C (7.5C + 10C + 2.5C) × x = 20C x = 1 Hence, Required time = 1 day

Question 15 :

The labour A, B, C were given a contract of 750 for doing certain piece of work.All three can finish the work in 8 days.A and c can together finish the work in 12 days while A and B can do it 13(1/3) days.The money will divide in the ratio

Difficulty : Moderate **Average Time : 97 Seconds**

Options :

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

Solution :

The correct answer is Option 1 i.e. 4 : 5 : 6

Understanding	Application

A, B and C together can finish the work in 8 days, A and C together can finish it in 12 days while A and B can finish it in 13 (1/3) days.	So, Total work = LCM of 8, 12 and 40/3 = 120 units
Suppose a, b and c are the efficiencies of A, B and C	So, (a + b + c) = 120/8 = 15 (a + c) = 120/12 = 10 And (a + b) = 120/(40/3) = 9
From both the equations:	c = 15 – 9 = 6 a = 10 – 6 = 4 And b = 9 – 4 = 5
The money will be divided according to the efficiency only	So, Required ratio = 4 : 5 : 6

Question 16 :

A and B together can complete a piece of work in 12 days. They worked together for 5 days and then A alone finished the rest work in 14 days. A alone can complete the work in _____.

Difficulty : Moderate **Average Time : 223 Seconds**

Options :

1. 24
2. 22
3. 20
4. 18

Solution :

The correct answer is **option 1** i.e. **24 days**

Understanding	Application
A and B together can complete a piece of work in 12 days.	Work done in 5 days = 5/12 So, Remaining work = 7/12
A completes the remaining work in 14 days	So, Required time = 14/(7/12) = 24 days

Question 17 :

A shopkeeper offers 15% discount on all plastic toys. He offers a further discount of 4% on the reduced price to those customers who pay cash. What does a customer have to pay (in Rs) in case for a toy of Rs 200?

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

Options :

1. 133.7
2. 129.8
3. 163.2
4. 153.3

Solution :

The correct answer is **Option 3** i.e. **163.2**

Understanding	Application
Marked price of toy = Rs. 200	So, Price of toy after 15% discount = 200 × 0.85 = Rs. 170

Further 4% discount is offered.	So, Amount to be paid by the customer = 170 × 0.96 = Rs. 163.2

Question 18 :

A photographer allows a discount of 10% on the advertised price of a camera. The price (in Rs) that must be marked on the camera, which cost him Rs600, to make a profit of 20% would be

Difficulty : Moderate **Average Time : 139 Seconds**

Options :

1. 650
2. 800
3. 700
4. 850

Solution :

The correct answer is Option 2 i.e. 800

Understanding	Application
Cost price = Rs. 600 Profit = 20%	So, Selling price of camera = 600 × 1.2 = Rs. 720
Since the photographer allows 10% discount.	So, Marked price = 720/0.9 = Rs. 800

Question 19 :

A dinner set is quoted for Rs 1500. A customer pays Rs 1173 for it. If the customer got a series of two discounts and the rate of first discount is 15% then the rate of second discount was:

Difficulty : Moderate **Average Time : 142 Seconds**

Options :

1. 15%
2. 7%
3. 9%
4. 8%

Solution :

The correct answer is **option 4** i.e. **8%**

Understanding	Application
Marked price = Rs. 1500 And Selling price = Rs. 1173	Hence, Overall discount = [(1500 – 1173)/1500] × 100 = 21.8%
First discount = 15% Suppose 2^{nd} discount = x%	So, 15 + x – 15x/100 = 21.8 85x/100 = 6.8 x = 8 Hence, 2^{nd} discount = 8%

Question 20 :

A dishonest dealer defrauds to the extent of x % in buying as well as selling his goods by using faulty weight. What will be the gain percent on his outlay?

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

Options :

1. 2x%
2. $[10/(x + x^2)]$%
3. $[(2x + x^2)/100]$%
4. None of these

Solution :

The correct answer is **option 4** i.e. **None of these.**

Suppose the cost price of 100kg is Rs. 100

So,

CP of 100 kg for dishonest dealer

$= 100 \times (100 - x)/100$

$= (100 - x)$

And

SP of 100 kg for dishonest dealer

$= 100 \times (100 + x)/100$

$= (100 + x)$

Hence,

Profit $= (100 + x - 100 + x) = 2x$

Hence,

Profit percentage

$= [2x/(100 - x)] \times 100\%$

Question 21 :

In a college union, there are 48 students. The ratio of the number of boys to the number of girls is 5 : 3. The number of girls to be added in the union, so that the number of boys to girls in 6 : 5, is:

Difficulty : Moderate | **Average Time : 59 Seconds**

Options :

6

2. 7
3. 12
4. 13

Solution :

The correct answer is **Option 2** i.e. **7**

Understanding	Application
Total students = 48 The ratio of the number of boys to the number of girls is 5:3.	So, Number of boys = 48 × 5/8 = 30 Number of girls = 48 – 30 = 18
Suppose ‘x’ girls are added.	So, 30/(18 + x) = 6 : 5 108 + 6x = 150 6x = 42 x = 7 Hence, 7 girls should be added.

Question 22 :

There are three bottles of mixture of syrup and water of ratios 2:3, 3:4 and 7:5. 10 Litres of first and 21 Litres of second bottles are taken. How much quantity from third bottle is to be taken so that final mixture from three bottles will be of ratios 1:1.

Difficulty : Moderate

Average Time : 172 Seconds

Options :

1. 25
2. 20

35

4. 30

Solution :

The correct answer is Option 4 i.e. 30

Understanding	Application
Ratio of quantities of syrup and water in 1^{st} bottle = 2 : 3 And 10 litres of 1^{st} bottle is taken.	So, Quantity of syrup taken from 1^{st} bottle = 10 × 2/5 = 4 litres And Quantity of water taken from 1^{st} bottle = 10 × 3/5 = 6 litres
Ratio of quantities of syrup and water in 2^{nd} bottle = 3 : 4 And 21 litres of 2^{nd} bottle is taken.	So, Quantity of syrup taken from 2^{nd} bottle = 21 × 3/7 = 9 litres And Quantity of water taken from 2^{nd} bottle = 21 × 4/7 = 12 litres
Ratio of quantities of syrup and water in 3^{rd} bottle = 7 : 5 And Suppose x litres of 3^{rd} bottle is taken.	So, Quantity of syrup taken from 3^{rd} bottle = x × 7/12 = 7x/12 litres And Quantity of water taken from 3^{rd} bottle = x × 5/12 = 5x/12 litres

The ratio of syrup and water should be 1 : 1 when we mix the mixtures from 3 bottles.	So, (4 + 9 + 7x/12) = (6 + 12 + 5x/12) 2x/12 = 5 x = 30 Hence, 30 litres from third bottle is to be taken.

Question 23 :

In a colored picture of blue and yellow color, blue and yellow color is used in the ratio of 4 : 3 respectively. If in upper half, blue : yellow is 2 : 3, then in the lower half blue : yellow is:

Difficulty : Moderate **Average Time : 286 Seconds**

Options :

1. 1 : 1
2. 2 : 1
3. 26 : 9
4. 9 : 26

Solution :

The correct answer is **Option 3** i.e. **26 : 9**

Understanding	Application
In a colored picture of blue and yellow color, blue and yellow color is used in the ratio of 4 : 3 respectively.	Suppose total quantity of blue and yellow color in the picture = 70 units (Since the ratio is 4 : 3)

So, Upper and Lower part = 70/2 = 35 units	Now, Quantity of blue in upper part = 35 × (2/5) = 14 units Quantity of blue in lower part = 40 – 14 = 26 units And Quantity of yellow in upper part = 35 × (3/5) = 21 Quantity of yellow in lower part = 30 – 21 = 9 Hence, Ratio of blue to yellow in the lower half = 26 : 9

Question 24 :

A and B start an enterprise together, with A as active partner. A invests Rs 4000 and Rs 2000 more after 8 months. B invests Rs 5000 and withdraws Rs 2000 after 9 months. Being the active partner, A takes Rs 100 per month as allowance, from the profit. What is the share of B if the profit for the year is Rs 6700?

Difficulty : Moderate **Average Time : 181 Seconds**

Options :

1. Rs 3350
2. Rs 3250
3. Rs 2700
4. Rs 2800

Solution :

The correct answer is Option 3 i.e. Rs. 2700

Understanding	Application

A invests Rs 4000 and Rs 2000 more after 8 months. B invests Rs 5000 and withdraws Rs 2000 after 9 months.	So, Ratio in which profit will be shared between A and B = [4000 × 8 + 6000 × 4] : [5000 × 9 + 3000 × 3] = 56 : 54 = 28 : 27
Being the active partner, A takes Rs 100 per month as allowance, from the profit. And Total profit = Rs 6700	So, Remaining profit that will be shared between A and B = 6700 – 100 × 12 = 5500
	Hence, Share of B = 5500 × 27/55 = Rs. 2700

Question 25 :

sum of Rs 15525 is divided among Sunil, Anil and Jamil such that if Rs 22, Rs 35 and Rs 48 be diminished from their shares respectively, their remaining sums shall be in the ratio 7:10:13. What would have been the ratio of their sums if Rs 16, Rs 77 and Rs 37 respectively were added to their original shares?

