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# 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 2018-02-21 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 :**

If ABCDEF is a regular hexagon, then what is the value (in degrees) of ADB?

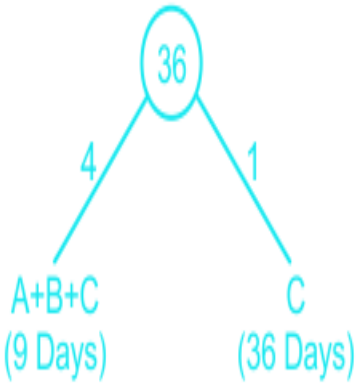
**Difficulty : Moderate** **Average Time : 43 Seconds**

**Options :**

1. 15°
2. 30°
3. 45°
4. 60°

**Solution :**

The correct answer is **option 2** i.e. **30**



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In a regular hexagon:

AOB = $60^{\circ}$ = OAB = OBA

ADB = AOB/2 = $60^{\circ}/2 = 30^{\circ}$

**Question 2 :**

If a = (3+2)/(3-2) and b = (3-2)/(3+2) then what is the value of a2+b2-ab ?

**Difficulty : Moderate** **Average Time : 48 Seconds**

**Options :**

1. 97
2. (23) + 2
3. (46) + 1
4. 98

**Solution :**

The correct answer is option 1, i.e. 97

a = (3+2)/(3-2)

b = (3-2)/(3+2)

a = (3+2) (3+2)/3-2

b = (3-2) (3-2)/3-2

a = 5+26

b = 5-26

$a^2+b^2$ - ab = $(5+26)^2$ + $(5-26)^2$ - (5+26)(5-26)

= 25 + 24 + 206 + 25 +24 - 206 - 25 + 24 = 97

**Question 3 :**

If A = 1 – 10 + 3 – 12 + 5 – 14 + 7 + … upto 60 terms, then what is the value of A?

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

**Options :**

1. – 360



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– 310

3. – 240

4. – 270

**Solution :**

The correct answer is option 4, i.e. –270

A = 1 – 10 + 3 – 12 + 5 – 14 + 7 + … upto 60 terms

=(1 – 10) + (3 – 12) + (5 – 14) + .....30 terms

= –9 – 9 – 9 – 9 .....30 times

A = – 9 × 30 = – 270

**Question 4 :**

How many natural numbers are there between 1000 to 2000, which when divided by 341 leaves remainder 5?

**Difficulty : Moderate** **Average Time : 40 Seconds**

**Options :**

1. 3

2. 2

3. 4

4. 1

**Solution :**

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

Numbers between 1000 and 2000 when divided by 341 leaves remainders 5 are = 1028, 1369, 1710

**Question 5 :**

Which of the following statement(s) is/are TRUE? I. (64) + (0.0064) + (0.81) + (0.0081) = 9.07 II. (0.010201) + (98.01) + (0.25) = 11.51

**Difficulty : Moderate** **Average Time : 34 Seconds**

**Options :**

1. Only I



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Only II

3. Both I and II
4. Neither I nor II

**Solution :**

The correct answer is option 1, i.e. only I

I. (64) + (0.0064) + (0.81) + (0.0081) = 9.07

8 + 0.08 + 0.9 + 0.09 = 9.07 (true)

II. (0.010201) + (98.01) + (0.25) = 11.51

0.101 + 9.9 + 0.5 = 10.501 (false)

**Question 6 :**

4 - Which of the following statement(s) is/are TRUE? I. (0.7)2 + (0.07)2 + (11.1)2 > 123.8 II. (1.12)2 + (10.3)2 + (1.05)2 > 108.3

**Difficulty : Moderate**

**Average Time : 39 Seconds**

**Options :**

1. Only I
2. Only II
3. Both I and II
4. Neither I nor II

**Solution :**

The correct answer is option 2, i.e. only II

I. $(0.7)^2 + (0.07)^2 + (11.1)^2 > 123.8$

0.49 + 0.0049 + 123.21 > 123.8

123.7049 > 123.8 (false)

II. $(1.12)^2 + (10.3)^2 + (1.05)^2 > 108.3$

1.2544 + 106.09 + 1.1025 > 108.3



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108.4469 > 108.3 (true)

**Question 7 :**

Which of the following statement(s) is/are True? I. 1/1×3 + 1/3×5 + 1/5×7 + .....+ 1/11×13 = 12/13 II. 1/1×2 + 1/2×3 + 1/3×4 + ......+ 1/12×13 = 12/13

**Difficulty : Moderate**

**Average Time : 43 Seconds**

**Options :**

1. Only I
2. Only II
3. Both I and II
4. Neither I nor II

**Solution :**

The correct answer is option 2, i.e. Only II

I. 1/1×3 + 1/3×5 + 1/5×7 + .....+ 1/11×13 = 12/13

LHS= 1/2[ 1 - 1/3 + 1/3 -1/5 + 1/5 -1/7 + 1/7 ....1/11 - 1/13]

=1/2(1 - 1/13)

= 6/13 not equal to 12/13 (false)

II. 1/1×2 + 1/2×3 + 1/3×4 + ......+ 1/12×13 = 12/13

LHS = 1 - 1/2 + 1/2 - 1/3 + 1/3 - 1/4 ..... + 1/12 - 1/13

= 1 - 1/13

= 12/13 (true)

**Question 8 :**

Which of the following statement(s) is/are TRUE? I. 3/71 5/91 7/99 II. 11/135 > 12/157 > 13/181

**Difficulty : Moderate**

**Average Time : 44 Seconds**

**Options :**

1. Only I
2. Only II



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Both I and II

4. Neither I nor II

**Solution :**

The correct answer is option 3, i.e. Both I and II

I. 3/71 5/91 7/99

= 71/3 > 91/5 > 99/7 (Reciprocating numerator and denominator to each other)

23.6 > 18.2 > 14.14 (true)

II. 11/135 > 12/157 > 13/181

=135/11 157/12 181/13

12.27 13.08 13.92 (true)

**Question 9 :**

If 1 + (1/2) + (1/3) + … + (1/20) = k, then what is the value of (1/4) + (1/6) + (1/8) + … + (1/40)?

**Difficulty : Moderate** **Average Time : 41 Seconds**

**Options :**

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

**Solution :**

The correct answer is **option 3** i.e. **(k - 1)/2**

1 + (1/2) + (1/3) + .... (1/20) = k

1/2 + 1/3 + .....1/20 = k - 1

1/2(1/2 + 1/3 + .....1/20) = (k - 1)/2

1/4 + 1/6 + 1/8 +.....1/40 = (k - 1)/2

**Question 10 :**

If A = 232, B = 231 + 230 + 229 + … + 2o and C = 315 + 314 + 313 + … + 3o , then which of the following option is TRUE?



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**Difficulty : Moderate**

**Average Time : 37 Seconds**

**Options :**

1. C > B > A
2. C > A > B
3. A > B > C
4. A > C > B

**Solution :**

The correct answer is option 3, i.e. A > B > C

$A = 2^{32}$

$B = 2^{31} + 2^{30} + 2^{29} + \ldots + 2^{o} = 2^{o}(2^{31} - 1)/(2-1) = (2^{32} - 1)$

$C = 3^{o} + 3^{1} + \ldots\ldots\ldots 3^{15} = 3^{o}(3^{15} - 1)/(3-2) = (3^{16} - 1)/2$

so, A > B > C

**Question 11 :**

If x + y = 10 and xy = 4, then what is the value of x4 + y4?

**Difficulty : Moderate**

**Average Time : 51 Seconds**

**Options :**

1. 8464
2. 8432
3. 7478
4. 6218

**Solution :**

The correct answer is **option 2** i.e. **8432**

x + y = 10, xy = 4

$x^2 + y^2 = (10)^2 - 2 \times 4 = 92$

$x^4 + y^4 = (92)^2 - 2 \times 4^2 = 8464 - 32$

$x^4 + y^4 = 8432$



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**Question 12 :**

M is the largest three digit number which when divided by 6 and 5 leaves remainder 5 and 3 respectively. What will be the remainder when M is divided by 11?

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

**Options :**

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

**Solution :**

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

X = 6m + 5 .....(1)

X = 5n + 3 .....(2)

From (1) and (2):

6m + 5 = 5n + 3

n = (6m + 2)/5

m = 3, 8, 13 ..... and n = 4, 10, 16 ..... satisfies the condition

According to question,

X must be largest 3 digit no. which satisfies both the conditions at m = 163 and n = 196

So, X = 983

Remainder = 983/11 = 4

**Question 13 :**

Which of the following statement(s) is/are TRUE? I. 5 + 5 > 7 + 3 II. 6 + 7 > 8 + 5 III. 3 + 9 > 6 + 6

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

**Options :**

1. Only I



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Only I and II

3. Only II and III
4. Only I and III

**Solution :**

The correct answer is option 2, i.e. Only I and II

I. Squaring both sides, we get

10 + 225 > 10 + 221 (true)

II. Squaring both sides,

13 + 242 > 13 + 240 (true)

III. Squaring both sides

12 + 227 > 12 + 236 (false)

**Question 14 :**

If the difference between the roots of the equation Ax2 – Bx + C = 0 is 4, then which of the following is TRUE?

