Ssc Cgl Tier II Previous Year Question Paper Overview

Here, you can solve all the questions asked in Ssc Cgl Tier II Previous Year Question Paper on 2019-09-12 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 :
The base of a right prism is a triangle with sides 20cm, 21cm and 29cm. If its volume is 7560cm³, then its lateral surface area (in cm²) is ?
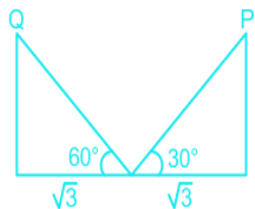
Difficulty : Moderate   **Average Time : 46 Seconds**

Options :

1. 2484
2. 2556
3. 2520
4. 2448

Solution :
The correct answer is option 3 ie 2520.

$(1/2) \times B \times H = (1/2) \times 420 = 210$

$B \times H = 7560$

210 × H = 7560

H = 36

L.S.A. = Perimeter × Height

　　　= 70 × 36

　　　= 2520

Question 2 :

The expression is equal to ?

Difficulty : Moderate　　　　　　　　　　　　　　　Average Time : 62 Seconds

Options :

1. 3 + 2 - 5

2. 3 - 2 - 5

3. 3 - 2 + 5

4. 2 - 3 - 5

Solution :

The correct answer is option 1 ie 3 + 2 - 5.

$$\sqrt{10 + 2(\sqrt{6} - \sqrt{15} - \sqrt{10})}$$

Putting the values

$$\sqrt{10 + 2(2.5 - 4 - 3)}$$

$$\sqrt{10 + 2(-4.5)}$$

= 1

= 3 + 2 - 5

Question 3 :

The bisector of B in triangle ABC meets AC at D. If AB = 10 cm, BC = 11 cm and AC = 14 cm, then the length of AD is:

Difficulty : Moderate　　　　　　　　　　　　　　　Average Time : 67 Seconds
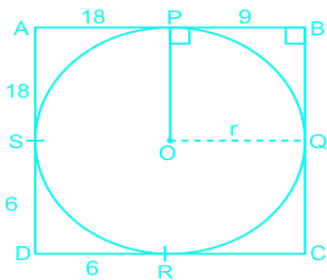
Options :

1. 6 cm

22/3 cm

3. 7 cm

4. 20/3 cm

Solution :

The correct answer is **option 4** i.e. **20/3 cm**

As BD is the angle bisector:

So,

DC/AD = BC/AB = 11/10

Hence,

AD = (10/21) × 14 = 20/3 cm

Question 4 :
The value of , where k lies between ?

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

Options :

1. -0.07 and -0.06

2. -0.08 and -0.07

3. -0.06 and -0.05

4. -0.05 and -0.04

Solution :

The correct answer is option 1 ie -0.07 and -0.06.

$$\left(1\frac{1}{3} \div 2\frac{6}{7} \; of \; 5\frac{3}{5}\right) \div \left(6\frac{2}{5} \div 4\frac{1}{2} \; of \; 5\frac{1}{3}\right) \times \left(\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9} \; of \; 1\frac{1}{5}\right) = 1 + k$$

$$= \frac{\left(\dfrac{\dfrac{4}{3}}{\dfrac{20}{7} \times \dfrac{28}{5}}\right)}{\left(\dfrac{\dfrac{32}{5}}{\dfrac{9}{2} \times \dfrac{16}{3}}\right)} \times \left(\dfrac{\dfrac{3}{4} \times \dfrac{8}{3}}{\dfrac{5}{9} \times \dfrac{6}{5}}\right)$$

= 15/16 = 1 + k

k = -(1/16) = - 0.0625

Question 5 :

The given bar graph shows the imports and exports (in crores) of steel by a country from 2013 to 2017. What is the ratio of the total imports in 2015 and 2017 to the total exports in 2013 and 2016 ?

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

Options :

1. 11 : 4

2. 9 : 8

3. 25 : 21

4. 9 : 11

Solution :

The correct answer option is 3 ie 25 : 21.

$I_{15 + 17} = E_{13 + 16}$

1000 = 840

25 : 21

Question 6 :

An article is sold at a certain price. If it is sold at 80% of this price, then there will be a loss of 10%. What is the percentage profit when the article is sold at the original selling price?