Difficulty : Moderate **Average Time : 201 Seconds**

Options :

1. 9 : 13 : 17
2. 18 : 26 : 35
3. 36 : 52 : 67
4. None of these

Solution :

The correct answer is Option 3 i.e. 36 : 52 : 67

Understanding	Application
Sum of Rs. 15525 is divided among Sunil, Anil and Jamil such that if Rs. 22, Rs. 35 and Rs. 48 be diminished from their shares respectively, their remaining sums shall be in the ratio 7 : 10 : 13.	Amount remained after diminishing the shares = 15525 – (22 + 35 + 48) = Rs. 15420 Now, Share of Sunil after diminishing = 15420 × 7/30 = Rs. 3598 Share of Anil after diminishing = 15420 × 10/30 = Rs. 5140 Share of Jamil after diminishing = 15420 × 13/30 = Rs. 6682
Rs. 16, Rs. 77 and 37 Rs. 37 respectively were added to their original shares.	Hence, Ratio of shares = (3598 + 22 + 16) : (5140 + 35 + 77) : (6682 + 48 + 37) = 3636 : 5252 : 6767 = 36 : 52 : 67

Question 26 :

A's income is Rs 140 more than B's income and C's income is Rs 80 more than D's. If the ratio of A's and C's income is 2:3

and the ratio of B's and D's income is 1:2, then the incomes of A, B, C and D are respectively

Difficulty : Moderate **Average Time : 203 Seconds**

Options :

1. Rs 260, Rs 120, Rs 320 and Rs 240
2. Rs 300, Rs 160, Rs 600 and Rs 520
3. Rs 400, Rs 260, Rs 600 and Rs 520
4. Rs 320, Rs 180, Rs 480 and Rs 360

Solution :

The correct answer is Option 3 i.e. Rs. 400, Rs. 260, Rs. 600 and Rs. 520

Understanding	Application
Ratio of A's and C's income is 2 : 3.	Suppose A's income = 2x And C's income = 3x
A's income is Rs 140 more than B's income and C's income is Rs 80 more than D's.	Hence, B's income = (2x – 140) D's income = (3x – 80)
Ratio of B's and D's income is 1 : 2.	(2x – 140) : (3x – 80) = 1 : 2 4x – 280 = 3x – 80 x = 280 – 80 x = 200

	Hence, A's income = Rs. 400 B's income = 400 – 14 = Rs. 260 C's income = Rs. 600 D's income = 600 – 80 = Rs. 520

Question 27 :

A batsman has a certain average of runs for 12 innings. In the 13th inning he scores 96 runs thereby increasing his average by 5 runs. What will be his average after 13th inning?

Difficulty : Moderate **Average Time : 235 Seconds**

Options :

1. 28
2. 32
3. 36
4. 42

Solution :

The correct answer is Option 3 i.e. 36

Understanding	Application
Suppose the average score of 12 innings = x	So, Sum of runs of 12 inning = 12x

In the 13th inning, he scores 96 runs thereby increasing his average by 5 runs.	So, 12x + 96 = (x + 5) × 13 x = 31 Hence, Average score of 12 inning = 31 And Average score of 13 inning = 31 + 5 = 36

Question 28 :

A team of 8 persons joins in a shooting competition. The best marks man scored 85 points. If he had scored 92 points, the average score for the team would have been 84. The number of points the team scored was?

Difficulty : Moderate **Average Time : 158 Seconds**

Options :

1. 672
2. 665
3. 645
4. 588

Solution :

The correct answer is **option 2** i.e. **665**

Understanding	Application

Suppose the number of points the team scored was 'x'	So, (x + 92 – 85)/8 = 84 (x + 7) = 672 x = 665 Hence, the number of points the team scored was 665.

Question 29 :

A librarian purchased 60 story books for his library. But he found that he could get 4 extra books by spending Rs 336 more and then the overall average price per book would be reduced by Re 1. The previous average price of each book was?

Difficulty : Moderate **Average Time : 87 Seconds**

Options :

1. Rs 84
2. Rs 83
3. Rs 68
4. Rs 100

Solution :

The correct answer is **option 4** i.e. **Rs. 100**

Understanding	Application
Previous average price of each book = Rs. x	According to the question: 60x + 336 = 64 × (x – 1) 64x – 60x = 336 + 64 4x = 400 x = 100 Hence, Average price of each book = Rs. 100

Question 30 :

In an exam, the avarage marks obtained by John in English, Maths, Hindi and Drawing were 50. His average marks in Maths, Science, Social Studies and Craft were 70. If the average marks in all seven subjects is 58, his score in maths was

Difficulty : Moderate

Average Time : 94 Seconds

Options :

1. 50
2. 52
3. 60
4. 74

Solution :

The correct answer is Option 4 i.e. 74

Understanding	Application
In an exam, the average marks obtained by John in English, Math, Hindi and Drawing were 50.	So, E + M + H + D = 50 × 4 E + M + H + D = 200 …….. (1)
Average marks in Maths, Science, Social Studies and Craft were 70.	So, M + S + SS + C = 70 × 4 M + S + SS + C = 280 …….. (2)
Average marks in all seven subjects is 58.	So, E + M + H + D + S + SS + C = 58 × 7 E + M + H + D + S + SS + C = 406 ..... (3)

From the equation 3.	M = (200 + 280) – 406 M = 74 Hence, Score in Maths = 74

Question 31 :

The average weight of 3 men A, B and C is 84 Kg. Another man D joins the group and the average now becomes 80 Kg. If another man E whose weight is 3 Kg more than that of D, replaces A then the average weight of B, C, D and E becomes 79 Kg. What is the weight of A?

Difficulty : Moderate **Average Time : 225 Seconds**

Options :

1. 70 kg
2. 72 kg
3. 75 kg
4. 80 kg

Solution :

The correct answer is **option 3** i.e. **75 kg**

Understanding	Application
The average weight of 3 men A, B and C is 84 Kg.	So, Total weight of A, B and C = 84 × 3 = 252 kg

Another man D joins the group and the average now becomes 80 Kg.	So, Total weight of A, B, C and D = 80 × 4 = 320 kg So, Weight of D = 320 – 252 = 68 kg
If another man E whose weight is 3 Kg more than that of D, replaces A then the average weight of B, C, D and E becomes 79 Kg.	Weight of E = 68 + 3 = 71 kg And Total weight of B, C, D and E = 79 × 4 = 316 kg So, Weight of B and C = 316 – (68 + 71) = 177 kg
	Hence, Weight of A = 252 – 177 = 75 kg

Question 32 :

The average monthly salary of all the employees in a factory is Rs 8840. If the average salary of all the officers is Rs 15000 and that of the remaining employees is Rs 8000, then what is the percentage of the officers among the employees?

Difficulty : Moderate **Average Time : 152 Seconds**

Options :

1. 75/7%
2. 12%
3. 25/3%
4. 10%

Solution :

The correct answer is **option 2** i.e. **12%**

Understanding	Application
Suppose the number of officers and other employees are x and y respectively.	So, 8840 × (x + y) = 15000x + 8000y 6160x = 840y y : x = 154 : 21
	Hence, Required percentage = [21/175] × 100 = 12%

Question 33 :

The ratio of cost price and selling price of an article is 20 : 21. Then gain percent on it is:

Difficulty : Moderate **Average Time : 93 Seconds**

Options :

1. 5.5
2. 5
3. 6
4. 6.25

Solution :

The correct answer is **Option 2** i.e. **5**

Understanding	Application
The ratio of cost price and selling price of an article is 20 : 21. We know: Profit = [(SP – CP)/CP] × 100	Hence, Gain percentage = [(21 – 20)/20] × 100 = 5%

Question 34 :

The ratio of cost price and selling price is 25 : 26. The percent of the profit will be:

Difficulty : Moderate **Average Time : 113 Seconds**

Options :

1. 26%
2. 25%
3. 1%
4. 4%

Solution :

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

Understanding	Application
The ratio of cost price and selling price 25 : 26 We know: Profit = [(SP – CP)/CP] × 100	Hence, Profit percentage = [(26 - 25)/25] × 100 = 4%

Question 35 :

A shopkeeper buys a product of Rs 150 per Kg. 15% of product was damaged. At what price (per Kg) should he sell the remaining so as to earn a profit of 20%?

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

Options :

1. Rs. 205(13/17)
2. Rs. 207(13/17)
3. Rs. 209(13/17)
4. Rs. 211(13/17)

Solution :

The correct answer is Option 4 i.e. Rs. 211 (13/17)

Understanding	Application
A shopkeeper buys a product of Rs 150 per Kg. Required profit = 20%	So, Selling price of 1 kg = 150 × 1.2 = Rs. 180
15% of product was damaged.	So, Selling price of remaining product = 180/0.85 = Rs. 211 (13/17) per kg

Question 36 :

Mr. Kapur purchased two toy cycles for Rs 750 each. He sold these cycles, gaining 6% on one and losing 4% on the other. The gain or loss percent in the whole transaction is:

Difficulty : Moderate **Average Time : 146 Seconds**

Options :

1. 1% loss
2. 1% gain
3. 1.5% loss
4. 1.5% gain

Solution :

The correct answer is Option 2 i.e. 1% Gain

Understanding	Application

Mr. Kapur purchased two toy cycles for Rs. 750 each.	First cycle: 6% gain Selling price = 750 × 1.06 = Rs. 795 And Second cycle: 4% loss Selling price = 750 × 0.96 = Rs. 720
So, Total cost price = 750 × 2 = Rs. 1500 Total selling price = 795 + 720 = Rs. 1515	Hence, Gain percentage = [(1515 – 1500)/1500] × 100 = 1%

Question 37 :

The profit earned by a shopkeeper by selling a bucket at a gain of 8% is Rs 28 more than when he sells it at a loss of 8%. The cost price (in Rupees) of the bucket is:

Difficulty : Moderate **Average Time : 167 Seconds**

Options :

1. 170
2. 190
3. 175
4. 165

Solution :

The correct answer is **option 3** i.e. **175**

Understanding	Application

Suppose the cost price of the bucket = Rs. X The profit earned by a shopkeeper by selling a bucket at a gain of 8% is Rs. 28 more than when he sells it at a loss of 8%.	So, 1.08X = 0.92X + 28 0.16X = 28 X = 175 Hence, Cost price of bucket = Rs. 175

Question 38 :

A man bought 500 metres of electronic wire at 50 paise per metre. He sold 50% of it at a profit of 5%. At what percent should he sell the remainder so as to gain 10% on the whole transaction?