**Difficulty : Moderate** **Average Time : 45 Seconds**

**Options :**

1. $B^2 – 16A^2 = 4AC + 4B^2$
2. $B^2 – 10A^2 = 4AC + 6A^2$
3. $B^2 – 8A^2 = 4AC + 10A^2$
4. $B^2 – 16A^2 = 4AC + 8B^2$

**Solution :**

The correct answer is **option 2** i.e. **$B^2 – 10A^2 = 4AC + 6A^2$**

$Ax^2 – Bx + C = 0$

Roots of the equation are ,

+ = B/A .....(1)

= C/A .....(2)

- = 4 .....(3)



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+ = B/A .....(4)

from equation (3) and (4)

2 = B/A + 4

= B/2A + 2

= B/2A - 2

By putting in equation (2)

= C/A

$(B/2A)^2$ - 4 × C/A

$B^2/4A^2$ - 4 = C/A

$B^2 – 10A^2 = 4AC + 6A^2$

**Question 15 :**

and are the roots of quadratic equation. If + = 8 and – = 25, then which of the following equation will have roots 4 and 4?

**Difficulty : Moderate**

**Average Time : 78 Seconds**

**Options :**

1. $x^2 – 1522x + 14641 = 0$
2. $x^2 + 1921x + 14641 = 0$
3. $x^2 – 1764x + 14641 = 0$
4. $x^2 + 2520x + 14641 = 0$

**Solution :**

The correct answer is **option 1** i.e. **$x^2 – 1522x + 14641 = 0$**

+ = 8 .....(1)

- = 25 .....(2)

By solving euqation (1) and (2), we get

= 4 + 5, = 4 - 5

+ = 8



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= 11

$^2 + ^2 = ( + ) - 2 = 82 - 2 \times 11 = 42$

$^4 + ^4 = (^2 + ^2)^2 - 2^{22} = 42^2 - 2 \times 11^2 = 1764 - 242 = 1522$

$^{44} = 11^4 = 14641$

Equation

$x^2 - (^4 + ^4)x + (^{44}) = 0$

$x^2 – 1522x + 14641 = 0$

**Question 16 :**

If a and b are the roots of the equation Px2 – Qx + R = 0, then what is the value of (1/a2) + (1/b2) + (a/b) + (b/a)?

**Difficulty : Moderate**

**Average Time : 82 Seconds**

**Options :**

1. $(Q^2 - 2P)(2R+P)/PR^2$
2. $(Q^2 - 2PR)(R+P)/PR^2$
3. $(Q^2 - 2R)(2P+R)/P^2R^2$
4. $(Q^2 - 2PR)(2R+P)/P^2R^2$

**Solution :**

The correct answer is **option 2** i.e. **$(Q^2 - 2PR)(R+P)/PR^2$**

a and b are the roots of $(Px^2 – Qx + R = 0)$:

$a + b = Q/P$

$a \times b = R/P$

$1/a^2 + 1/b^2 + a/b + b/a = (a^2 + b^2)/(ab)^2 + (a^2 + b^2)/ab$ .....(1)

$(a + b)^2 = Q^2/P^2$

$a^2 + b^2 = Q^2/P^2 - 2R/P$

$a^2 + b^2 = (Q^2 - 2PR)/P^2$

Putting this in equation (1):

$1/a^2 + 1/b^2 + a/b + b/a$



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$= (Q^2 - 2PR)/(P^2 \times R^2/P^2) + (Q^2 - 2PR)/(P^2 \times R/P)$

$= (Q^2 - 2PR)/R^2 + (Q^2 - 2PR)/PR$

$= (Q^2 - 2PR)(R + P)/PR^2$

**Question 17 :**

If x2 – 16x + 59 = 0, then what is the value of (x – 6)2 + [1/(x – 6)2]?

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

**Options :**

1. 14
2. 18
3. 16
4. 20

**Solution :**

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

$x^2 – 16x + 59 = 0$

Let x - 6 = m

x = m + 6

So,

$(x – 6)^2 + 1/(x – 6)^2 = m^2 + 1/m^2$

Now,

$(m + 6)^2 - 16(m + 6) + 59 = 0$

$m^2 + 36 + 12m - 16m - 96 + 59 = 0$

$m^2 - 4m - 1 = 0$

Divising by m:

$m - 1/m = 4$

$m^2 + 1/m^2 = (m - 1/m)^2 + 2$

$(x – 6)^2 + 1/(x – 6)^2 = 16 + 2 = 18$



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**Question 18 :**

If A and B are the roots of the equation Ax2 – A2x + AB = 0, then what is the value of A and B respectively?

**Difficulty : Moderate**

**Average Time : 68 Seconds**

**Options :**

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

**Solution :**

The correct answer is **option 1** i.e. **1, 0**

A and B are the roots of the equation

$Ax^2 – A^2x + AB = 0$

So,

A + B = -(-A)/A = 1 ....(1)

AB = AB/A = B ....(2)

From (1) and (2):

A = 1

B = 0

**Question 19 :**

and  are the roots of the quadratic equation x2 – x – 1 = 0. What is the value of 2 + 2?

**Difficulty : Moderate**

**Average Time : 44 Seconds**

**Options :**

1. 47
2. 54
3. 59
4. 68



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**Solution :**

The correct answer is **option 1** i.e. **47**

and  are the roots of the quadratic equation $x^2 – x – 1 = 0$

+  = -(-1)/1 = 1 ....(1)

= -1/1 = -1 .....(2)

= -1/

From eq(1)

+  = 1

- 1/ = 1

$^2$ - 1/$^2$ = $(1)^2$ + 2 = 3

$^4$ + 1/$^4$ = $(3)^2$ - 2 = 7

$^8$ + 1/$^8$ = $(7)^2$ - 2 = 47

Hence, $^8$ + 1/$^8$ = 47

**Question 20 :**

If a + b + c = 9, ab + bc + ca = 26, a3 + b3= 91, b3 + c3 = 72 and c3 + a3 = 35, then what is the value of abc?

**Difficulty : Moderate**

**Average Time : 57 Seconds**

**Options :**

1. 48
2. 24
3. 36
4. 42

**Solution :**

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

We know that,

$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - ab - ca)$ .....(1)

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ .....(2)



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From (2)

$a^2 + b^2 + c^2 = (9)^2 - 2 \times 26$

$a^2 + b^2 + c^2 = 29$

$a^3 + b^3 + c^3 = (91 + 72 + 35)/2 = 99$

From equation (1), by putting the values,

$99 - 3abc = 9 \times (29 - 26)$

$3abc = 72$

$abc = 24$

**Question 21 :**

If x3 – 4x2 + 19 = 6(x – 1), then what is the value of [x2 + (1/x – 4)]?

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

**Options :**

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

**Solution :**

The correct answer is **option 3** i.e. **6**

$x^3 – 4x^2 + 19 = 6(x – 1)$ .....(1)

$x^3 – 4x^2 - 6x + 6 + 19 = 0$

$x^3 – 4x^2 - 1 = 6x - 24$

By putting the value of $(x^3 – 4x^2 - 1)$

$(6x - 24)/(x - 4) = 6(x - 4)/x - 4 = 6$

$x^2 + 1/(x - 4) = 6$

**Question 22 :**

Cost of 8 pencils, 5 pens and 3 erasers is Rs 111. Cost of 9 pencils, 6 pens and 5 erasers is Rs 130. Cost of 16 pencils, 11 pens and 3 erasers is Rs 221. What is the cost price of 39 pencils, 26 pens and 13 erasers (in Rs)?



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**Difficulty : Moderate**

**Average Time : 54 Seconds**

**Options :**

1. 316
2. 546
3. 624
4. 482

**Solution :**

The correct answer is **option 2** i.e. **546**

8 pencils + 5 pens + 3 erasers = 111.....(1)

9 pencils + 6 pens + 5 erasers = 130 .....(2)

16 pencils + 11 pens + 3 erasers = 221.....(3)

By adding all three equations:

33 pencils + 22 pens + 11 erasers = 462

3 pencils + 2 pens + 1 erasers = 42 .....(4)

By multiplying 13 on both sides of equation (4)

13 × [3 pencils + 2 pens + 1 erasers] = 42 × 13

39 pencils + 26 pens + 13 erasers = 546

**Question 23 :**

If 2x + 3y – 5z = 18, 3x + 2y + z = 29 and x + y + 3z = 17, then what is the value of xy + yz + zx?

**Difficulty : Moderate**

**Average Time : 65 Seconds**

**Options :**

1. 32
2. 52
3. 64
4. 46

**Solution :**



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The correct answer is**option 2** i.e. **52**

2x + 3y - 5z = 18 .....(1)

3x + 2y + z = 29 .....(2)

x + y + 3z = 17 .....(3)

Adding equation (1), (2) and (3)

6x + 6y - z = 64 .....(4)

Multiplying equation(3) by 6

6x + 6y + 18z = 102 .....(5)

By subtracting (4) and (5)

-19z = -38

z = 2

Put the value of z in equation (1) and (3)

2x + 3y = 28 .....(6)

x + Y = 11 .....(7)

By solving equation (6) and (7)

x = 5, y = 6

Hence,

xy + yz + zx = 5 × 6 + 6 × 2 + 2 × 5 = 30 + 12 + 10

xy + yz + zx = 52

**Question 24 :**

PQR is an equilateral triangle whose side is 10 cm. What is the value (in cm) of the inradius of triangle PQR?