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

Options :

15.5%

2. 12.5%

3. 15%

4. 12%

Solution :

The correct answer is option 2 ie 12.5%.

CP (A) 80 (B) 100   (Less than 15%)

   -10%   +25%

= A - B - (AB/100)

= 25 - 10 - (250/100)

= 15 - 2.5 = 12.5%

Question 7 :

Three fractions x, y and z are such that x > y > z. When the smallest of them is divided by the greatest, the result is 9/16, which exceeds y by 0.0625. If x + y + z = , then the value of x + z is ?

Difficulty : Moderate

Average Time : 63 Seconds

Options :

1. 7/8

2. 1

3. 25/24

4. 7/6

Solution :

The correct answer is option 3 ie 25/24.

x > y > z

z/x 9/16 = y + 0.0625

z/x 9/16 = y + (1/16)

y = 1/2

x + z = 25/24

As, x + y + z = 37/24

x + z = 37/24 - y

x + z = (37/24) - (12/20)

= 25/24

Question 8 :

5 years ago, the ratio of the age of A to that of B was 4 : 5. Fives years hence, the ratio of the age of A to that of B will be 6 : 7. If at present, C is 10 years younger than B, then what will be the ratio of the present age of A to that of the C ?

Difficulty : Moderate

Average Time : 71 Seconds

Options :

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

Solution :

The correct answer is option 2 ie 5 : 4

A : B

4 : 5

Present age ratio = A : B : C

                5 : 6 : 4

A : B

6 : 7

2 parts = 10 years

1 part = 5 years

A : C = 5 : 4

Question 9 :

The area of the base of the right circular cone is 400 and its height is 15cm. The curved surface area of the cone (in cm²)

is ?

Difficulty : Moderate

Average Time : 64 Seconds

Options :

1. 480
2. 500
3. 450
4. 560

Solution :

The correct answer is option 2 ie 500 .

r = 20, h = 15, l = 25   (Pythagoras)

C.S.A. = ⫪ r l

= ⫪ × 20 × 25

= 500

Question 10 :

The given pie chart shows the quantity wise sales distribution of 5 products (A, B, C, D and E) of a company in 2016. Quantity wise sales distribution of five products (A, B, C, D and E) If 1500 units of product D were sold in 2016 and the total number of units sold by the company in 2017 was 18% more than that sold in 2016, then the total units sold by the company in 2017 is ?

Difficulty : Moderate

Average Time : 80 Seconds

Options :

1. 6336
2. 6390
3. 6372
4. 6354

Solution :

The correct answer is option 3 ie 6372.

100 ⟶ 1500   (2016)

Total number of units = 1500 × 3.6 = 5400

5400 + (18 / 100) × 5400 = 6372

Question 11 :

If , then the value of is ?

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

Options :

1. 423
2. 441
3. 432
4. 414

Solution :

The correct answer is option 1 ie 423.

$$x + \frac{1}{16x} = 3$$

We know, x + (1/x) = a, then [x³ + (1/x³) = a³ - 3a]

$$16x^3 + \frac{1}{256x^3} = k$$

multiplying by 4

$$64x^3 + \frac{1}{64x^3} = 4k$$

$$k = \frac{12^3 - 3 \times 12}{4}$$

= (12 × 144) / 4 = 423

Question 12 :

If 60% of the number is 120 more than 20% of the number, then 28% of the number is less than of the number by ?

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

Options :

1. 14

2. 12

3. 16

4. 15

Solution :

The correct answer is option 3 ie 16.

28% of x = $33\frac{1}{3}\%$ of x

84% of x = 100% of x

Difference = 100 - 84

= 16

Question 13 :

A sum lent out at simple interest amounts to Rs 6076 in 1 year and Rs 7504 in 4 years. The sum and the rate of interest p.a. are respectively ?

Difficulty : Moderate   **Average Time : 54 Seconds**

Options :

1. Rs.5600 and 9%

2. Rs.5600 and 8.5%

3. Rs.5400 and 9%

4. Rs.5400 and 10%

Solution :

The correct answer is option 2 ie Rs.5600 and 8.5%.