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

Options :

1. 13%
2. 12.5%
3. 15%
4. 20%

Solution :

The correct answer is **option 3** i.e. **15%**

Understanding	Application
A man bought 500 metres of electronic wire at 50 paise per metre.	So, Cost price of 500 meters = 500 × 0.5 = Rs. 250 Selling price for 10% gain = 250 × 1.1 = Rs. 275

He sold 50% of it at a profit of 5%.	So, Selling price of 250 meters wire = 250 × 0.50 × 1.05 = Rs. 131.25
Cost price of remaining 250 meters wire = 250/2 = Rs. 125 Selling price of remaining 250 meters wire = 275 – 131.25 = Rs. 143.75	Hence, Profit percentage = [(143.75 – 125)/125] × 100 = 15%

Question 39 :

Aline of length 1.5 metres was measured as 1.55 metres by mistake. What will be the value of error percent?

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

Options :

1. 0.05%
2. 3(7/31)%
3. 3(1/3)%
4. 0.5%

Solution :

The correct answer is Option 3 i.e. 3(1/3)%

Understanding	Application
Aline of length 1.5 metres was measured as 1.55 metres by mistake.	So, Error percentage = [(1.55 – 1.5)/1.5] × 100 = 3(1/3)%

Question 40 :

A businessman imported Laptops, worth Rs 210000, Mobile phones worth Rs 100000 and Television sets worth Rs

150000. He had to pay 10% tax on laptops, 8% on Phones and 5% on Television sets as a special case. How much total tax (in Rupees) he had to pay on all items as per above details?

Difficulty : Moderate **Average Time : 110 Seconds**

Options :

1. 36500
2. 37000
3. 37250
4. 37500

Solution :

The correct answer is **option 1** i.e. **36500**

Understanding	Application
A businessman imported Laptops, worth Rs 210000, Mobile phones worth Rs 100000 and Television sets worth Rs 150000. He had to pay 10% tax on laptops, 8% on Phones and 5% on Television sets as a special case.	So, Total tax he had to pay = 210000 × 0.1 + 100000 × 0.08 + 150000 × 0.05 = 21000 + 8000 + 7500 = Rs. 36500

Question 41 :

A man spend 7.5% of his money and after spending 75% of the remaining, he had Rs 370 left. How much money did he have?

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

Options :

1. 1200
2. 1600
3. 1500
4. 1400

Solution :

The correct answer is **option 2** i.e. **1600**

Understanding	Application
A man spend 7.5% of his money and after spending 75% of the remaining, he had Rs. 370 left.	Suppose the man have Rs. X So, (1 – 0.075) × (1 – 0.75) × X = 370 0.925 × 0.25 × X = 370 X = 1600 Hence, The man have Rs. 1600

Question 42 :

On a certain date, Pakistan has a success rate of 60% against India in all the ODIs played between the two countries. They lost the next 30 ODIs in a row to India and their success rate comes down to 30%. The total number of ODIs played between the two countries is:

Difficulty : Moderate **Average Time : 93 Seconds**

Options :

1. 50
2. 45
3. 60
4. 30

Solution :

The correct answer is **option 3** i.e. **60**

Understanding	Application

On a certain date, Pakistan has a success rate of 60% against India in all the ODIs played between the two countries.	Suppose Pakistan played X ODIs. So, Number of ODIs won by Pakistan = 0.6X
After 30 more ODIs, success rate was 30%.	So, (X + 30) × 0.3 = 0.6X 0.3X = 9 X = 30 Hence, Total ODIs played = 30 + 30 = 60

Question 43 :

Two donkeys are standing 400 meters apart. First donkey can run at a speed of 3 m/sec and the second can run at 2 m/sec. If two donkeys run towards each other after how much time (in sec) will they bump into each other?

Difficulty : Moderate **Average Time : 108 Seconds**

Options :

1. 60
2. 80
3. 400
4. 40

Solution :

The correct answer is Option 2 i.e. 80

Understanding	Application
First donkey can run at a speed of 3 m/sec and the second can run at 2 m/sec.	So, Relative speed of 2 monkeys = 3 + 2 = 5 m/sec

Distance = 400 meters	So, Required time = 400/5 = 80 sec

Question 44 :

Rubi goes to a multiplex at the speed of 3 km/hr to see a movie and reaches 5 minutes late. If she travels at the speed of 4 Km/hr she reaches 5 minutes early. Then the distance of the multiplex from her starting point is:

Difficulty : Moderate **Average Time : 133 Seconds**

Options :

1. 2 km
2. 5 km
3. 2 m
4. 5 m

Solution :

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

Understanding	Application
Suppose the distance of the multiplex from her starting point is X km.	So, X/3 – 5/60 = X/4 + 5/60 X/12 = 10/60 X = 2 Hence, The distance of the multiplex from her starting point is 2 km

Question 45 :

A man travels some distance at a speed of 12 km/hr and returns at a speed of 9 km/hr. If the total time taken by him is 2 hrs 20 min, the distance is

Difficulty : Moderate **Average Time : 92 Seconds**

Options :

35 Km

2. 21 Km
3. 9 Km
4. 12 Km

Solution :

The correct answer is Option 4 i.e. 12 km

Understanding	Application
Suppose the distance = A km	A man travels some distance at a speed of 12 km/hr and returns at a speed of 9 km/hr. So, Total time taken = A/12 + A/9 = 7A/36
Total time taken by him is 2 hrs 20 min or 140 min.	So, 7A/36 = 140/60 A = 12 Hence, Distance = 12 km

Question 46 :

A and B are 15 kms apart and when travelling towards each other meet after half an hour whereas they meet two and a half hours later if they travel in the same direction. The faster of the two travels at the speed of?

Difficulty : Moderate **Average Time : 163 Seconds**

Options :

1. 15 km/hr

18 km/hr

3. 10 km/hr
4. 8 km/hr

Solution :

The correct answer is **option 2** i.e. **18 km/hr**

Understanding	Application
Suppose the speeds of A and B are 'a' and 'b' km/h respectively.	So, Relative speed when they travel in opposite directions = (a + b) And Relative speed when they travel in opposite directions = (a – b)
Given: A and B are 15 kms apart.	So, 15/(a – b) = 1/2 (a + b) = 30 And 15/(a – b) = 5/2 (a – b) = 6
Solving both the equations.	a = 18 and b = 12 Hence, The faster of the two travels at the speed of 18 km/hr

Question 47 :

The sum for 2 years gives a compound interest of Rs 3225 at 15% rate. Then sum is?

Difficulty : Moderate

Average Time : 131 Seconds

Options :

1. 10000
2. 20000
3. 15000
4. 32250

Solution :

The correct answer is **option 1** i.e. **10000**

Understanding	Application
Suppose the sum = Rs. X Interest = Rs. 3225 Rate = 15% Time = 2 years	We know: $A = P (1 + R/100)^T$ So, $[X + 3225] = X \times (1 + 15/100)^2$ $X + 3225 = 1.3225X$ $X = 10000$ Hence, Sum = Rs. 10000

Question 48 :

In 3 years Rs 3000 amounts to Rs 3993 at x% compound interest, compounded annually. The value of x is

Difficulty : Moderate **Average Time : 85 Seconds**

Options :

1. 10
2. 8
3. 5
4. 3(1/3)

Solution :

The correct answer is Option 1 i.e. 10

Understanding	Application
Given: P = Rs. 3000 A = Rs. 3993 Time = 3 years Rate = x%	We know: $A = P (1 + R/100)^T$ So, $3993 = 3000 \times (1 + x/100)^3$ $1.331 = (1 + x/100)^3$ $(1 + x/100) = 1.1$ $x = 10$

Question 49 :

A man borrowed some money and agreed to pay-off by paying Rs 3150 at the end of the 1st year and Rs 4410 at the end of the 2nd year. If the rate of compound interest is 5% per annum, then the sum is:

Difficulty : Moderate **Average Time : 147 Seconds**

Options :

1. Rs 5000
2. Rs 6500
3. Rs 7000
4. Rs 9200

Solution :

The correct answer is **Option 3** i.e. **Rs. 7000**

Understanding	Application

Suppose the sum = Rs. X Interest rate is 5% per annum compounded annually.	So, Amount after 1 year = 1.05X
He pays Rs. 3150 after 1 year.	So, Remaining sum = (1.05X – 3150)
Principal for 2nd year = (1.05X – 3150)	He pays Rs. 4410 after 2nd year. So, (1.05X – 3150) × 1.05 = 4410 (1.05X – 3150) = 4200 1.05X = 7350 X = 7000 So, Sum = Rs. 7000

Question 50 :

Rs 260200 is divided between Ram and Shyam so that the amount that Ram receives in 3 years is the same as that Shyam receives in 6 years. If the interest is compounded annually at the rate of 4% per annum then Ram's share is:

Difficulty : Moderate **Average Time : 204 Seconds**

Options :

1. 125000
2. 137745
3. 152000
4. 108200

Solution :

The correct answer is **option 2** i.e. **Rs. 137745**

Understanding	Application
Suppose the share of Ram = Rs. A So, Share of Shyam = Rs. (260200 – A)	Now, $A \times (1 + 4/100)^3 = (260200 – A) \times (1 + 4/100)^6$ $(1 + 4/100)^3 = A/(260200 – A)$ $A/(260200 – A) = 1.124864$ $A = 292689.6128 – 1.124864A$ $2.124864A = 292689.6128$ $A = 137745.1$ Hence, Share of Ram = Rs. 137745

Question 51 :

In a triangle ABC, A = 70°, B = 80° and D is the incentre of ABC. ACB = 2x° and BOC = y°. The values of x and y, respectively are:

Difficulty : Moderate **Average Time : 98 Seconds**

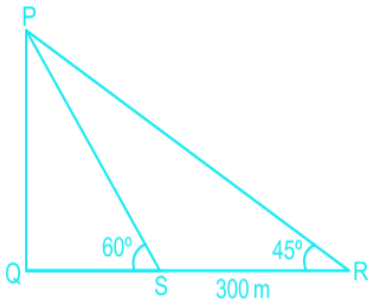
Options :

1. 15, 130
2. 15, 125
3. 35, 40
4. 30, 150

Solution :

The correct answer is **Option 2** i.e. **15°, 125°**

Understanding	Application

In a triangle ABC: A = 70°, B = 80° D is the incentre of ABC. ACB = 2x° and BDC = y°	 In ABC, A + B + C = 180° 70 + 80 + C = 180° C = 180 – 150 = 30° ACB = 30° 2x = 30° x = 15° Since D is incentre of the triangle; BDC = y = (90 + BAC/2) = (90 + 35) = 125°

Question 52 :

The radii of two cylinders are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. The ratio of their volumes is?