**Difficulty : Moderate**

**Average Time : 80 Seconds**

**Options :**

1. 5/3
2. 103



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10/3

4. 52

**Solution :**

The correct answer is **option 1** i.e. **5/3**

Inradius of an equilateral triangle = a/23

= 10/23

= 5/3 cm

**Question 25 :**

What is the area (in cm2) of the circumcircle of a triangle whose sides are 6 cm, 8 cm and 10 cm respectively?

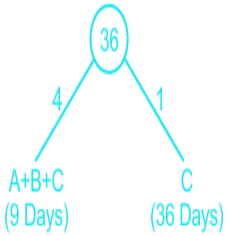
**Difficulty : Moderate** **Average Time : 37 Seconds**

**Options :**

1. 275/7
2. 550/7
3. 2200/7
4. 1100/7

**Solution :**

The correct answer is **option 2** i.e. **550/7**




â–³ABC is an right angled (6,8,10 are pythagorean triplet)

R = 5 (R = 1/2 × hypotanuse)

Area of circumcircle = 22/7 × 5 × 5 = 550/7 $cm^2$

**Question 26 :**

In the given figure, MNOP is a parallelogram. PM is extended to Z. OZ intersects MN and PN at Y and X respectively. If



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OX = 27 cm and XY = 18 cm, then what is the length (in cm) of YZ ?

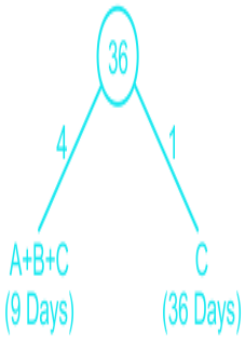
**Difficulty : Moderate** | **Average Time : 50 Seconds**

**Options :**

1. 21.4
2. 22.5
3. 23.8
4. 24.5

**Solution :**

The correct answer is option 2, i.e. 22.5




MNOP is a parallelogram

In â–³PXO and â–³NXY

PXO = NXY (vertically opposite angle)

XPO = XNY (vertically opposite angle)

So, â–³PXO ~ â–³NXY

XO/XY = PO/NY

YN/PO = 18/27

MX/PO = 3-2/2 = 1/3

Now in â–³ZPO:

ZY/ZO = MY/PO = 1/3

ZY/(ZY + 45) = 1/3



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ZY = 22.5

**Question 27 :**

ABCD is a trapezium in which AB is parallel to CD and AB = 4(CD). The diagonals of the trapezium intersects at O. What is the ratio of area of triangle DCO to the area of the triangle ABO?

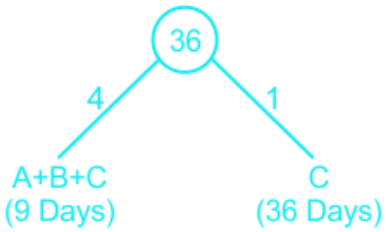
**Difficulty : Moderate** **Average Time : 61 Seconds**

**Options :**

1. 1 : 4
2. 1 : 2
3. 1 : 8
4. 1 : 16

**Solution :**

The correct answer is option 4, i.e. 1 : 16




AB = 4CD

CD/AB = 1/4

and â–³DOC ~ â–³BOA

Hence,

Area of â–³DOC/ Area of â–³BOA = $CD^2/AB^2$ = 1/16

**Question 28 :**

In the given figure, ABC is an equilateral triangle. Two circles of radius 4 cm and 12 cm are inscribed in the triangle. What is the side (in cm) of an equilateral triangle?

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

**Options :**



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323

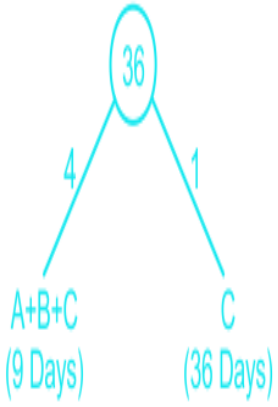
2. 243

3. 643

4. 642

**Solution :**

The correct answer is **option 2** i.e. **243**




Let the side of the triangle be x.

AD = 3x/2

In â–³ABE:

$\sin 30^{\circ}$ = 4/AB

AB = 8 cm

AD = 8 + 4 + 24 = 36 cm

3x/2 = 36

x = 72/3 = 243 cm

**Question 29 :**

In the given figure, SX is tangent. SX = OX = OR. If QX = 3 cm and PQ = 9 cm, then what is the value (in cm) of OS?

**Difficulty : Moderate**

**Average Time : 67 Seconds**

**Options :**



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6

2. 5

3. 4

4. 3

**Solution :**

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

SX = OX = OR, QX = 3 cm, PQ = 9 cm

XP = XP + PQ = 3 + 9 = 12

Now,

$SX^2 = XQ \times XP$

$SX^2 = 3 \times 12 = 36$

SX = 6 = OX = OR

OQ = OX - QX = 6 - 3 = 3 cm

PO = PQ - OQ = 9 - 3 = 6 cm

PQ and RS intersect at O:

So,

PO × OQ = RO × OS

6 × 3 = 6 × OS

OS = 3 cm

**Question 30 :**

PAB and PCD are two secants to a circle. If PA = 10 cm, AB = 12 cm and PC = 11 cm, then what is the value (in cm) of PD?

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

**Options :**

1. 18

2. 9



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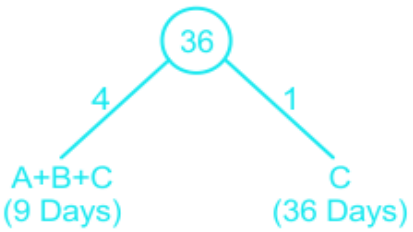
4. 12

**Solution :**

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




By secant theorm,

PA × PB = PC × PD

10 × 22 = 11 × (11 + x)

20 = 11 + x

x = 9

Hence,

PD = PC + CD = 11 + 9 = 20 cm

**Question 31 :**

Triangle PQR is inscribed in a circle such that P, Q and R lie on the circumference. If PQ is the diameter of the circle and PQR = 40°, then what is the value (in degrees) of QPR?

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

**Options :**

1. 40º
2. 45º
3. 50º
4. 55º

**Solution :**

The correct answer is **option 3** i.e. **50º**



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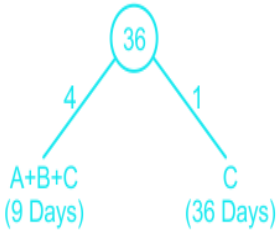


PQ is the diameter: PRQ = $90^o$

PQR = $40^o$

Hence,

QPR = $180^o - 90^o - 40^o = 50^o$

**Question 32 :**

In the figure, QRU = 72o, TRS = 15o and PSR = 95o, then what is the value (in degrees) of PQR?

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

**Options :**

1. 85°
2. 95°
3. 75°
4. 90°

**Solution :**

The correct answer is **option 1** i.e. 85º

In cyclic quadrilateral, opposite angles are $180^o$

PSR + PQR = $180^o$

$95^o$ + PQR = $180^o$

PQR = $85^o$

**Question 33 :**

What can be the maximum number of common tangent which can be drawn to two nonintersecting circles?

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

**Options :**



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2

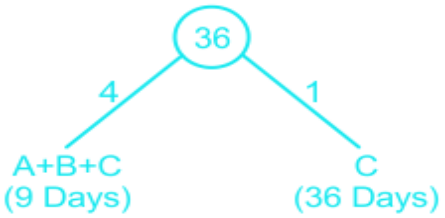
2. 4

3. 3

4. 6

**Solution :**

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




Maximum 4 tangents can be drawn to two non-intersecting circles.

**Question 34 :**

Triangle PQR is inscribed in the circle whose radius is 14 cm. If PQ is the diameter of the circle and PR = 10 cm, then what is the area of the triangle PQR?

**Difficulty : Moderate**

**Average Time : 42 Seconds**

**Options :**

1. 196

2. 3019

3. 4017

4. 3521

**Solution :**

The correct answer is **option 2** i.e. **3019**



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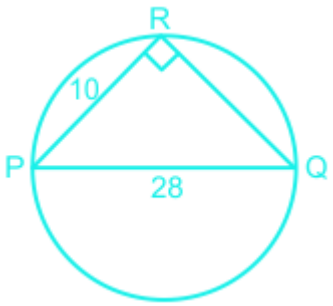


In â–³PQR:

PRQ = 90°

By pythagoras theorm

RQ = (784 - 100)

RQ = 619 cm

Hence,

Area of â–³PQR = 1/2 × 10 × 619 = 3019 $cm^2$

**Question 35 :**

PQR is a right angled triangle in which PQ = QR. If the hypotenuse of the triangle is 20 cm, then what is the area (in cm2) of the triangle PQR?

**Difficulty : Moderate**

**Average Time : 55 Seconds**

**Options :**

1. 1002
2. 100
3. 502
4. 50

**Solution :**

The correct answer is **option 2** i.e. **100**



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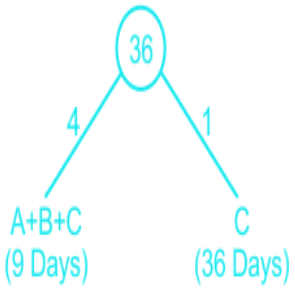


In â–³PQR

let PQ = QR = x

$x^2 + x^2 = 20^2$

x = 102 cm

Hence,

Area of â–³PQR = 1/2 × 102 × 102 = 100 $cm^2$

**Question 36 :**

PQRS is a square whose side is 20 cm. By joining opposite vertices of PQRS are get four triangles. What is the sum of the perimeters of the four triangles?