1st yr 6076 +(1428/3) = 476 (int. for 1st yr) 7504

A - I = P

6076 - 476 = P

P = 5600

Rate = (476/5600) × 100 = 476/56 = 8.5%

Question 14 :

In triangle ABC, the medians AD, BE and CF meet at O. What is the ratio of the area of triangle ABD to the area of triangle AOE?
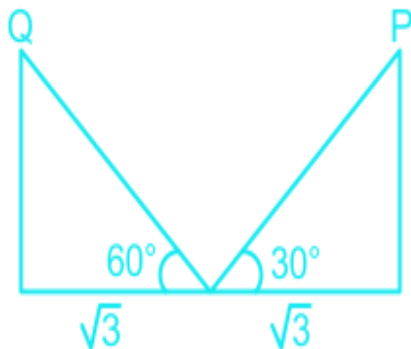
Difficulty : Moderate   **Average Time : 57 Seconds**

Options :

1. 2 : 1

2. 3 : 1

3. 5 : 2

4. 3 : 2

Solution :

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

Area of triangle ABD = 1/2 (area of triangle ABC)

and median divide triangle into 6 equal parts

So,

(Ar ABD / Ar AOE) = 3/1

= 3 : 1

Question 15 :

If x + y + z = 2, xy + yz + xz = -11, and xyz = -12, then what is the value of ?

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

Options :

1. 6
2. 12
3. 9
4. 8

Solution :

The correct answer is option 1 ie 6.

$x + y + z = 2$

$xy + yz + xz = -11$

$xyz = -12$

$x = 4, y = -3, z = 1$

$$\frac{\sqrt{x^3 + y^3 + z^3 - 2}}{\sqrt{64 - 27 + 1 - 2}}$$

$= 36 = 6$

Question 16 :
Two third of the number of employees of a company are males and the rest are females. If 3/8 of the male employees and 2/5 of the female employees are temporary employees and the total number of permanent employees is 740, then 7/15 of the total number of employees exceeds the number of temporary female employees by ?

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

Options :

1. 400
2. 340
3. 308
4. 320

Solution :

The correct answer is option 1 ie 400.

Male : Female

80 or 2 : 40 or 1 [assuming the number to be 80 and 40]

Temporary 30 : 16

Permanent = 50 + 24 = 74 × x = 740

x = 10 (multiplying factor)

= (7/15) × 120 × x

= (7/15) × 1200 = 560

= 560 - (16 × x) = 560 - 160 = 400

Question 17 :
In a class, of the number of students are girls and the rest are the boys. If 60% of the number of boys and 80% of the number of girls are present, then what percentage of the total number of students in the class is absent ?

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

Options :

1. $26\frac{2}{3}\%$

2. $22\frac{2}{3}\%$

3. $23\frac{1}{3}\%$

4. $12\frac{1}{3}\%$

Solution :

The correct answer is option 3 ie $23\frac{1}{3}\%$

Girls : Boys

5 or 50 : 1 or 10 (assuming)

Absent 10 : 4

Total absent = 14

Total student = 60

$(14/60) \times 100 = 70/3 = 23\frac{1}{3}\%$

Question 18 :

A is 25% more than B and B is 40% less than C. If C is 30% more than D, then by what percent is A less than D ?

Difficulty : Moderate

Average Time : 92 Seconds

Options :

1. 1.5

2. 2.5

3. 4

4. 5

Solution :

The correct answer is option 2 ie 2.5

```
 A   :   B   :   C   :   D
97.5 :  78  : 130  : 100
    +25%   -40%   +30%
```

Difference between A and D = 2.5

Question 19 :

The value of is ?

Difficulty : Moderate

Average Time : 52 Seconds

Options :

1. 3/2

2. 1/2

3. 1

4. 2

Solution :

The correct answer is option is 4 ie 2.

$$\left(\frac{\sin A}{1-\cos A}+\frac{1-\cos A}{\sin A}\right) \div \left(\frac{\cot^2 A}{1+\csc A}+1\right)$$

$$\left(\frac{\sin^2 A + 1 - \cos^2 A - 2\cos A}{(1-\cos A)(\sin A)}\right)$$

$$\left(\frac{2(1-\cos A)}{(1-\cos A)(\sin A)}\right) \div \left(\frac{\frac{\cos^2 A}{\sin A}}{1+\sin A}+1\right)$$

$$\frac{\left(\frac{2}{\sin A}\right)}{\left(\frac{1}{\sin A}\right)}$$

= 2

Question 20 :

A spends 60% of his income. His income increased by 20% and his expenditure increased by 25%. What is the change in savings?