Difficulty : Moderate

Average Time : 223 Seconds

Options :

1. 27 : 20
2. 20 : 27
3. 4 : 9

9 : 4

Solution :

The correct answer is **option 2** i.e. **20 : 27**

Understanding	Application
The radii of two cylinders are in the ratio 2 : 3 and their heights are in the ratio 5 : 3	We know: Volume of cylinder = r^2h So, Ratio of volumes = $r_1^2h_1/r_2^2h_2$ = 4/9 × 5/3 = 20 : 27

Short trick :

The ratio of volume of two cylinders depends upon r^2h

Required ratio = $(2)^2 \times 5 : (3)^2 \times 3$

20 : 27

Question 53 :

Three cubes of iron whose edges are 6cm, 8cm and 10cm respectively are melted and formed into a single cube. The edge of the new cube formed is?

Difficulty : Moderate **Average Time : 100 Seconds**

Options :

1. 12 cm
2. 14 cm
3. 16 cm
4. 18 cm

Solution :

The correct answer is**option 1** i.e. **12 cm**

Understanding	Application
Three cubes of iron whose edges are 6 cm, 8 cm and 10 cm respectively are melted and formed into a single cube.	We know, Volume of a cube = $(Side)^3$ So, Sum of volumes of 3 cubes $= 6^3 + 8^3 + 10^3$ $= 216 + 512 + 1000$ $= 1728$ Hence, Volume of single cube = 1728 Side = 12 cm

Question 54 :

The radii of two concentric circles are 68 cm and 22 cm. The area of the closed figure bounded by the boundaries of the circles is:

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

Options :

1. 4140 sq. cm
2. 4110 sq. cm
3. 4080 sq. cm
4. 4050 sq. cm

Solution :

The correct answer is Option 1 i.e. 4140 sq. cm

Understanding	Application

We know that: Area of a circle = r^2 The radii of two concentric circles are 68 cm and 22 cm.	So, The area of the closed figure bounded by the boundaries of the circles = × ($r_1^2 - r_2^2$) = × ($68^2 - 22^2$) = × (68 + 22) × (68 – 22) = × 90 × 46 = 4140 sq. cm

Question 55 :

The radius of a sphere is 6 cm. It is melted and drawn into a wire of radius 0.2 cm. The length of the wire is?

Difficulty : Moderate **Average Time : 159 Seconds**

Options :

1. 81 m
2. 80 m
3. 75 m
4. 72 m

Solution :

The correct answer is **option 4** i.e. **72 m**

Understanding	Application
The radius of a sphere is 6 cm. We know: Volume of sphere = 4/3 × r^3	So, Volume of the sphere = 4/3 × × 6 × 6 × 6

The sphere is melted and drawn into a wire of radius 0.2 cm. The wire will be in cylindrical shape. We know: Volume of cylinder = r^2h	So, $4/3 \times \times 6 \times 6 \times 6 = \times (0.2)^2 \times h$ $h = 288/0.04$ $h = 7200$ cm or 72 m Hence, Length of the wire = 72 m

Question 56 :

The radius of a wire is decreased to one-third. If volume remains the same, length will increase by:

Difficulty : Moderate **Average Time : 112 Seconds**

Options :

1. 1.5 times
2. 3 times
3. 6 times
4. 9 times

Solution :

The correct answer is Option 4 i.e. 9 times

Understanding	Application

The wire is always in the cylindrical shape. We know: Volume of cylinder = r^2h	The radius of a wire is decreased to one-third and volume remains same. So, $r^2h_1 = (r/3)^2h_2$ $h_1 = h_2/9$ Or $h_2 = 9h_1$ Hence, the length of the wire will increase by 9 times.

Question 57 :

In a trapezium ABCD, AB and DC are parallel sides and ADC = 90°. If AB = 15 cm, CD = 40 cm and diagonal AC = 41 cm then the area of the trapezium ABCD is:

Difficulty : Moderate **Average Time : 143 Seconds**

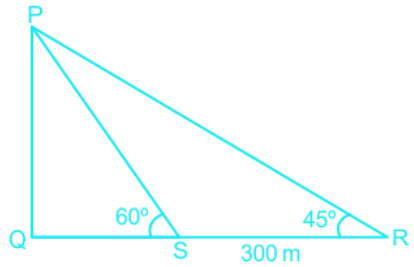
Options :

1. 245 cm^2
2. 240 cm^2
3. 247.5 cm^2
4. 250 cm^2

Solution :

The correct answer is **option 3** i.e. **247.5 cm^2**

Understanding	Application

Given: AB = 15 cm, CD = 40 cm and AC = 41 cm ADC = 90°	 From the Pythagoras theorem: AD = $(41^2 - 40^2)$ = 9 cm
We know: Area of trapezium = 1/2 × (Sum of parallel sides) × Height	So, Area of trapezium ABCD = 1/2 × (AB + CD) × AD = 1/2 × (15 + 40) × 9 = 1/2 × 55 × 9 = 247.5 cm^2

Question 58 :

The area of a rhombus having one side 10 cm and one diagonal 12 cm is:

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

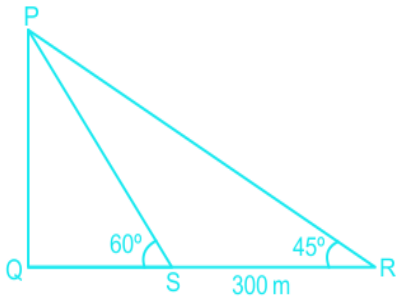
Options :

1. 48 cm^2
2. 96 cm^2
3. 144 cm^2
4. 192 cm^2

Solution :

The correct answer is **option 2** i.e. **96 cm^2**

Understanding	Application

Given: Diagonal AC = 12 cm Side AB = 10 cm The diagonals of a rhombus bisect each other at right angle. So, AO = 12/2 = 6 cm And AOB = 90°	 In triangle AOB: BO = $(10^2 - 6^2)$ = 8 cm So, Diagonal BD = 8 × 2 = 16 cm
Area of rhombus = 1/2 × (Product of diagonals)	So, Area of rhombus = 1/2 × (12 × 16) = 96 cm^2

Question 59 :

The cost of levelling a circular field at 50 Paise per square metre is Rs 7700. The cost (in Rs) of putting up a fence all round it at Rs 1.20 per meter is (Use = 22/7)

Difficulty : Moderate

Average Time : 123 Seconds

Options :

1. Rs 132
2. Rs 264
3. Rs 528
4. Rs 1056

Solution :

The correct answer is Option 3 i.e. Rs. 528

Understanding	Application
The cost of levelling a circular field at 50 Paise per square metre is Rs 7700.	We know: Area of circle = r^2 So, (Area of circular field) × (Cost per square metre) = 7700 $22/7 \times r^2 \times 0.5 = 7700$ $r^2 = 4900$ $r = 70$
Perimeter of circle = 2r	So, Cost of fencing all around the field $= 2 \times 22/7 \times 70 \times 1.2$ = Rs. 528

Question 60 :

From the four corners of a rectangular sheet of dimensions 25 cm × 20 cm, square of side 2 cm is cut off from four corners and a box is made. The volume of the box is?

Difficulty : Moderate

Average Time : 170 Seconds

Options :

1. 828 cm^3
2. 672 cm^3
3. 500 cm^3
4. 1000 cm^3

Solution :

The correct answer is **option 2** i.e. **672 cm^3**

Understanding	Application
Dimensions of rectangular sheet = 25 cm × 20 cm. Square of side 2 cm is cut off from corners.	So, Height of box = 2 cm Length of box = 25 – 4 = 21 cm Breadth of box = 20 – 4 = 16 cm Hence, Volume of the box = l × b × h = 21 × 16 × 2 = 672 cm^3

Question 61 :

The height and the total surface area of a right circular cylinder are 4 cm and 8 sq.cm. respectively. The radius of the base of cylinder is

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

Options :

1. (22 - 2) cm
2. (2 - 2) cm
3. 2 cm
4. 2 cm

Solution :

The correct answer is **Option 1** i.e. **(22 – 2) cm**

Understanding	Application

The height and the total surface area of a right circular cylinder are 4 cm and 8 sq.cm. respectively. We know: Total surface area of cylinder = 2r (r + h)	So, 2r(r + h) = 8 r(r + 4) = 8 r^2 + 4r – 8 = 0 r = [-4 + (16 + 16)]/2 r = [-4 + 42]/2 r = (22 – 2) Hence, Radius of cylinder = (22 – 2) cm

Question 62 :

The radius of a cylindrical milk container is half its height and surface area of the inner part is 616 sq.cm. The amount of milk that the container can hold, approximately, is [Use : 5 = 2.23 and = 22/7]

Difficulty : Moderate

Average Time : 172 Seconds

Options :

1. 1.42 litres
2. 1.53 litres
3. 1.71 litres
4. 1.82 litres

Solution :