**Difficulty : Moderate**

**Average Time : 52 Seconds**

**Options :**

1. 402
2. 802 + 80
3. 402 + 40
4. 402 + 80

**Solution :**

The correct answer is **option 2** i.e. **802 + 80**



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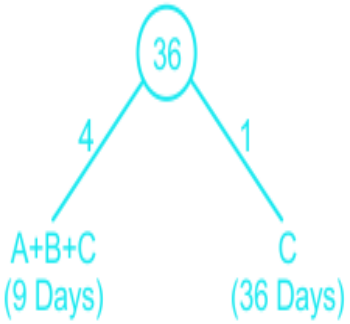



SQ = PR = 202 cm

PO = OR = QO = OS = 102 cm

Hence,

Sum of the perimeter of four triangles = 4[20 + 202] = (802 + 80) cm

**Question 37 :**

ABCD is square and CDE is an equilateral triangle outside the square. What is the value (in degrees) of BEC?

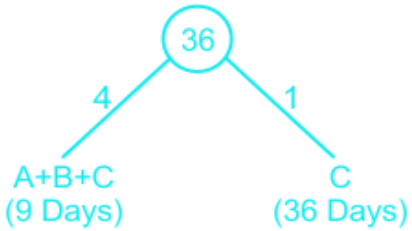
**Difficulty : Moderate** **Average Time : 47 Seconds**

**Options :**

1. 15°
2. 30°
3. 25°
4. 10°

**Solution :**

The correct answer is **option 1** i.e. **15°**




Here, AB = BC = CE = CD = ED = AD

DCB = $90^{o}$



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DCE = $60^o$ (â–³DCE is equilateral)

BCE = $90^o + 60^o = 150^o$

CBE = BEC [Since BC = CE]

BEC = [180° - 150°/2] = 30°/2 = $15^o$

**Question 38 :**

There is a circular garden of radius 21 metres. A path of width 3.5 metres is constructed just outside the garden. What is the area (in metres2) of the path?

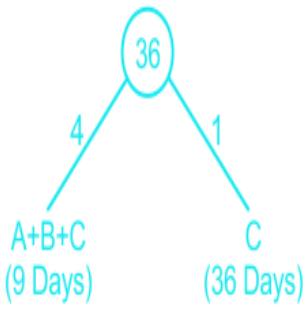
**Difficulty : Moderate** **Average Time : 57 Seconds**

**Options :**

1. 500.5
2. 57.56
3. 52.12
4. 56.07

**Solution :**

The correct answer is **option 1** i.e. **500.5**




Outer radius = R = 24.5 m

Inner radius = r = 21 m

Hence,

Area of path = $R^2 - r^2 = (R + r)(R - r) = 22/7 \times 45.5 \times 3.5 = 500.5\ m^2$

**Question 39 :**

In the given figure, PQRS is a square whose side is 8 cm. PQS and QPR are two quadrants. A circle is placed touching both the quadrants and the square as shown in the figure. What is the area (in cm2) of the circle?



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**Difficulty : Moderate**

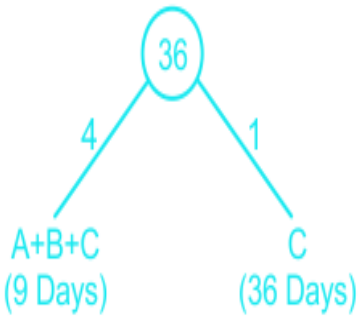
**Average Time : 55 Seconds**

**Options :**

1. 13/17
2. 11/14
3. 19/31
4. 15/19

**Solution :**

The correct answer is **option 2** i.e. **11/14**




Let the radius of circle = r

OT = 8 - r

OTP = $90^o$

Therefore, PQRS is a quadrant

PO = 8 + r

In â–³OTP,

$(8 + r)^2 = 4^2 + (8 - r)^2$

$64 + r^2 + 16r = 16 + 64 + r^2 - 16r$

$32r = 16$

$r = 1/2$

Hence,

Area of circle = $22/7 \times 1/2 \times 1/2 = 22/28 = 11/14$ $cm^2$



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**Question 40 :**

The base of a prism is in the shape of an equilateral triangle. If the perimeter of the base is 18 cm and the height of the prism is 20 cm, then what is the volume (in cm3) of the prism?

**Difficulty : Moderate** **Average Time : 69 Seconds**

**Options :**

1. 603
2. 306
3. 602
4. 1803

**Solution :**

The correct answer is **option 4** i.e. **1803**

Base of prism is an equilateral triangle

Perimeter = 18 cm

Let side = a

3a = 18

a = 6

height of prism = 20 cm

Area of base = $3/4 \times 6 \times 6 = 93\ cm^2$

Volume of prism = $93 \times 20 = 1803\ cm^3$

**Question 41 :**

The height of a cone is 24 cm and the area of the base is 154 cm2. What is the curved surface area (in cm2) of the cone?

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

**Options :**

1. 484
2. 550
3. 525



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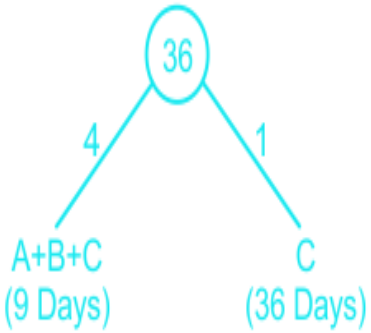
**Solution :**

The correct answer is **option 2** i.e. **550**




Area of base = 154 $cm^2$

22/7 × $r^2$ = 154

r = 7 cm

Slant height, l = ($7^2$ + $24^2$) = 625 = 25 cm

à¤‡à¤¸à²à¤¿à•,

CSA of cone = rl = 22/7 × 7 × 25 = 550 $cm^2$

**Question 42 :**

A right circular solid cylinder has radius of base 7 cm and height is 28 cm. It is melted to form a cuboid such that the ratio of its side is 2 : 3 : 6. What is the total surface area (in cm2) cuboid?

**Difficulty : Moderate**

**Average Time : 65 Seconds**

**Options :**

1. ?2156/3
2. ?2156/9
3. ?2148/3
4. 72$(1078/9)^{2/3}$

**Solution :**

The correct answer is option 4, i.e. 72$(1078/9)^{2/3}$



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Now, radius of cylinder = 7 cm

height = 28 cm

Volume = $r^2h$ = 22/7 × 7 × 7 × 28

Volume of cylinder = Volume of cuboid

22/7 × 7 × 7 × 28 = 2x × 3x × 6x

22/7 × 49 × 28 = $36x^3$

x = $(1078)^{1/3}$

TSA of cuboid = 2(lb+bh+hl) = 2($6x^2$+$18x^2$+$12x^2$) = $72x^2$ = $72(1078/9)^{2/3}$

**Question 43 :**

A right circular cylinder is formed. A = sum of total surface area and the area of the two bases. B = the curved surface area of this cylinder. If A : B = 3 : 2 and the volume of cylinder is 4312 cm3, then what is the sum of area (in cm2 ) of the two bases of this cylinder?

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

**Options :**

1. 154
2. 308
3. 462
4. 616

**Solution :**

The correct answer is **option 2** i.e. **308**

A = 2r(r+h) + $2r^2$

A = 2r(h+2r)

B = 2rh

A/B = 2r(h+2r)/2rh = 3/2

h+2r/h = 3/2

1 + 2r/h = 3/2

r/h = 1/4



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Volume of cylinder = 4312 $cm^3$

22/7 × x × x × 4x = 4312

$x^3$ = 343

x = 7 cm

Area of two Bases = 2 × 22/7 × 7 × 7 = 308 $cm^2$

**Question 44 :**

A solid sphere has a radius 21 cm. It is melted to form a cube. 20% material is wasted in this process. The cube is melted to form hemisphere. In this process 20% material is wasted. The hemisphere is melted to form two spheres of equal radius. 20% material was also wasted in this process. What is the radius (in cm) of each new sphere?

**Difficulty : Moderate**

**Average Time : 66 Seconds**

**Options :**

1. 4.2(?2)
2. 2.1(?2)
3. 8.4(?4)
4. 4.2(?4)

**Solution :**

The correct answer is option 3, i.e. 8.4(âˆ›4)

AQ

4/3 × × $(21)^3$ × $(4/5)^3$ = 2 × 4/3 × $r^3$

$r^3$ = $4^3/5^3$ × $21^3/2$

r = 2×21/5 × âˆ›4

r = 8.4âˆ›4 cm

**Question 45 :**

A solid hemisphere has radius 14 cm. It is melted to form a cylinder such that the ratio of its curved surface area and total surface area is 2 : 3. What is the radius (in cm) of its base?

**Difficulty : Moderate**

**Average Time : 48 Seconds**

**Options :**



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10/ $\sqrt{3}$

2. 14/ $\sqrt{3}$
3. 7/ $\sqrt{3}$
4. 21/ $\sqrt{3}$

**Solution :**

The correct answer is **option 2** i.e. **14/âˆ›3**

Radius of hemisphere = R = 14 cm

let r and h be the radius and height of the cylinder

AQ

2rh/2(r + h) = 2/3

h/r + h = 2/3

3h = 2h + 2r

h = 2r

Volume of sphere = Volume of cylinder

2/3 × × $R^3$ = $r^2$ × 2r

$14^3/3 = r^3$

r = 14/ âˆ›3 cm

**Question 46 :**

A cuboid has dimensions 8 cm x 10 cm x 12 cm. It is cut into small cubes of side 2 cm. What is the percentage increase in the total surface area?