Difficulty : Moderate   **Average Time : 46 Seconds**

Options :

1. Increase by 11%

2. Increase by 5%

3. Decrease by 5%

4. Decrease by 11%

Solution :

The correct answer is **option 1** i.e. **Increase by 11%.**

Let the income of A be 100 units

Expenditure of A = 60% of 100 = 60 units

Savings of A = 100 - 60 = 40 units

Change in income = 100 × 1.2 = 120 units

Change in expenditure = 60 × 1.25 = 75 units

Savings = 120 - 75 = 45 units

Change in saving percentage = (45 - 40)/45 × 100 = 5/45 × 100 = 11.11% increase

Question 21 :

If , then sec is equal to ?

Difficulty : Moderate

Average Time : 53 Seconds

Options :

1. $\dfrac{2p^2q^2}{p^2 + q^2}$

2. $\dfrac{1}{2}\left(\dfrac{q}{p} + \dfrac{p}{q}\right)$

3. $\dfrac{1}{p^2} + \dfrac{1}{q^2}$
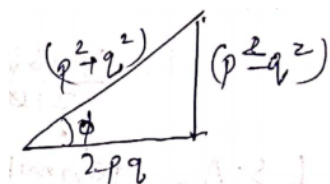
4. $\dfrac{p^2q^2}{p^2 + q^2}$

Solution :

The correct answer is option 2 ie $\dfrac{1}{2}\left(\dfrac{q}{p} + \dfrac{p}{q}\right)$

$$\dfrac{1 + \sin\theta}{1 - \sin\theta} = \dfrac{p^2}{q^2}$$

Applying C and D, we get

2 sin /2 = $\dfrac{p^2 - q^2}{p^2 + q^2}$

sin = $\dfrac{p^2 - q^2}{p^2 + q^2}$

$sec = \dfrac{p^2 + q^2}{2pq}$

$= \dfrac{1}{2}\left(\dfrac{q}{p} + \dfrac{p}{q}\right)$

Question 22 :

The marked price of an article is Rs.800 and sold at a discount of 19%. If there is a gain of 8%, then by what percent above the cost price was the article marked ?

Difficulty : Moderate   **Average Time : 117 Seconds**

Options :

1. $33\dfrac{1}{3}$

2. 35

3. 27

4. $36\dfrac{2}{3}$

Solution :

The correct answer is option 1 ie $33\dfrac{1}{3}$

600 CP +8% 648 SP -19% 800

Difference between CP and MP = 200

$(200/600)\% = $ $33\dfrac{1}{3}$

Question 23 :

A cylindrical vessel of radius 3.5m is full of water. If 15400 litres of water is taken out from it, then the drop in the water level in the vessel will be ?

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

Options :

1. 72cm

40cm

3. 35cm

4. 60cm

Solution :

The correct answer is option 2 ie 40cm.

V = 15400

r² h = 15400

(154/4) × h = 15400

h = (15400 × 4)/154

h = 400

Drop = 40cm

Question 24 :

A, B and C start a business. A invests % of the total capital, B invests 25% of the remaining and C invests the rest. If the total profit at the end of a year is Rs.162000, then A's share in profit is ?

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

Options :

1. Rs.81000

2. Rs.60000

3. Rs.54000

4. Rs.90000

Solution :

The correct answer is **option 3** i.e. **Rs.54000**.

A invests $33\frac{1}{3}$ %

Let the amount be 6.

A B C

2 1 3

Share of A = (2/6) × 162000 = Rs.54000

Question 25 :
A solid metallic sphere of radius 8cm is melted and drawn into a wire of uniform cross-section. If the length of the wire is 24m, then its radius (in mm) is ?