The correct answer is **Option 2** i.e. **1.53 litres**

Understanding	Application

The radius of a cylindrical milk container is half its height and surface area of the inner part is 616 sq.cm.	We have: $r = h/2$ So, $2rh + r^2 = 616$ $\times (2 \times h/2 \times h + h^2/4) = 616$ $22/7 \times (h^2 + h^2/4) = 616$ $5h^2/4 = 196$ $h^2 = 784/5$ $h = 28/5$
Volume of cylinder = r^2h	So, Volume of the container $= \times h^2/4 \times h$ $= 22/7 \times h^3/4$ $= 22/7 \times (28)^3/(55 \times 4)$ $= (22 \times 28 \times 28 \times 5)/25$ $= (22 \times 28 \times 28 \times 2.23)/25 \times 10^3$ litres $= 1.53$ litres

Question 63 :

A solid brass sphere of radius 2.1 dm is converted into a right circular cylindrical rod of length 7cm. The ratio of total surface areas of the rod to the sphere is

Difficulty : Moderate

Average Time : 211 Seconds

Options :

1. 3 : 1
2. 1 : 3

7 : 3

4. 3 : 7

Solution :

The correct answer is Option 3 i.e. 7 : 3

Understanding	Application
A solid brass sphere of radius 2.1 dm is converted into a right circular cylindrical rod of length 7 cm.	So, $4/3 \times \times (2.1 \times 10)^3 = \times r^2 \times 7$ $r^2 = 2 \times 2 \times 21 \times 21$ $r = 42$ cm
Total surface areas of the cylinder = $2rh + r^2$ Total surface areas of the sphere = $4R^2$	So, Required ratio $= (2rh + r^2) : 4R^2$ $= [2 \times 42 \times (42 + 7)] : [4 \times 21 \times 21]$ $= 49 : 21$ $= 7 : 3$

Question 64 :

The sum of the length and breadth of a rectangle is 6 cm. A square is constructed such that one of its sides is equal to a diagonal of the rectangle. If the ratio of areas of the square and rectangle is 5 : 2, the area of the square in cm2 is?

Difficulty : Moderate **Average Time : 185 Seconds**

Options :

1. 20
2. 10
3. 45
4. 102

Solution :

The correct answer is **option 1** i.e. **20**

Understanding	Application
Let the length of the rectangle be x cm and breadth of rectangle = (6 – x) Side of the square = diagonal of the rectangle = a cm So, Area of square = a^2 And Area of rectangle = x × (6 – x)	According to the question: $a^2 = x^2 + (6 – x)^2$ $a^2 = x^2 + 36 + x^2 – 12x$ $a^2 = 2x^2 – 12x + 36$ According to the question: $(2x^2 – 12x + 36)/(6x – x^2) = 5/2$ $4x^2 – 24x + 72 = 30x – 5x^2$ $9x^2 – 54x + 72 = 0$ $x^2 – 6x + 8 = 0$ $x^2 – 4x – 2x + 8 = 0$ $x (x – 4) – 2 (x – 4) = 0$ $(x – 4) (x – 2) = 0$ $x = 4$ and $x = 2$ Hence, Area of square $= a^2$ $= x^2 + (6 – x)^2$ $= 2^2 + 4^2$ $= 20\ cm^2$

Question 65 :

The length of a side of an equilateral triangle is 8 cm. The area of the region lying between the circum-circle and the incircle of the triangle is (use : = 22/7):

Difficulty : Moderate **Average Time : 128 Seconds**

Options :

1. 50(1/7) cm^2
2. 50(2/7) cm^2
3. 75(1/7) cm^2
4. 75(2/7) cm^2

Solution :

The correct answer is Option 2 i.e. 50 (2/7) cm^2

Understanding	Application
The length of a side of an equilateral triangle is 8 cm.	So, Radius of circum – circle = r/3 = 8/3 cm And Radius of incircle = r/23 = 4/3 cm
We know: Area of circle = r^2	So, Area of the region lying between the circum circle and the incircle = × $[(8/3)^2 – (4/3)^2]$ = 22/7 × 16 = 352/7 = 50 (2/7) cm^2

Question 66 :

A solid sphere of radius 3 cm is melted to form a hollow cylindrical tube of length 4 cm and external radius 5 cm. The thickness of the tube is?

Difficulty : Moderate **Average Time : 182 Seconds**

Options :

1 cm

2. 9 cm

3. 0.6 cm

4. 1.5 cm

Solution :

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

Understanding	Application
External radius of cylinder R = 5 cm Height of cylinder = 4 cm Radius of the sphere = R_1 = 3 cm We know: Volume of Hollow cylinder = $(R^2 – r^2)h$ Volume of sphere = $(4/3)\ r^3$	According to the question: Volume of cylinder = volume of sphere $(R^2 – r^2)h = 4/3 \times (R_1)^3$ $(5^2 – r^2) \times 4 = (4/3) \times 3 \times 3 \times 3$ $25 – r^2 = 9$ $r^2 = 25 – 9 = 16$ r = 4 cm So, Thickness of cylinder = 5 – 4 = 1 cm

Question 67 :

If x2 + 1/x2 = 98 (x > 0), then the value of x3 + 1/x3 is:

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

Options :

1. 970

2. 1030

3. -970

4. -1030

Solution :

The correct answer is **Option 1** i.e. **970**

Understanding	Application
Given: $x^2 + 1/x^2 = 98$ $(x > 0)$ We know: $(a + b)^2 = a^2 + b^2 + 2ab$ and $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$	So, $(x + 1/x)^2 = x^2 + 1/x^2 + 2$ $(x + 1/x)^2 = 98 + 2$ $(x + 1/x)^2 = 100$ $(x + 1/x) = 10$ Cubing both sides, $(x + 1/x)^3 = 10^3$ $x^3 + 1/x^3 = 10^3 - 3 \times 10 = 970$

Question 68 :

If $a + 1/b = 1$ and $b + 1/c = 1$, then the value of $c + 1/a$ is

Difficulty : Moderate **Average Time : 151 Seconds**

Options :

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

Solution :

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

Understanding	Application

Given: a + 1/b = 1 And b + 1/c = 1	a + 1/b = 1 a = (1 – 1/b) a = (b – 1)/b 1/a = b/(b – 1) or –b/(1 – b) And b + 1/c = 1 1/c = 1 – b c = 1/(1 – b)
	Now, c + 1/a 1/(1 – b) – b/(1 – b) (1 – b)/(1 – b) 1

Question 69 :

If x = y + z then x3 – y3 – z3 is:

Difficulty : Moderate **Average Time : 186 Seconds**

Options :

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

Solution :

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

Understanding	Application
We have: If (x + y + z) = 0, Then, $x^3 + y^3 + z^3 = 3xyz$	Given: x = y – z (x – y – z) = 0 Then, $x^3 – y^3 – z^3 = 3xyz$

Question 70 :

If a + b + c + d = 4 then the value of [1/(1 – a)(1 – b)(1 – c)] + [1/(1 – b)(1 – c)(1 – d)] + [1/(1 – c)(1 – d)(1 – a)] + [1/(1 – d)(1 – a)(1 – b)]:

Difficulty : Moderate **Average Time : 132 Seconds**

Options :

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

Solution :

The correct answer is **Option 1** i.e. **0**

Application

Given: a + b + c + d = 4

[1/(1 – a)(1 – b)(1 – c)] + [1/(1 – b)(1 – c)(1 – d)] + [1/(1 – c)(1 – d)(1 – a)] + [1/(1 – d)(1 – a)(1 – b)]

[(1 – d)/(1 – a)(1 – b)(1 – c)(1 – d)] + [(1 – a)/(1 – a)(1 – b)(1 – c)(1 – d)] + [(1 – b)/(1 – c)(1 – d)(1 – a)(1 – b)] + [(1 – c)/(1 – d)(1 – c)(1 – a)(1 – b)]

[(1 – a + 1 – b + 1 – c + 1 – d)/(1 – a)(1 – b)(1 – c)(1 – d)]

[(4 – 4)/(1 – a)(1 – b)(1 – c)(1 – d)]

0

Question 71 :

The simplified value of is closes to:

Difficulty : Moderate **Average Time : 115 Seconds**

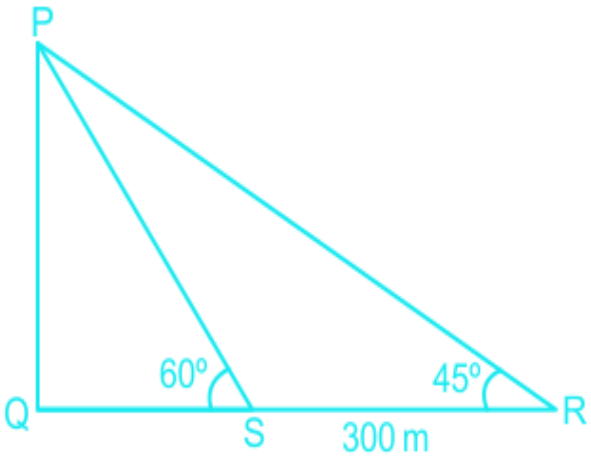
Options :

1. (3 - 1)
2. (1 - 3)
3. -(-3 - 1)
4. -(3 + 1)

Solution :

The correct answer is Option 4 i.e. – (3 + 1)

Application



Question 72 :

If x = 11, the value of x5 – 12x4 + 12x3 – 12x2 + 12x – 1 is:

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

Options :

1. 11
2. 10
3. 12
4. -10

Solution :

The correct answer is **option 2** i.e. **10**

Application
$x^5 – 12x^4 + 12x^3 – 12x^2 + 12x – 1$
$x^5 – 11x^4 – x^4 + 11x^3 + x^3 – 11x^2 – x^2 + 11x + x – 1$
$x^4(x – 11) – x^3(x – 11) + x^2(x – 11) – x(x – 11) + (x – 1)$
x = 11, then
0 + 0 + 0 + 0 + (11 – 1)
10