**Difficulty : Moderate**

**Average Time : 59 Seconds**

**Options :**

1. 286.2
2. 314.32
3. 250.64
4. 386.5



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**Solution :**

The correct answer is **option 4** i.e. **386.5**

$l \times b \times h = n \times (2)^3$

$(8 \times 10 \times 12)/(2)^3 = n$

$n = 120$

TSA of cuboid = $2(lb + bh + hl) = 2(80 + 120 + 96) = 2 \times 296 = 592\ cm^2$

TSA of 120 cubes = $120 \times 6 \times (2)^2 = 2880\ cm^2$

% increase in TSA = $(2880 - 592)/592 \times 100 = 386.5\%$

**Question 47 :**

A pyramid has a square base. The side of square is 12 cm and height of pyramid is 21 cm. The pyramid is cut into 3 parts by 2 cuts parallel to its base. The cuts are at height of 7 cm and 14 cm respectively from the base. What is the difference (in cm3) in the volume of top most and bottom most part?

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

**Options :**

1. 672
2. 944
3. 786
4. 918

**Solution :**

The correct answer is **option 1** i.e. **672cm$^3$**



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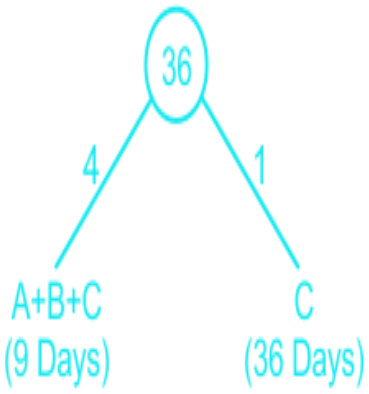


Height of each part = 7 cm

Ratio of height of three pyramids = 1 : 2 : 3

Length of bases of pyramids are 4 cm, 8 cm and 12 cm

Volume of top part = $1/3 \times 4^2 \times 7 = 112/3$ $cm^3$

Volume of bottom part = $1/3[12^2 \times 21 - 8^2 \times 14] = 2128/3$

Required difference = $2128/3 - 112/3 = 2016/3 = 672$ $cm^3$

**Question 48 :**

What is the value of $[(\sin 4x + \sin 4y) \{(\tan 2x – 2y)\}]/(\sin 4x – \sin 4y)$?

**Difficulty : Moderate** | **Average Time : 56 Seconds**

**Options :**

1. tan 2 (2x + 2y)
2. tan2
3. cot (x – y)
4. tan (2x + 2y)

**Solution :**

The correct answer is **option 4** i.e. **tan (2x + 2y)**

$[(\sin 4x + \sin 4y) \{(\tan 2x – 2y)\}]/(\sin 4x – \sin 4y)$

$= [2\sin\{(4x + 4y)/2\} \cos\{(4x - 4y)/2\}[\sin(2x - 2y)/\cos(2x - 2y)]]/2\cos(4x + 4y /2)\sin(4x - 4y/ 2)$



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= [sin(2x + 2y) cos(2x - y)]/[cos(2x + 2y)sin(2x - 2y)] × [sin(2x - 2y)/cos(2x - 2y)]

= tan(2x + 2y)

**Question 49 :**

What is the value of (32 cos6 x – 48 cos4 x + 18 cos2 x – 1)/[4 sin x cos x sin (60 – x) cos (60 – x) sin (60 + x) cos (60 + x)]?

**Difficulty : Moderate**

**Average Time : 56 Seconds**

**Options :**

1. 4 tan 6x
2. 4 cot 6x
3. 8 cot 6x
4. 8 tan 6x

**Solution :**

The correct answer is **option 3** i.e. **8cot 6x**

(32 $\cos^6$ x – 48 $\cos^4$ x + 18 $\cos^2$ x – 1)/[4 sin x cos x sin (60 – x) cos (60 – x) sin (60 + x) cos (60 + x)]

In numerator by adding and subtracting 4,

= 32 $\cos^6$ x – 4 - 48 $\cos^4$ x + 18 $\cos^2$ x – 1 + 4

= 32 $\cos^6$ x – 4 - 48 $\cos^4$ x + 24 $\cos^2$ x - 6 $\cos^2$ x + 3

= 4(8$\cos^2$ x - 1 - 12$\cos^4$ x + 6$\cos^2$ x) - 3(2$\cos^2$ x - 1)

= 4$\cos^3$ 2x - 3$\cos^2$ x

= $\cos^3$(2x) = cos 6x

So,

cos 6x/[4 sin x cos x sin (60 – x) cos (60 – x) sin (60 + x) cos (60 + x)]

= cos 6x/[4 × 1/4 sin3x × 1/4 cos 3x]

= cos 6x/[1/8 × 2 sin3x × cos 3x]

= 8 cos 6x/sin 6x

= 8 cot 6x

**Question 50 :**



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What is the value of [2 cot ( – A)/2]/[1 + tan2 (2 – A)/2]?

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

**Options :**

1. 2 sin2 A/2
2. cos A
3. sin A
4. 2 cos2 A/2

**Solution :**

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

[2 cot( - A)/2]/[1 + $\tan^2$(2 - A)/2]

= [2cot(/2 - A/2)]/[1 + $\tan^2$( - A/2)]

= 2tan (A/2)/[1 + $\tan^2$(A/2)]

= sin A (âˆµ 2tan2x/(1 + $\tan^2$x) = sin2x)

**Question 51 :**

If tan + sec = (x – 2)/(x + 2), then what is the value of cos ?

**Difficulty : Moderate** **Average Time : 45 Seconds**

**Options :**

1. $(x^2 – 1)/(x^2 + 1)$
2. $(2x^2 – 4)/(2x^2 + 4)$
3. $(x^2 – 4)/(x^2 + 4)$
4. $(x^2 – 2)/(x^2 + 2)$

**Solution :**

The correct answer is **option 3** i.e. **$(x^2 – 4)/(x^2 + 4)$**

tan + sec = (x – 2)/(x + 2)

So,

sec - tan = (x + 2)/(x - 2) .....(1)



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sec + tan = (x - 2)/(x + 2) .....(2)

Adding (1) and (2), we get:

2 sec = (x + 2)/(x - 2) + (x - 2)/(x + 2) = $(x + 2)^2$+$(x - 2)^2$/ $x^2$-4

2 sec = 2($x^2$ + 4)/($x^2$ - 4)

sec = ($x^2$ + 4)/($x^2$ - 4)

cos = ($x^2$ - 4)/($x^2$ + 4)

**Question 52 :**

What is the value of (cos 40° – cos 140°)/(sin 80° + sin 20°)?

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

**Options :**

1. 23
2. 2/3
3. 1/3
4. 3

**Solution :**

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

= (cos 40° – cos 140°)/(sin 80° + sin 20°)

= [2sin{(40° + 140°)/2} sin{(140° - 40°)/2}]/[2sin {(80° + 20°)/2} cos{(80° - 20°)/2}]

= (2sin90°sin50°)/(2sin50°cos30°) = sin90°/cos30° = 1/(3/2) = 2/3

**Question 53 :**

What is the value of [1 – tan (90° – ) + sec (90° – )]/[tan (90° – ) + sec (90° – ) + 1]?

**Difficulty : Moderate** **Average Time : 45 Seconds**

**Options :**

1. cot (/2)
2. tan (/2)
3. sin



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cos

**Solution :**

The correct answer is **option 2** i.e. **tan (/2)**

[1 – tan (90° – ) + sec (90° – )]/[tan (90° – ) + sec (90° – ) + 1]

= [(1 – cot + cosec)/(cot + cosec + 1)]

= [(sin - cos + 1)/sin]/[(cos + 1 + sin)/sin] = (sin - cos + 1)/(sin + cos + 1)

= (2sin /2 cos /2 + 2sin$^2$ /2)/(2sin /2 cos /2 + 2cos$^2$ /2)

= [2sin /2(cos /2 + sin /2)]/[2cos /2(sin /2 + cos /2)]

= tan /2

**Question 54 :**

What is the value of [sin (90° – A) + cos (180° – 2A)]/[cos (90° – 2A) + sin (180° – A)]?

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

**Options :**

1. sin (A/2) cos A
2. cot (A/2)
3. tan (A/2)
4. sin A cos (A/2)

**Solution :**

The correct answer is **option 3** i.e. **tan (A/2)**

[sin (90° – A) + cos (180° – 2A)]/[cos (90° – 2A) + sin (180° – A)]

= [cosA + (-cos 2A)]/[sin2A + sinA] = (cosA - cos2A)/(sin2A + sinA)

= [{2sin(A + 2A)/2}{sin(2A - A)/2)}]/[{2sin(2A + A)/2{cos(2A - A)/2}]

= sin(A/2)/cos(A/2)

= tan(A/2)

**Question 55 :**

The distance between the tops of two building 38 metres and 58 metres high is 52 metres. What will be the distance (in metres) between two buildings?