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

Options :
1. 6

2. 5

3. $5\dfrac{1}{3}$

4. $6\dfrac{2}{3}$

Solution :

The correct answer is option 3 ie $5\dfrac{1}{3}$

$(4/3) \times 8^3 = r^2 \times h$

$(4/3) \times 8^3 = r^2 \times 24$

$r^2 = (8^3 \times 4) / (3 \times 24)$

$r^2 = (8 \times 8 \times 2 \times 2) / (3 \times 3)$

$r = (8 \times 2)/3 = 16/3$

Question 26 :
The sides of a triangle are 56 cm, 90 cm and 106 cm. The circumference of circumcircle is:

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

Options :
1. 106

2. 109

3. 108

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Solution :

The correct answer is **option 1** i.e. **106.**

As it is a right angle triangle:

R = H/2 = 106/2 = 53

Hence,

Circumference = 2R = 106

Question 27 :

The average weight of a certain number of students in a group is 72kg. If 10 students having an average weight 78kg leave and 4 students having an average weight of 80kg join the group, the average weight of students in the group decreases by 0.7kg. The number of students initially in the group are ?

Difficulty : Moderate   Average Time : 61 Seconds

Options :

1. 56

2. 46

3. 44

4. 54

Solution :

The correct naswer is option 2 ie 46.

= 72 (-10) × (+6)

= 78

+ 6

(-60+32)/n = -0.7

n = 40

= n - 4 + 10

= 40 - 4 + 10 = 46

Question 28 :

The value of is equal to?

Difficulty : Moderate

Average Time : 50 Seconds

Options :

1. cosec

2. 1/2

3. sec

4. 1

Solution :

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

Put = 45°

$$\sqrt{\frac{cosec\theta - cot\theta}{cose\theta + cot\theta} \div \frac{sin\theta}{1 + cos\theta}}$$

$$\sqrt{\frac{\sqrt{2} - 1}{\sqrt{2} + 1} \div \frac{\frac{1}{\sqrt{2}}}{1 + \frac{1}{\sqrt{2}}}}$$

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

= 2 - 1 = 1

Question 29 :

In a circle, AB and DC are two chords. When AB and DC are produced, they meet at point P. If PC = 5.6 cm, PB = 6.3 cm and AB = 7.7 cm, then the length of CD is _____.
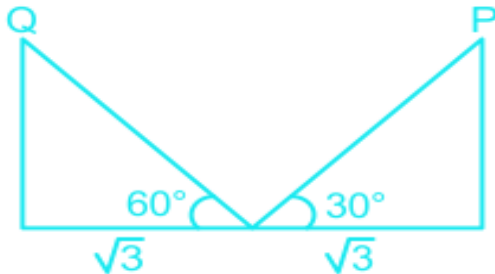
Difficulty : Moderate

Average Time : 54 Seconds

Options :

1. 8.35 cm

2. 9 cm

3. 10.15 cm

4. 9.25 cm

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Solution :

The correct answer is **option 3** i.e. **10.15 cm**

PA × PB = PC × PD

14 × 6.3 = 5.6 × PD

PD = (14 × 6.3) / 5.6 = 15.75

Hence,

CD = PD - PC = 15.75 - 5.6 = 10.15 cm

Question 30 :
The value of is equal to ?

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

Options :

1. 2cos

2. cosecsec

3. 2sin

4. sincos

Solution :

The correct naswer is option 4 ie sincos.

Putting = 45°

$$\frac{\sqrt{2}\left(1 - \frac{1}{\sqrt{2}}\right)(\sqrt{2})(\sqrt{2} + 1)}{2 \times \frac{1}{\sqrt{2}} \times 2}$$

= (1 × 2) / (2 × 2) = 1/2

On putting   = 45° in option

= sin45° × cos45°

= 1/2

Question 31 :

If the eleven digit number 5678x43267y is divisible by 72, then the value of is ?

Difficulty : Moderate

Average Time : 61 Seconds

Options :

1. 6

2. 4

3. 7

4. 8

Solution :

The correct answer is option 1 ie 6.

5678x43267y

for 67y divisible by 72

67y = 8 × 9

y = 2

x + 5 = 9

x = 4

$$\frac{\sqrt{(5 \times 4) + (8 \times 2)}}{\sqrt{20 + 16}}$$

= 36 = 6

Question 32 :

What is the ratio of third proportional to 0.4 and 0.8, to the mean proportional between 13.5 and 0.24 ?

Difficulty : Moderate

Average Time : 59 Seconds

Options :

   5 : 4

2. 7 : 8

3. 8 : 9

4. 9 : 10

Solution :

The correct answer is option 3 ie 8 : 9.