Question 73 :

If a = 1/(a - 5) (a > 0), then the value of (a + 1/a) is:

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

Options :

1. 29
2. 28
3. -29
4. 27

Solution :

The correct answer is **Option 1** i.e. **29**

Application
a = 1/(a – 5)
a^2 – 5a = 1
Divide by a:
a – 5 = 1/a
a – 1/a = 5
Taking square:
$a^2 + 1/a^2 – 2 = 25$
$a^2 + 1/a^2 = 27$
a + 1/a = (27 + 2) = 29

Question 74 :

If a + 1/b = b + 1/c = c + 1/a (where a b c), then abc is equal to:

Difficulty : Moderate **Average Time : 125 Seconds**

Options :

+1

2. -1
3. +1 & -1
4. None of these

Solution :

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

Application
a + 1/b = b + 1/c = c + 1/a Put a = – 1, b = 1/2 and c = 2 Then the conditions will be satisfied. Now, abc = (– 1) × 1/2 × 2 = – 1

Question 75 :

If ax + by = 1 and bx + ay = 2ab/(a2 + b2) then (x2 + y2)(a2 + b2) is equal to:

Difficulty : Moderate **Average Time : 88 Seconds**

Options :

1. 1
2. 2
3. 0.5
4. 0

Solution :

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

Application

$ax + by = 1$ and $bx + ay = 2ab/(a^2 + b^2)$

Put $x = 0$ and $y = 1$

From the first equation:

$0 + b = 1$

$b = 1$

Put $x = 0$, $y = 1$ and $b = 1$ in 2^{nd} equation:

$0 + a = 2a/(a^2 + 1)$

$a^2 + 1 = 2$

$a^2 = 1$

$a = 1$

Now, put $x = 0$, $y = 1$, $b = 1$ and $a = 1$ in given equation:

$(x^2 + y^2)(a^2 + b^2) = (0 + 1)(1 + 1) = 2$

Question 76 :

If x, y, z are the three factors of aâ€‹â€‹â€‹â€‹â€‹3 – 7a – 6, then value of x + y + z will be?

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

Options :

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

Solution :

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

Application

$a^3 - 7a - 6$

$a^3 - a - 6a - 6$

$a(a^2 - 1) - 6(a^2 + 1)$

$a(a + 1)(a - 1) - 6(a + 1)$

$(a + 1)[a(a - 1) - 6)]$

$(a + 1)[a^2 - a - 6]$

$(a + 1)[a^2 - 3a + 2a - 6]$

$(a + 1)[a(a - 3) + 2(a - 3)]$

$(a + 1)(a - 3)(a + 2)$

Let $x = (a + 1)$, $y = (a - 3)$ and $z = (a + 2)$

Hence,

$x + y + z = a + 1 + a - 3 + a + 2 = 3a$

Question 77 :

ABCD is a cyclic quadrilateral of which AB is the diameter. Diagonals AC and BD intersect at E. If DBC = 35°, then AED measures:

Difficulty : Moderate **Average Time : 85 Seconds**

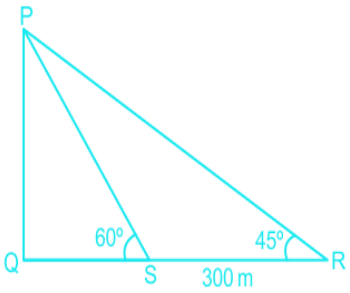
Options :

1. 35°
2. 45°
3. 55°
4. 90°

Solution :

The correct answer is **Option 3** i.e. **55°**

Understanding	Application

ABCD is a cyclic quadrilateral of which AB is the diameter. Diagonals AC and BD intersect at E. DBC = 35°	 ACB = 90° (Angle in semicircle) In triangle BEC: ECB + EBC + BEC = 180 BEC = 180 – 90 – 35 = 55° BEC = 55° Now, AED = BEC = 55° [Vertically opposite angles]

Question 78 :

In a right – angled triangle DEF, if the length of the hypotenuse EF is 12 cm, then the length of the median DX is

Difficulty : Moderate

Average Time : 172 Seconds

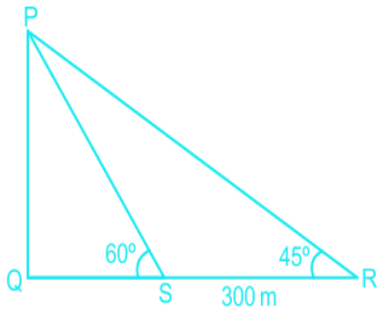
Options :

1. 3 cm
2. 4 cm
3. 6 cm
4. 12 cm

Solution :

The correct answer is **Option 3** i.e. **6 cm**

Understanding	Application

In a right – angled triangle DEF. The length of the hypotenuse EF is 12 cm.	 Median of the triangle = EF/2 = 12/2 = 6 cm

Question 79 :

Two equal circles intersect so that their centres, and the points at which they intersect form a square of side 1 cm. The area (in sq.cm) of the portion that is common to the circles is:

Difficulty : Moderate **Average Time : 116 Seconds**

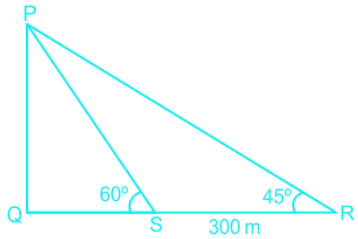
Options :

1. /4
2. /2 - 1
3. /5
4. (2 - 1)

Solution :

The correct answer is **Option 2** i.e. **(/2 – 1)**

Understanding	Application

Two equal circles intersect so that their centres, and the points at which they intersect form a square of side 1 cm.	 Square = AOBO' Side of the square = 1 cm Area of the square = 1 cm Area of sector AOB = r × 90/360 = /4 Area of sector AO'B = r × 90/360 = /4 Hence, Area of the portion that is common to the circles = /4 + /4 – 1 = (/2 – 1)

Question 80 :

PQRA is a rectangle, AP = 22 cm, PQ = 8 cm. ABC is a triangle whose vertices lie on the sides of PQRA such that BQ = 2 cm and QC = 16 cm, then the length of the line joining the mid points of the sides AB and BC is

Difficulty : Moderate

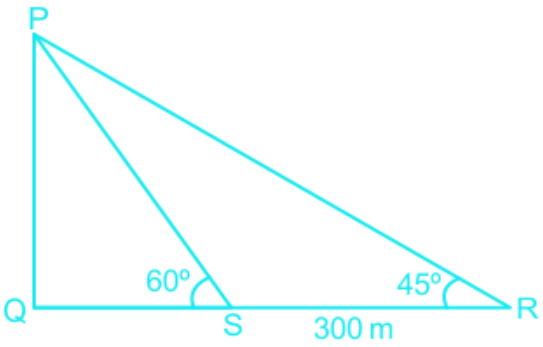
Average Time : 169 Seconds

Options :

1. 42 cm
2. 5 cm
3. 6 cm
4. 10 cm

Solution :

The correct answer is **Option 2** i.e. **5 cm**

Understanding	Application
PQRA is a rectangle, AP = 22 cm, PQ = 8 cm. ABC is a triangle whose vertices lie on the sides of PQRA such that BQ = 2 cm and QC = 16 cm.  	PQRA is a rectangle: So, QR = AP = 22 cm AR = PQ = 8 cm, BQ = 2 cm and QC = 16 cm RC = QR – QC = 22 – 16 = 6 cm In ARC: $AC^2 = AR^2 + RC^2$ $AC^2 = 8^2 + 6^2$ $AC^2 = 64 + 36$ AC = 100 = 10 cm Suppose M and N be the mid – points of AB and AC: So, BN = NC and BM = MA So, MN = AC/2 = 10/2 = 5 cm

Question 81 :

ABC is an isosceles right – angled triangle having C = 90°. If D is any point on AB, then AD2 + BD2 is equal to:

Difficulty : Moderate **Average Time : 202 Seconds**

Options :

1. CD^2
2. $2CD^2$

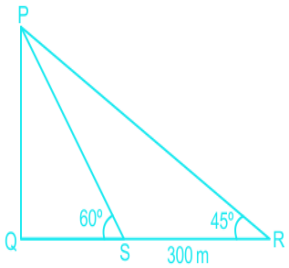
$3CD^2$

4. $4CD^2$

Solution :

The correct answer is **Option 2** i.e. **$2CD^2$**

Understanding	Application

ABC is an isosceles right – angled triangle having C = 90°	 In the right angle âˆ†ABC $AC^2 + CB^2 = AB^2$ And AC = BC (Given) So, $2BC^2 = (AD + DB)^2$ $2BC^2 = AD^2 + DB^2 + 2AD \times BD$ ---- (1) In right angled âˆ†CED: $CD^2 = CE^2 + ED^2$ ------ (2) In right angled âˆ†CEB: $BC^2 = CE^2 + BE^2$ ------ (3) From equation 2 and 3: $BC^2 – CD^2 = BE^2 – DE^2$ $BC^2 – CD^2 = (BE + DE) (BE – DE)$ $BC^2 – CD^2 = (AE + DE) (BE – DE)$ $BC^2 – CD^2 = AD \times BD$ ------ (4) From equations 1 and 4: $2BC^2 = AD^2 + DB^2 + 2BC^2 – 2CD^2$ $AD^2 + DB^2 = 2CD^2$

Question 82 :

D and E are points on the sides AB and AC respectively of ABC such that DE is parallel to BC and AD : DB = 4 : 5, CD and BE intersect each other at F. Then the ratio of the areas of DEF and CBF:

Difficulty : Moderate | **Average Time : 255 Seconds**

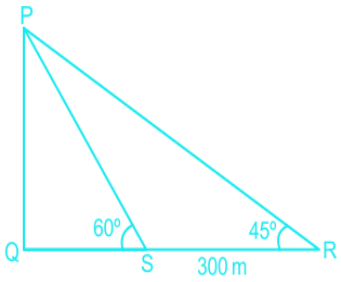
Options :

1. 16 : 25
2. 16 : 81
3. 81 : 1
4. 4 : 9

Solution :

The correct answer is **option 2** i.e. **16 : 81**

Understanding	Application

D and E are points on the sides AB and AC respectively of ABC such that DE is parallel to BC and AD : DB = 4 : 5, CD and BE intersect each other at F. If two triangles are similar: Ratio of areas of two triangles = Ratio of squares of corresponding sides.	 Triangles ABC and ADE: DE || BC So, these two triangles are similar triangles. Now, AD/AB = DE/BC 4/(4 + 5) = DE/BC DE/BC = 4/9 Now, Triangles DEF and BCF are also similar. So, Area of DEF : Area of BFC = $DE^2 : BC^2$ = $4^2 : 9^2$ = 16 : 81

Question 83 :

Diagonals of a trapezium ABCD with AB II CD intersect each other at the point O. If AB = 2CD, then the ratio of the areas of AOB and COD is _____.