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**Difficulty : Moderate**

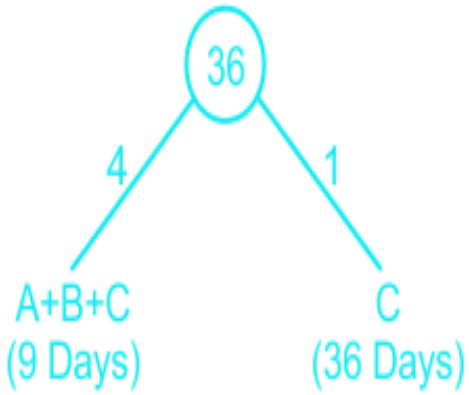
**Average Time : 52 Seconds**

**Options :**

1. 46
2. 42
3. 44
4. 48

**Solution :**

The correct answer is **option 4** i.e. **48**




MO = 58 - 38 = 20 cm

In â–³MXQ,

XO = [$52^2$ - $20^2$] = 2304 = 48 m

**Question 56 :**

The angles of elevation of the top of a tree 220 meters high from two points lie on the same side of the tree are 30° and 45°. What is the distance (in metres) between the two points?

**Difficulty : Moderate**

**Average Time : 49 Seconds**

**Options :**

1. 193.22
2. 144.04
3. 176.12



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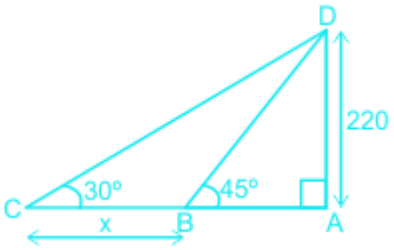
161.05

**Solution :**

The correct answer is **option 4** i.e. **161.05**




Let the distance between two point = x meter

In â–³DAB

tan 45° = 220/AB

AB = 220 m

In â–³DAC

tan 30° = 220/AC

1/3 = 220/AC

AC = 2203

Hence,

x = AC - AB = 2203 - 220 = 220(3 - 1) = 220 × 0.732 = 161.04 m

**Question 57 :**

The angles of elevation of the top of a tower 72 metre high from the top and bottom of a building are 30° and 60° respectively. What is the height (in metres) of building?

**Difficulty : Moderate**

**Average Time : 63 Seconds**

**Options :**

1. 40
2. 203
3. 243



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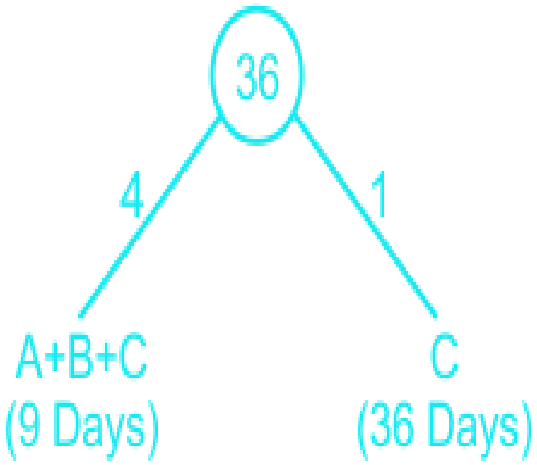
48

**Solution :**

The correct answer is option 4, i.e. 48




Let the height of the building = x meter

In â–³ABC

tan 60° = AB/BC

BC = 72/3 = 243 = DE

In â–³ADE

tan 30° = 72-x/243

1/3 = 72-x/243

x = 48 m

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 58 :**

What is the difference between the number of students who were present in Physics and Biology examination from school N?



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**Difficulty : Moderate**

**Average Time : 67 Seconds**

**Options :**

1. 21150
2. 14352
3. 18075
4. 24250

**Solution :**

The correct answer is option 3, i.e. 18075

required difference = 60830 × 65/35 × [58-42/100] = 18075

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 59 :**

Number of students who were present in Physics examination from school M is what percent of number of students who were absent from school M, L and O?

**Difficulty : Moderate**

**Average Time : 52 Seconds**

**Options :**

1. 22.13
2. 29.28
3. 9.09
4. 13.4

**Solution :**

The correct answer is option 1, i.e. 22.13%

No. of studdents present for physics exam from school M = 113520 × 40/60 × 70/100 = 52976

No. of students who are present from school M, L and O = 113250+101520+24003 = 238773

Required % = 52976/238773 × 100 = 22.13%



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**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 60 :**

What is the average of the number of the students who were present in Physics examination from school N, K and L?

**Difficulty : Moderate** **Average Time : 57 Seconds**

**Options :**

1. 109635
2. 92946
3. 74365
4. 67894

**Solution :**

The correct answer is option 2 i.e. 92946

Required average = 1/3[60830 × 65/35 × 58/100 + 83300 × 65/35 × 38/100 + 101520 × 60/40 × 71/100]

=65523+105196+18119/3 = 92946

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 61 :**

What are the total number of students who were present in the Biology examination from all the schools together?

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

**Options :**

1. 193462
2. 249048
3. 326438



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171150

**Solution :**
The correct answer is option 4, i.e. 171150

Total no. of students present in the biology examination from all the schools

=[83300 × 65/35 × 32/100 + 101520 × 60/40 × 29/100 + 113520 × 40/60 × 30/100 + 60830 × 65/35 × 42/100 + 24003 × 55/45 × 25/100]

= 49504 + 44161 + 22704 + 47447 + 7334 = 171150

**Comprehension :**
The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 62 :**
If the number of students who were present in the Physics examination from school A is 250% of the difference of the number of the students who were present in Physics and Biology examination, from school K, then what is the ratio of the number of students who were present from school L to number of students who were present in Physics examination from school A?

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

**Options :**
1. 5079 : 4631
2. 1692 : 1547
3. 1547 : 4631
4. 1692 : 2345

**Solution :**
The correct answer is option 2, i.e. 1692 : 1547

No. of students present in the physics examination from school A

=250/100[83300 × 65/35 × (68-32)/100]

=139230

No. of students present from school L = 101520 × 60/40 = 152280



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Ratio = 15280/139230 = 1692/1547

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 63 :**

A jar contains a blend of a fruit juice and water in the ratio 5 : x. When 1 litre of water is added to 4 litres of the blend the ratio of fruit juice to water becomes 1 : 1. What is the value of x?

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

**Options :**

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

**Solution :**

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

AQ

4 × 5/5+x = 4 × x/x+5 + 1

20 = 4x + 5 +x

5x = 15

x =3

**Question 64 :**

An alloy contains copper and tin in the ratio 3 : 2. If 250 gm of copper is added to this alloy then the copper in it becomes double the quantity of tin in it. What is the amount (in gm) of tin in the alloy?

**Difficulty : Moderate** **Average Time : 42 Seconds**

**Options :**

1. 250



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750

3. 1000
4. 500

**Solution :**

The correct answer is **option 4** i.e. **500**

Ratio of copper and tin in an alloy = 3 : 2

A/Q

3x + 250 = 2 × 2x

250 = x

Amount of tin = 2x = 2 × 250 = 500 gm

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 65 :**

A starts a cement trading business by investing Rs 5 lakhs. After 2 months, B joins the business by investing Rs 10 lakhs and then 4 months after B joined C too joins them by investing Rs 20 lakhs. 1 year after A started the business they make Rs 3,50,000 in profit. What is B's share of the profit (in Rs)?

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

**Options :**

1. 75000
2. 125000
3. 150000
4. 100000

**Solution :**

The correct answer is option 2, i.e. 125000

AQ



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A : B : C = 500000×12 : 1000000×10 : 2000000×6 = 6000000 : 1000000 : 12000000 = 3 : 5 : 6

14 units = 350000

Profit share of B = 350000 × 5/14 = 125000

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 66 :**

A, B and C invest in a business in the ratio 3 : 6 : 5. A and C are working partners. Only B is a sleeping partner hence his share will be 3/4th of what it would have been if he were a working partner. If they make Rs 50,000 profit, half of which is reinvested in the business and the other half is distributed between the partners, then how much does C get (in Rs)?

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

**Options :**

1. 20000
2. 6000
3. 10000
4. 9000

**Solution :**

The correct answer is option 3, i.e. 10000

Ratio A : B : C = 3 : 6 : 5

Share of b = 8 × 3/4 = 6 × 3/4 = 9/2

New Ratio = 3 : 9/2 : 5 = 6 : 9 : 10

Total profit = Rs 50000

After reinvestment profit = Rs 25000

C's share = 10/25 × 25000 = 10000

**Question 67 :**

A can do a work in 21 days and B in 42 days. If they work on it together for 7 days, then what fraction of work is left?



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**Difficulty : Moderate**

**Average Time : 41 Seconds**

**Options :**

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

**Solution :**

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

Let the total work be 42 units

Efficiancy of A = 2 units/day

Efficiancy of B = 1 unit/day

A/Q

Work done in 7 days = (2 + 1) × 7 = 21 units

Left work = 42 - 21 = 21 units

Required fraction of work = 21/42 = 1/2

**Question 68 :**

A can paint a house in 55 days and B can do it in 66 days. Along with C, they did the job in 12 days only. Then, C alone can do the job in how many days?