(0.4/0.8) = (0.8/x)

x = 1.6

Mean proportion = $\sqrt{13.5 \times 0.24}$ = 1.8

(x/1.8) = (1.6/1.8) = 8/9

Question 33 :

If $8x^3 - 27y^3 = (Ax + By)(Cx^2 - Dy^2 + 6xy)$, then $(A + B + C - D)$ is equal to ?

Difficulty : Moderate   Average Time : 52 Seconds

Options :

1. -12

2. 12

3. 15

4. 9

Solution :

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

$(2x)^3 - (3y)^3 = (Ax + By)(Cx^2 - Dy^2 + 6xy)$

$= (2x - 3y) (4x^2 + 9y^2 - 6xy)$

A = 2, B = -3, C = 4, D = -9

$(A + B + C - D) = (2 - 3 + 4 + 9)$

                 = 12

Question 34 :

The given bar graph shows the marks obtained by students in an examination. The number of students who obtained less than 300 marks is what percent more than the number of students who obtained 350 or more marks ?

Difficulty : Moderate

Average Time : 67 Seconds

Options :

1. 80%

2. 28%

3. 44.4%

4. 22.7%

Solution :

The correct answer is 1 ie 80%.

Less than 300 marks = 30 + 45 + 60 = 135

More than 350 = 40 + 35 = 75

[(135 - 75) / 75] × 100 = 80%

Question 35 :

Renu was sitting inside Train A, which was travelling at 50 km/hr. Another Train B, whose length was three times the length of A and crossed her in opposite direction in 15 seconds. If the speed of Train B was 58 km/hr, then the length of Train A (in m) is ?

Difficulty : Moderate

Average Time : 53 Seconds

Options :

1. 210

2. 180

3. 160

4. 150

Solution :

The correct answer is option 4 ie 150.

Renu = 50 km/hr

Train = 58 km/hr

S = 108 km/hr

= 30m/s

3x = 30 × 15

x = 450 / 3

x = 150

Question 36 :

The speed of a boat in still water is 18 km/hr and the speed of current is 6 km/hr. In how much time (in hours) will a boat travel a distance of 90 km upstream and the same distance downstream ?

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

Options :

1. $9\frac{1}{2}$

2. $11\frac{1}{4}$

3. 12

4. 10

Solution :

The correct answer is **option 2** i.e. $11\frac{1}{4}$.

Boat speed = 18 km/hr

Stream speed = 6 km/hr

Upstream speed = (18 - 6) = 12 km/hr

Downstream speed = (18 + 6) = 24 km/hr

Average speed = (2 × 12 × 24)/(36) = 16 km/hr

Time = 180/16 = 90/8 = $11\frac{1}{4}$

Question 37 :

The HCF of two numbers is 21 and their LCM is 221 times the HCF. If one of the number lies between 200 and 300, then the sum of the digits of the other number is _____.

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

Options :

14

2. 17
3. 18
4. 15

Solution :

The correct answer is **option 4** ie **15**.

x, y = co prime number

  a   b

a = 21x   b = 21y

LCM (a, b) = 21(x × y)

        = 222 × 21

x × y = 221

    = 17 × 13

21 × 13 = 273

21 × 17 = 357   sum of digits = 15

Question 38 :

Triangle ABC and triangle DBC are on the same base BC but on opposite sides of it. AD and BC intersects each other at O. If A0 = a cm, DO = b cm and the area of triangle ABC = x cm², then what is the area (in cm²) of triangle DBC ?

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

Options :

1. $\dfrac{a}{b}x$

2. $\dfrac{ab}{2}x$

3. $\dfrac{bx}{a}$

4. $\dfrac{(a + b)}{2}x$

Solution :

The correct answer is **option 3** i.e. $\frac{bx}{a}$
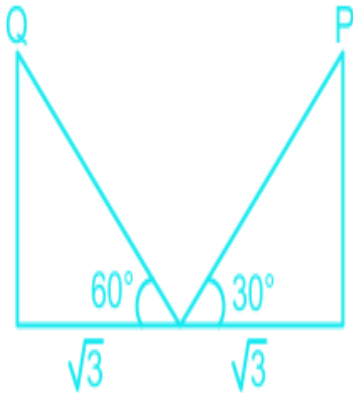
ABC = x

Area ratio from same base = height ratio

x : DBC

x : DBC = ha : hd

x : DBC = a : b

DBC = $\frac{bx}{a}$

Question 39 :
The value of tan² + cot² - sec²cosec² is equal to ?