Difficulty : Moderate **Average Time : 125 Seconds**

Options :

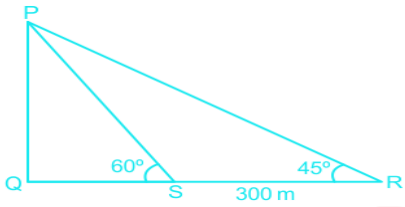
1. 4 : 1
2. 1 : 16

1 : 4

4. 16 : 1

Solution :

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

Understanding	Application
Diagonals of a trapezium ABCD with AB II CD intersect each other at the point O. And AB = 2CD	 AB : CD = 2 : 1 Triangles AOB and COD are similar triangles. So, Area of AOB : Area of COD = $AB^2 : CD^2$ = $2^2 : 1^2$ = 4 : 1

Question 84 :

If O is the ortho centre of ABC and BOC = 100°, the measure of BAC is?

Difficulty : Moderate **Average Time : 94 Seconds**

Options :

1. 100°
2. 180°
3. 80°
4. 200°

Solution :

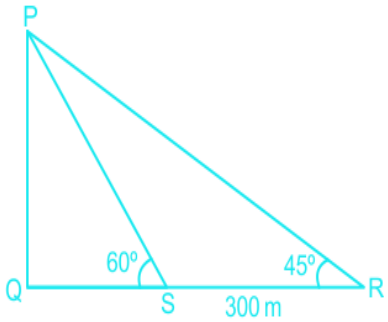
The correct answer is**option 3** i.e. **80°.**

O is the orthocentre of ABC

And

BOC = 100°

In the figure:



OPA = OQA = 90°

And

BOC = POQ = 100°

In quadrilateral APOQ:

APO + POQ + OQA + QAP = 360°

90° + 100° + 90° + QAP = 360°

QAP = 360° – 280° = 80°

Question 85 :

PQ and RS are common tangents to two circles intersecting at A and B. When AB produced both sides, meet the tangents PQ and RS at X and Y respectively. If AB = 3 cm, XY = 5 cm, then PQ (in cm) will be _____.

Difficulty : Moderate

Average Time : 68 Seconds

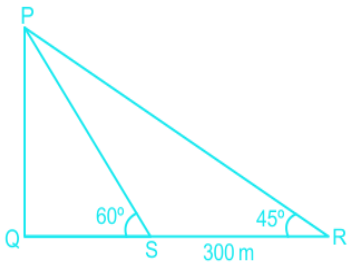
Options :

1. 3 cm
2. 4 cm
3. 5 cm

2 cm

Solution :

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

Understanding	Application
PQ and RS are common tangents to two circles intersecting at A and B. AB, when produced both sides, meet the tangents PQ and RS at X and Y, respectively. AB = 3 cm, XY = 5 cm	 We know: XA = YB So, XY = XA + AB + BY 5 = 2XA + 3 2XA = 5 – 3 = 2 XA = 1 XB = XA + AB = 1 + 3 = 4 Now, PX = XA × XB PX = 1 × 4 PX = 2 cm Similarly, XQ = 2 cm PQ = PX + XQ = 2 + 2 = 4 cm

Question 86 :

If secA + tanA = a, then the value of cosA is:

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

Options :

1. $(a^2 + 1)/2a$
2. $2a/(a^2 + 1)$
3. $(a^2 - 1)/2a$
4. $2a/(a^2 - 1)$

Solution :

The correct answer is **option 2** i.e. **$2a/(a^2 + 1)$**

Understanding	Application
We know: $Sec^2x – Tan^2x = 1$	$Sec^2A – Tan^2A = 1$ $(sec A + tan A)(sec A – tan A) = 1$ Given: $sec A + tan A = a$ So, $(sec A – tan A) = 1/a$ Adding both the equations: $2sec A = a + 1/a$ $sec A = (a^2 + 1)/2a$ Or $cos A = 2a/(a^2 + 1)$

Question 87 :

If sin P + cosec P = 2, then the value of sin P - cosec P is:

Difficulty : Moderate **Average Time : 99 Seconds**

Options :

1

2. 2

3. 3

4. 0

Solution :

The correct answer is **Option 4** i.e. **0**

sin P + cosec P = 2

sin P + 1/sin P = 2

It is in the form of (a + 1/a) = 2 which is possible only when a = 1

Hence,

sin P = 1

So, cosec P = 1

Hence,

sin P - cosec P = 1 - 1 = 0

Question 88 :

If cosx.cosy + sinx.siny = – 1 then cosx + cosy is:

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

Options :

1. -2

2. 1

3. 0

4. 2

Solution :

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

Application

cosx.cosy + sinx.siny = -1

cos (x – y) = -1

cos (x – y) = Cos 180°

So,

(x – y) = 180°

Suppose x = 180° and y = 0°

So,

cosx + cosy = cos 180° + cos 0° = -1 + 1 = 0

Question 89 :

The value of the expression 2(sin6 + cos6) – 3(sin4 + cos4) + 1 is:

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

Options :

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

Solution :

The correct answer is **option 2** i.e. **0**

Application

$2(\sin^6 + \cos^6) – 3(\sin^6 + \cos^6) + 1$

Put = 0°

2(0 + 1) – 3(0 + 1) + 1

2 – 3 + 1

0

Question 90 :

If cos = (x2 – y2)/(x2 + y2) then the value of cot is equal to [If 0° 90°]

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

Options :

1. $2xy/(x^2 - y^2)$
2. $2xy/(x^2 + y^2)$
3. $(x^2 + y^2)/2xy$
4. $(x^2 - y^2)/2xy$

Solution :

The correct answer is **option 4** i.e. **$(x^2 - y^2)/2xy$**

Understanding	Application
We know that: Cos X = Base/Hypotenuse And Cot X = Base/Perpendicular	Given: cos = $(x^2 - y^2)/(x^2 + y^2)$ So, Base = $(x^2 - y^2)$ Hypotenuse = $(x^2 + y^2)$ Now, Perpendicular = 2xy (Using Pythagoras theorem) So, Cot = $(x^2 - y^2)/2xy$

Question 91 :

The distance between two pillars is 120 metres. The height of one pillar is thrice the other. The angles of elevation of their tops from the midpoint of the line connecting their feet are complementary to each other. The height (in metres) of the taller pillar is (Use: 3 = 1.732)

Difficulty : Moderate **Average Time : 111 Seconds**

Options :

34.64

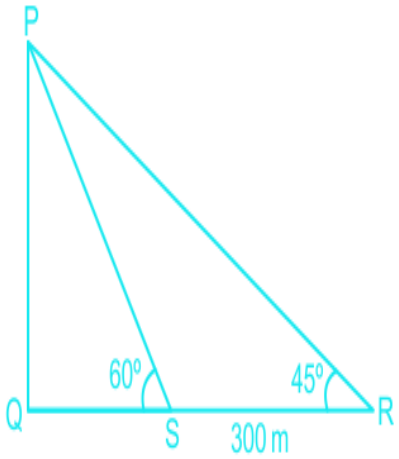
2. 51.96
3. 69.28
4. 103.92

Solution :

The correct answer is **Option 4** i.e. **103.92**

Application

In the figure:



BD = 120 and BO = OD = 120/2 = 60

Let AB = h and CD = 3h

In triangle ABO:

tanX = AB/BO

tanX = h/60 …… (1)

And

In triangle COD:

tan (90 – X) = CD/OD

cotX = 3h/60 ……. (2)

From equations (1) and (2):

tanX cotX = (h/60) × (3h/60)

$1 = 3h^2/(60 \times 60)$

$h^2 = (60 \times 60)/3 = 1200$

h = 203 m

Hence,

Length of taller pillar

CD = 3 × 203 = 60 × 1.732 = 103.92 meters

Question 92 :

If x = cosec – sin and y = sec – cos, then the relation between x and y is:

Difficulty : Moderate

Average Time : 179 Seconds

Options :

1. $x^2 + y^2 + 3 = 1$
2. $x^2y^2 (x^2 + y^2 + 3) = 1$
3. $x^2(x^2 + y^2 – 5) = 1$
4. $y^2(x^2 + y^2 – 5) = 1$

Solution :

The correct answer is **option 2** i.e. $\mathbf{x^2y^2(x^2 + y^2 + 3) = 1}$

Application

x = cosec – sin and y = sec – cos

Put = 45°

x = cosec 45° – sin 45°

x = 2 – 1/2

x = 1/2

And

y = sec 45° – cos 45°

y = 2 – 1/2

y = 1/2

Now, check with the options:

Option 2:

$x^2y^2(x^2 + y^2 + 3) = 1$

Put x = 1/2 and y = 1/2:

So,

1/2 × 1/2 × (1/2 + 1/2 + 3) = 1

1 = 1

It is satisfied hence option 2 is correct.