**Difficulty : Moderate**

**Average Time : 47 Seconds**

**Options :**

1. 24
2. 44
3. 33
4. 20

**Solution :**

The correct answer is **option 4** i.e. **20**



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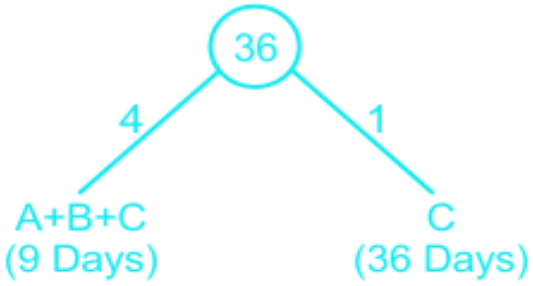
Let the total amount of work be 660 units




Efficiancy of (A + B + C) = 55 units/day

Efficiancy of C = 55 - 12 - 10 = 33 units/day

Time taken by C to complete the work = 66/33 = 20 days

**Question 69 :**

A, B, and C together can finish a task in 12 days. A is twice as efficient as B and C alone can do the task in 36 days. In how many days can A and B do the task if C goes on leave?

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

**Options :**

1. 10
2. 20
3. 15
4. 18

**Solution :**

The correct answer is **Option 4** i.e. **18.**

Let the total work be 36 units



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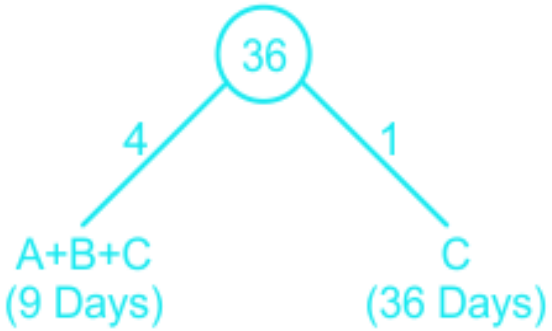


Efficiency of (A + B) = 3 - 1 = 2

Hence,

Time taken by (A + B) = 36/2 = 18 days

**Comprehension :**

**Question 70 :**

A, B and C can together do a job in 9 days. C alone can do the job in 36 days. In how many days can A and B do 50% of the job working together?

**Difficulty : Moderate**

**Average Time : 50 Seconds**

**Options :**

1. 6
2. 12
3. 9
4. 15

**Solution :**

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

Let the total work be 36 units



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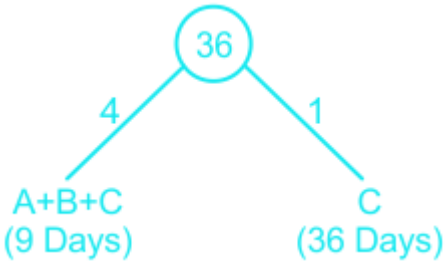


Efficiancy of(A + B) = 4 - 1 = 3

Time taken by (A + B) to complete 50% work = 18/3 = 6 days

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 71 :**

Giving two successive discounts of 25% is equal to giving one discount of _____%.

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

**Options :**

1. 43.75
2. 56.25
3. 50
4. 45

**Solution :**

The correct answer is option 1, i.e. 43.75

Two successive discount of 25% = 25+25 - (25×25)/100 = 50 - 6.25 = 43.75%

**Question 72 :**

If a watch is being sold at Rs 7,225 which is marked at Rs 8,500, then what is the discount (in %) at which the watch is being sold?

**Difficulty : Moderate** **Average Time : 34 Seconds**

**Options :**



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24

2. 15
3. 25
4. 20

**Solution :**
The correct answer is **option 2** i.e. **15**

MP of watch = Rs 8500

SP of watch = Rs 7225

Discount % = (8550 - 7225/ 8500) × 100 = 15%

**Comprehension :**
The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 73 :**
On a machine there is 10% trade discount on the marked price of Rs 2,50,000. But the machine is sold at Rs 2,16,000 after giving a cash discount. How much is this cash discount (in %)?

**Difficulty : Moderate** **Average Time : 57 Seconds**

**Options :**
1. 5
2. 4
3. 6
4. 7

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

MP of machine = Rs 250000

After 10% trade discount, price of a machine = 250000 × 90/100 = Rs 225000

Cash discount % = (225000 - 216000/225000) × 100 = 4%



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**Question 74 :**

A trader marks up his goods by 120% and offers 30% discount. What will be the selling price (in Rs) if the cost price is Rs 750?

**Difficulty : Moderate**

**Average Time : 38 Seconds**

**Options :**

1. 1225
2. 1080
3. 1280
4. 1155

**Solution :**

The correct answer is **option 4** i.e. **1155**

Let CP = 100 unit

AQ

MP = 220 unit

SP = 220 - (220×30/ 100) = 154 unit

Given,

100 unit = Rs 750

SP = 154 unit = 750/100 × 154 = Rs 1155

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 75 :**

Sanjay's test marks in two subjects, English and Hindi are in the ratio 7 : 11. If he got 20 marks more in Hindi than in English, what are his marks in English?

**Difficulty : Moderate**

**Average Time : 60 Seconds**

**Options :**



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35

2. 55

3. 45

4. 65

**Solution :**

The correct answer is option 1, i.e. 35

11x - 7x = 20

4x = 20

x = 5

Marks in english = 7×5 = 35 marks

**Comprehension :**

The table given below shows the number of students who were absent and percentage of students who were present in the given two examinations from five different schools. The table also shows the percentage of students who were present in the Biology and Physics examination respectively. School Absent(in %) Present(in %) Biology(in %) Physics(in%) K 83300 65 32 68 L 101520 60 29 71 M 113520 40 30 70 N 60830 65 42 58 O 24003 55 25 75

**Question 76 :**

The ratio of present ages of Simi and Seema is 5 : 4. After 9 years the ratio of their ages will be 8 : 7. What is Simi's present age (in years)?

**Difficulty : Moderate**

**Average Time : 54 Seconds**

**Options :**

1. 12

2. 15

3. 24

4. 21

**Solution :**

The correct answer is option 2, i.e. 15

Let the present ages of simi and seema be 5x and 4x respectively

AQ



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5x+9/4x+9 = 8/7

35x + 63 = 32x + 72

3x = 9

x = 3

Present age of simi = 5 × 3 = 15 years

**Question 77 :**

Find the third proportional of 6 and 12.

**Difficulty : Moderate** **Average Time : 37 Seconds**

**Options :**

1. 18
2. 9
3. 24
4. 15

**Solution :**

The correct answer is **option 3** i.e. **24**

Let the third proportional = x

6/12 = 12/x

x = 24

**Question 78 :**

According to the will the wealth of Rs 21,25,000 was to be divided between the son and the daughter in the ratio 7/6 : 5/3. How much did the son get (in Rs)?

**Difficulty : Moderate** **Average Time : 37 Seconds**

**Options :**

1. 875000
2. 1250000
3. 1000000



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1125000

**Solution :**

The correct answer is **option 1** i.e. **875000**

Son's share/Daughter's share = 7/6 × 3/5 = 7/10

A/Q

Share of son = 7/(10 + 7) × 21 × 25000 = 875000

**Question 79 :**

If Rs 25,000 is to be divided between A, B and C in the ratio 1/10 : 1/6 : 1/15, then how much will C get (in Rs)?

**Difficulty : Moderate** **Average Time : 38 Seconds**

**Options :**

1. 5000
2. 7500
3. 10000
4. 12500

**Solution :**

The correct answer is **option 1** i.e. **5000**

A : B : C = 1/10 : 1/6 : 1/15 = 3 : 5 : 2

C's share = 2/10 × 25000 = Rs 5000

**Question 80 :**

Rizwan has a box in which he kept red and blue marbles. The red marbles and blue marbles were in the ratio 5 : 4. After he lost 5 red marbles the ratio became 10 : 9. How many marbles does he have now?

**Difficulty : Moderate** **Average Time : 39 Seconds**

**Options :**

1. 81
2. 86
3. 76



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**Solution :**

The correct answer is **option 3** i.e. **76**

Red : Blue = 5 : 4

A/Q

5x - 5/4x = 10/9

45x - 45 = 40x

x = 45/5 = 9

Remaining marbles = 5 × 9 + 4 × 9 - 5 = 45 + 36 - 5 = 76

**Question 81 :**

The average weight of L, M and N is 93 kg. If the average weight of L and M be 89 kg and that of M and N be 96.5 kg, then the weight (in kg) of M is _____.

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

**Options :**

1. 92
2. 86
3. 101
4. 95

**Solution :**

The correct answer is **option 1** i.e. **92**

Sum of weights of L, M and N = 93 × 3 = 279 kg

L + M = 89 × 2 = 178 kg

M + N = 96.5 × 2 = 193 kg

By adding and subtacting

weight of M = 178 + 193 - 279 = 92 kg

**Question 82 :**

Mahesh buys 3 shirts at an average price of Rs 1250. If he buys 2 more shirts at an average price of Rs 1450 what will be



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the average price (in Rs) of all the 5 shirts he buys?

**Difficulty : Moderate** **Average Time : 45 Seconds**

**Options :**

1. 1370
2. 1330
3. 1310
4. 1390

**Solution :**

The correct answer is **option 2** i.e. **1330**

Total price of 2 shirts = 1250 × 2 = 3750

Total price of 2 another shirts = 1450 × 2 = 2900

Average price of all 5 shirts = 3750+2900/5 = Rs 1330

**Question 83 :**

In a one day match of 50 overs in an innings the Team A had a run rate of 6.1 runs per over. Team B is playing and 10 overs are left and the required run rate to tie the match is 6.5 per over. What is Team B's score now?