Difficulty : Moderate

Average Time : 116 Seconds

Options :

1. -2

2. 1

3. 0

4. -1

Solution :
The correct answer is option 1 ie -2.

Put $= 45°$

$= \tan^2 45° + \cot^2 45° - \sec^2 45° \csc^2 45°$

$= 1 + 1 - (2 \times 2)$

$= 2 - 4$

$= -2$

Question 40 :

The point of intersection of the graphs of the equations $3x - 5y = 19$ and $3y - 7x + 1 = 0$ is P(,). What is the value of $(3 -)$?

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

Options :

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

Solution :

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

$3x - 5y = 19$ eq1

$3y - 7x + 1 = 0$ eq2

On solving eq1 and eq2

$x = -2, y = -5$

$= -2, = -5$

$3 - = 3(-2) - (-5)$

$= (-6 + 5)$

$= -1$

Question 41 :

$(\sec - \tan)^2 (1 + \sin)^2 \div \sin^2 = ?$

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

Options :

1. cos
2. cot²
3. sec
4. cos²

Solution :

The correct answer is option 2 ie cot² .

Put $\theta = 45°$

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

$$\frac{(\sqrt{2} - 1)^2 \left(1 + \frac{1}{\sqrt{2}}\right)^2}{\frac{1}{2}}$$

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

$= 1 = cot^2$

Question 42 :

By selling two articles for Rs.800, a person gains the cost price of three articles. The profit percent is ?

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

Options :

1. 125
2. 140
3. 120
4. 150

Solution :

The correct answer is option 4 ie 150.

$= (3 \times CP) / (2 \times CP) \times 100$

= 150%

Question 43 :

What is the compound interest on a sum of Rs.7200 for years at 20% pa, interest compounded yearly (nearest to an integer) ?

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

Options :

1. Rs.4290

2. Rs.3960

3. Rs.4205

4. Rs.3997

Solution :

The correct answer is 4 ie Rs.3997.

7200 20% 20% 8%

          1440   1728

  7200 + 3168 = 10368

= 8% × 10368

= 829

= 1440 + 1728 + 829 = 3997

Question 44 :

The value of is ?

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

Options :

1. -1

2. 1

3. 3

4. -3

Solution :

The correct answer is option 1 ie -1.

It is of the form,

a + b + c = 0

a³ + b³ + c³ = 3abc

If, a + b - c = 0

a³ + b³ - c³ = -3abc

Now,

$$\frac{(0.545)(0.081)(0.51)(5.2)}{(0.324)^3 + (0.221)^3 - (0.545)^3}$$

$$\frac{(0.545)(0.081)(0.51)(5.2)}{-3 \times (0.324) + (0.221) - (0.545)}$$

= -1

Question 45 :

The base of a right pyramid is an equilateral triangle with side 8cm and the height of the pyramid is 243cm. The volume of pyramid (in cm³) is ?

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

Options :
1. 1152
2. 480
3. 576
4. 384

Solution :

The correct answer is **option 4** i.e. **384**.

V = (1/3) × B × H = (1/3) × 163 × 243

　= 16 × 24 = 384

Question 46 :

The sum of the interior angles of a regular polygon is 1260°. What is the difference between an exterior angle and an interior angle of the polygon ?

Difficulty : Moderate

Average Time : 47 Seconds

Options :

1. 105°
2. 100°
3. 120°
4. 90°

Solution :

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

(n - 2) × 180 = 1260

n - 2 = 7

n = 9

Total exterior angle = 360°

Total interior angle = 1260°
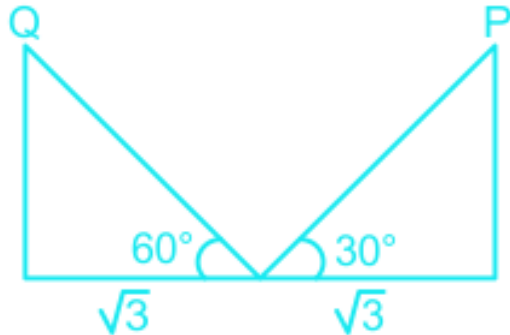
Difference = (1260 - 360) / 9

= 900/9

= 100°

Question 47 :

In a circle with centre O, AC and BD are two chords. AC and BD meet at E when produced. If AB is diameter and AEB = 68°, then the measue of DOC?