Question 93 :

A hydrogen filled balloon ascending at the rate of 18 kmph was drifted by wind. Its angle of elevation at 10 and 15 minutes were found to be 60° and 45° respectively. The wind speed (in whole numbers) during the last five minutes, approximately, is equal to:

Difficulty : Moderate

Average Time : 102 Seconds

Options :

1. 7 km/hr
2. 11 km/ hr
3. 26 km/hr

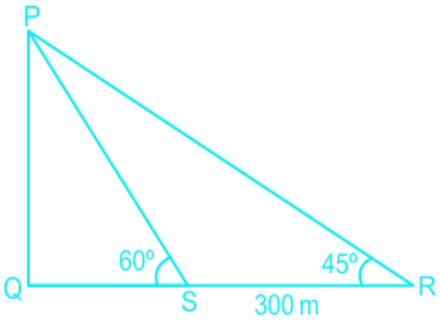
33 km/hr

Solution :

The correct answer is **Option 4** i.e. **33 km/hr**

Application

Given: After 10 minutes balloon will be at Point Q and after 15 minutes balloon will be at point R.



So,

QS = Time × Speed = 10/60 × 18 = 3 km

And

RT = Time × Speed = 15/60 × 18 = 4.5 km

So, RU = 4.5 – 3 = 1.5 km

In triangle PQS:

Tan 60 = QS/SP

3 = 3/SP

SP = 3

In triangle PRT:

Tan 45 = RT/TP

1 = 4.5/TP

TP = 4.5

So, TS = TP – SP = (4.5 – 3) m

And

UQ = TS = (4.5 – 3) m

Now,

Wind speed = UQ/Time

= (4.5 – 3)/(5/60)

Question 94 :

The angle of elevation of an aeroplane as observed from a point 30 m above the transparent water – surface of a lake is 30° and the angle of depression of the image of the aeroplane in the water of the lake is 60°. The height of the aeroplane from the water – surface of the lake is:

Difficulty : Moderate

Average Time : 223 Seconds

Options :

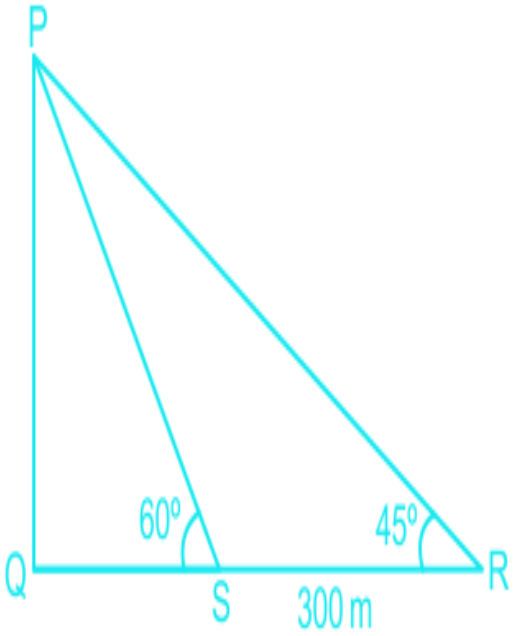
1. 60 m
2. 45 m
3. 50 m
4. 75 m

Solution :

The correct answer is Option 1 i.e. 60 m

Application

From the figure:



Suppose the height of aeroplane from the water surface BC = h cm

And

AP = BQ = 30 cm

CQ = DQ = h + 30

So,

BD = 30 + h + 30 = (h + 60)

In triangle ABC:

tan 30 = CB/AB

1/3 = h/AB

AB = 3h …… (1)

In triangle ABD:

tan 60 = BD/AB

3 = (h + 60)/AB

AB = (h + 60)/3 …… (2)

Question 95 :

The angles of depression of two ships from the top of a light house are 60° and 45° towards east. If the ships are 300 m apart, the height of the light house is:

Difficulty : Moderate | **Average Time : 214 Seconds**

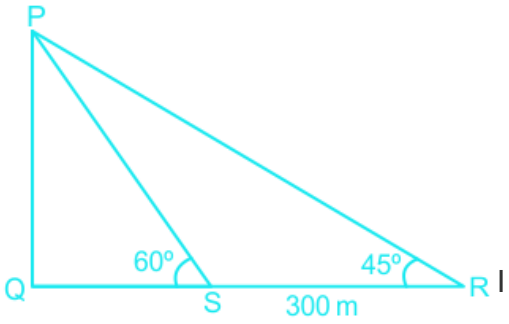
Options :

1. 200(3 + 3) meter
2. 250(3 + 3) meter
3. 150(3 + 3) meter
4. 160(3 + 3) meter

Solution :

The correct answer is Option 3 i.e. 150(3 + 3) meter

Application



n triangle PQS:

tan 60 = PQ/QS

3 = PQ/QS

PQ = 3 QS ……. (1)

In triangle PQR:

tan 45 = PQ/QR

1 = PQ/QR

PQ = QR …….. (2)

QR = 3 QS

3 QS = QS + 300

QS (3 – 1) = 300

QS = 300/(3 – 1) × [(3 + 1)/(3 + 1)]

QS = 300/2 × (3 + 1)

QS = 150 (3 + 1)

From equation 1:

PQ = 150 (3 + 1) × 3

PQ = 150 (3 + 3) meter

Comprehension :

Direction: The following bar – diagram shows the total number of males and females in five different organisations. Study it

carefully to answer the questions.

Question 96 :

What is the difference between the total number of females and the total number of males from all the organisations together?

Difficulty : Moderate **Average Time : 192 Seconds**

Options :

1. 2005
2. 2550
3. 2500
4. 2055

Solution :

The correct answer is **option 3** i.e. **2500**

Understanding	Application
Extract the data from the bar graph.	Total number of males = 3500 + 4500 + 4750 + 2250 + 3250 = 18250 And Total number of females = 3000 + 3500 + 4000 + 1500 + 3750 = 15700 Hence, Required difference = 18250 – 15700 = 2500

Comprehension :

Direction: The following bar – diagram shows the total number of males and females in five different organisations. Study it

carefully to answer the questions.

Question 97 :

By how much percentage is the average number of females from all the organisations together is more than the number of males in organization 'D'?

Difficulty : Moderate **Average Time : 92 Seconds**

Options :

1. 42%
2. 38%
3. 40%
4. 45%

Solution :

The correct answer is **option 3** i.e. **40%**

Understanding	Application
Extract the data from the bar graph.	Average number of females = [3000 + 3500 + 4000 + 1500 + 3750]/5 = 15750/5 = 3150 And Number of males in organization D = 2250 Hence, Required percentage = [(3250 – 2250)/2250] × 100 = 40% â€‹â€‹â€‹

Comprehension :

Direction: The following bar – diagram shows the total number of males and females in five different organisations. Study it carefully to answer the questions.

Question 98 :

What is the ratio of the number of females from the organisations B and C to the number of males from the organisationsD and E?

Difficulty : Moderate **Average Time : 93 Seconds**

Options :

1. 12 : 11
2. 12 : 15
3. 11 : 15
4. 15 : 11

Solution :

The correct answer is **option 4** i.e. **15 : 11**

Understanding	Application
Extract the data from the bar graph.	Total number of females in organization B and C = 3500 + 4000 = 7500 And Total number of males in organization D and E = 2250 + 3250 = 5500 Hence, Required ratio = 7500 : 5500 = 15 : 11

Comprehension :

Direction: The following bar – diagram shows the total number of males and females in five different organisations. Study it carefully to answer the questions.

Question 99 :

Males from organisations A and B together form what percent of total number of males from organisations C, D and E together?

Difficulty : Moderate **Average Time : 92 Seconds**

Options :

78.04%

2. 87.44%
3. 47.08%
4. 74.08%

Solution :

The correct answer is **option 1** i.e. **78.04%**

Understanding	Application
Extract the data from the bar graph.	Total number of males in organization A and B = 3500 + 4500 = 8000 And Total number of males in organization C, D and E = 4750 + 2250 + 3250 = 10250 Hence, Required percentage = [8000/10250] × 100 = 78.04%

Comprehension :

Direction: The following bar – diagram shows the total number of males and females in five different organisations. Study it carefully to answer the questions.

Question 100 :

What is the ratio of average number of females from the organisations A, B and C to the average number of males from the organisations C, D and E?

Difficulty : Moderate **Average Time : 99 Seconds**

Options :

1. 42 : 41
2. 41 : 42
3. 40 : 41

41 : 40

Solution :

The correct answer is **option 1** i.e. **42 : 41**

Understanding	Application
Extract the data from the bar graph.	Average number of females from the organizations A, B and C = [3000 + 3500 + 4000]/3 = 10500/3 And Average number of males from the organizations C, D and E = [4750 + 2250 + 3250]/3 = 10250/3 Hence, Required ratio = 10500/3 : 10250/3 = 42 : 41

Ssc Cgl Tier II Previous Year Question Paper Analysis

The analysis of Ssc Cgl Tier II Previous Year Question Paper held on 2017-01-12 in the Morning exam is as follows:

1. 100 questions were moderate.
2. The safe score is 150 marks.
3. 100 questions were asked from Quantitative Aptitude and 100 questions were asked from Quantitative Aptitude
4. 38 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. Average - 6
2. Percentage - 4
3. Data Interpretation - 5
4. Time And Work - 6
5. Time Speed And Distance - 4
6. Interest - 4
7. Ratios And Proportion - 4
8. Geometry - 10
9. Trigonometry - 10
10. Mensuration - 15
11. Algebra - 10
12. Number System - 9
13. MIxtures And Alligations - 1
14. Partnership - 1
15. Profit And Loss - 11

Ssc Cgl Tier II Previous Year Question Paper Tips and Tricks

1. 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.

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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Study Plan

Further Guidance on Ssc Cgl Tier II Previous Year Question Paper

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About Neetu Mam

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.