**Difficulty : Moderate** **Average Time : 45 Seconds**

**Options :**

1. 235
2. 230
3. 240
4. 225

**Solution :**

The correct answer is option 3, i.e. 240

Let the score of team B = x

6.1 × 50 = x +6.5 × 10

305 = x +65



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x = 240

**Question 84 :**

Average of all even numbers between 222 and 250 is _____.

**Difficulty : Moderate** **Average Time : 33 Seconds**

**Options :**

1. 234
2. 232
3. 236
4. 230

**Solution :**

The correct answer is **option 3** i.e. **236**

Total no. of even no. between 222 and 250 =(250-222)/2 + 1 = 15

Average = [15/2(222+1250)]/15 = 472/2 = 236

**Question 85 :**

A vendor buys bananas at 7 for Rs 6 and sells at 6 for Rs 7. What will be the result?

**Difficulty : Moderate** **Average Time : 34 Seconds**

**Options :**

1. 36.1% loss
2. 26.5% profit
3. 36.1% profit
4. 26.5% loss

**Solution :**

The correct answer is **option 3** i.e. **36.1% profit**

CP = 36

SP = 49

Profit = SP - CP = 49 - 36 = 13



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Profit % = 13/36 × 100 = 36.11%

**Question 86 :**

A miner sells a diamond to a trader at a profit of 40% and the trader sells it to a customer at a profit of 25%. If the customer pays Rs 56 lakhs to buy the diamond, what had it cost the miner (in Rs lakhs)?

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

**Options :**

1. 30
2. 28
3. 25
4. 32

**Solution :**

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

Let the cost of diamond for minor = x

AQ

x × 140/100 × 125/100 = 5600000

x = 3200000 = 32 lakhs

**Question 87 :**

A grocer had 1600 kgs of wheat. He sold a part of it at 20% profit and the rest at 12% profit, so that he made a total profit of 17%. How much wheat (in kg) did he sell at 20% profit?

**Difficulty : Moderate** **Average Time : 41 Seconds**

**Options :**

1. 600
2. 1000
3. 800
4. 1200

**Solution :**

The correct answer is option 2, i.e. 1000



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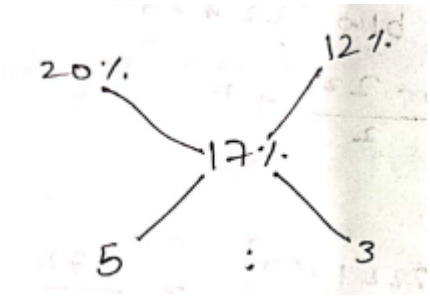


8 unit = 160 kg

5 unit = 5/8 × 1600 = 100 kg

**Question 88 :**

A used two-wheeler dealer sells a scooter for Rs 46,000 and makes some loss. If he had sold it for Rs 58,000 his profit would have been double his loss. What was the cost price (in Rs) of the scooter?

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

**Options :**

1. 52000
2. 54000
3. 48000
4. 50000

**Solution :**

The correct answer is **option 4** i.e. **50000**

Let the CP of scooter = x

ATQ

2 × (x - 46000) = 58000 - x

2x - 92000 = 58000 - x

3x = 150000

x = 50000

**Question 89 :**

0.08% of 120% of 50,000 is equal to _____.



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**Difficulty : Moderate**

**Average Time : 35 Seconds**

**Options :**

1. 480
2. 48
3. 4800
4. 8

**Solution :**

The correct answer is option 2, i.e. 48

ATQ

50000 × 120/100 × 0.08/100 = 5×120×8/ 100 = 48

**Question 90 :**

When a number is increased by 24, it becomes 115% of itself. What is the number?

**Difficulty : Moderate**

**Average Time : 32 Seconds**

**Options :**

1. 160
2. 250
3. 100
4. 200

**Solution :**

The correct answer is option 1, i.e. 160

Let the number be x

AQ

x + 24 = x × 115/100

23x/20 - x = 24

3x = 24 × 20

x = 160



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**Question 91 :**

Two numbers are 40% and 80% lesser than a third number. By how much percent is the second number to be enhanced to make it equal to the first number?

**Difficulty : Moderate**

**Average Time : 40 Seconds**

**Options :**

1. 100
2. 33.3
3. 66.6
4. 200

**Solution :**

The correct answer is option 4, i.e. 200

Let the third no. = 100x

ATQ

Numbers are 60x, 20x, 100x

Reqd. % = (60x - 20x)/20x × 100 = 200%

**Question 92 :**

Price of diesel increased from Rs 45/litre to Rs 50/litre. How much should the consumption of diesel be reduced (in %) so as to increase expenditure by only 5%?

**Difficulty : Moderate**

**Average Time : 39 Seconds**

**Options :**

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

**Solution :**

The correct answer is **option 1** i.e. **5.5**

Price of diesel increased from Rs 45/litre to Rs 50/litre.



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Suppose the initian consumption is 10 and reduced consumption is 'x'

Initial expenditure = 45 × 10 = 450

A/Q:

50 × x = 450 × 1.05

x = 9.45

% reduction in consumption = (10 - 9.45)/10 × 100 = 5.5%

**Question 93 :**

A plane flies a distance of 1800 km in 5 hours. What is its average speed in meters/second?

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

**Options :**

1. 200
2. 10
3. 20
4. 100

**Solution :**

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

Speed of plane in km/hr = 1800/5

Now, speed of plane in meter/second = 1800/5 × 5/18 = 100 m/s

**Question 94 :**

If a boat goes upstream at a speed of 24 km/hr and comes back the same distance at 40 km/hr. What is the average speed (in km/hr) for the total journey?

**Difficulty : Moderate** **Average Time : 40 Seconds**

**Options :**

1. 32
2. 30
3. 31



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**Solution :**
The correct answer is **option 2** i.e. **30**

Let the distance = D km

A/Q

Average speed = 2D/(D/24 + D/40) = 2 × 120/8 = 30 km/hr

**Question 95 :**
Two bikers A and B start and ride at 75 km/hr and 60 km/hr respectively towards each other. They meet after 20 minutes. How far (in km) were they from each other when they started?

**Difficulty : Moderate** **Average Time : 40 Seconds**

**Options :**

1. 60
2. 45
3. 30
4. 18

**Solution :**
The correct answer is **option 2** i.e. **45**

Let the distance = D km

A/Q

D = (75 + 60) × 20/60 = 45 km

**Question 96 :**
Excluding stoppages, the speed of a bus is 80 kmph and including stoppages, it is 60 kmph. For how many minutes does the bus stop per hour?

**Difficulty : Moderate** **Average Time : 37 Seconds**

**Options :**

1. 12
2. 15



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4. 20

**Solution :**
The correct answer is **option 2** i.e. **15**

Per hour rest time = [speed difference/max speed] × time

= [(80 - 60)/80] × 60 = 1/4 × 60 = 15 mins

**Question 97 :**
In 2 years at simple interest the principal increases by 8%. What will be the compound interest earned (in Rs) on Rs 10 lakhs in 2 years at the same rate?

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

**Options :**
1. 86000
2. 81600
3. 90000
4. 94000

**Solution :**
The correct answer is **option 2** i.e. **81600**

A/Q

8 = (100 × r × 2)/100

r = 4%

CI = $P(1 + R/100)^t$ - P

CI = $1000000[(1 + 4/100)^2 - 1] = 1000000[(26/25 \times 26/25) - 1]$ = Rs 81600

**Question 98 :**
If the compound interest for the 3rd and 4th year on a certain principal is Rs 125 and Rs 135 respectively, what is the rate of interest (in %)?

**Difficulty : Moderate** **Average Time : 42 Seconds**

**Options :**



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2. 10
3. 8
4. 12

**Solution :**

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

Rate of interest = [(135 - 125)/125] × 100

= [10/125] × 100 = 8%

**Question 99 :**

A certain bank offers 8% rate of interest on the 1st year and 9% on the 2nd year in a certain fixed deposit scheme. If Rs 17,658 are received after investing for 2 years in this scheme, then what was the amount (in Rs) invested?

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

**Options :**

1. 16000
2. 15000
3. 15500
4. 16500

**Solution :**

The correct answer is **option 2** i.e. **15000**

Let the invested money = Rs x

A/Q

x × 108/100 × 109/100 = 17658

x = 17658/108×109 × 100 × 100 = Rs 15000

**Question 100 :**

What is the difference (in Rs) in Compound interest earned in 1 year on a sum of Rs 25,000 at 20% per annum compounded semi-annually and annually?

**Difficulty : Moderate** **Average Time : 40 Seconds**



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**Options :**

1. 125
2. 250
3. 500
4. 375

**Solution :**

The correct answer is option 2, i.e. 250

Difference = $[25000(1+10/100)^2 - 25000] - [(25000\times1\times20)/100]$

$=25000(121/100 - 1) - 5000 = 5250 - 5000 = Rs\ 250$

# Ssc Cgl Tier II Previous Year Question Paper Analysis

The analysis of Ssc Cgl Tier II Previous Year Question Paper held on 2018-02-21 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. 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 - 9
2. Average - 4
3. Percentage - 4
4. Data Interpretation - 2
5. Time And Work - 4
6. Time Speed And Distance - 4
7. Interest - 4
8. Ratios And Proportion - 6
9. Geometry - 15



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Trigonometry - 10
11. Mensuration - 10
12. Algebra - 18
13. Number System - 2
14. Number Series - 1
15. Profit And Loss - 6
16. Statistics - 1

# 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.
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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## 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.



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