Difficulty : Moderate

Average Time : 74 Seconds

Options :

1. 32°
2. 30°
3. 22°
4. 44°

Solution :

The correct answer is **option 4** i.e **44°**

DOC = 180° - (2 × 68°)

= 180° - 136°

= 44°

Question 48 :

In triangle ABC, the perpendiculars drawn from A, B and C meet the opposite sides at D, E and F, respectively. AD, BE and CF intersect at point P. If EPD = 116° and the bisectors of A and B meet at Q. Then the measure of AQB is ?

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

Options :

1. 96°

2. 122°

3. 124°

4. 64°

Solution :

The correct answer is **option 2** i.e. **122°.**
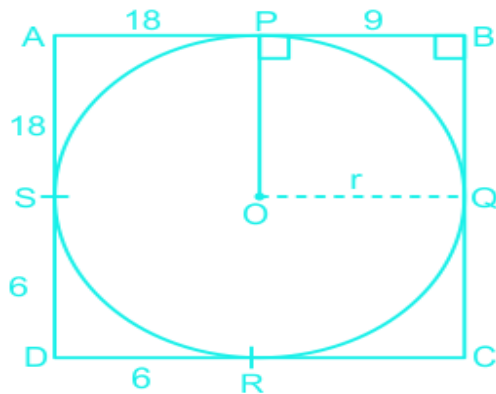
EPD = 116° [Given]

From the figure:

C = 360 - [116 + 90 + 90] = 64°

Now,

Q is the Incenter of the triangle.

So,

AQB = 90° + (C/2)

AQB = 90° + 32° = 122°

Question 49 :
The perimeters of two similar triangles ABC and PQR are 78 cm and 46.8 cm, respectively. If PQ = 11.7, then the length of AB is:

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

Options :

1. 19.5 cm

2. 23.4 cm

3. 24 cm

4. 20 cm

Solution :
The correct answer is **option 1** i.e. **19.5 cm.**

Ratio of Perimeters of two similar triangles ABC and PQR = AB : PQ

So,

78 : 46.8 = AB : 11.7

AB = 19.5 cm

Question 50 :

If the diameter of the base of a right circular cylinder is reduced by and its height is doubled. Then the volume of the cylinder will be ?

Difficulty : Moderate

Average Time : 61 Seconds

Options :

1. Increase by $1\frac{1}{9}\%$

2. Remain unchanged

3. Increase by $11\frac{1}{9}\%$

4. Decrease by $11\frac{1}{9}\%$

Solution :

The correct answer is option 4 ie decrease by $11\frac{1}{9}\%$.

Assume radius = 3

h = 1

Now,

r² h = × 9 × 1

After decreasing,

r = 2, h = 2

r² h = × 8

Decrease = (1/9) × 100 = $11\frac{1}{9}\%$

Question 51 :

A right circular solid cone of radius 3.2cm and height 7.2cm is melted and recast into a right circular cylinder of height 9.6cm. What is the diameter of the base of the cylinder ?

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

Options :

1. 4.2cm

2. 4.5cm

3. 3.5cm

4. 3.2cm

Solution :

The correct answer is option 4 ie 3.2cm.

$(1/3) \times (3.2)^2 \times 7.2 = [(d)^2 / 4] \times 9.6$

$d^2 = (3.2)^2$

$d = 3.2$

Question 52 :

40 liters of 60% concentration of acid solution is added to 35 liters of 80% concentration of acid solution. What is the concentration of acid in new solution ?

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

Options :

1. 66%

2. $66\frac{2}{3}\%$

3. $69\frac{1}{3}\%$

4. 69%

Solution :

The correct answer is option 3 ie $69\frac{1}{3}\%$.

40l : 35l

  8 : 7

  60%   80%

= (480 + 560) / 15 = 1040/15

= $69\frac{1}{3}$%

Question 53 :

In triangle PQR, I is the incenter of the triangle. If QIR = 107°. What is the measure of P?
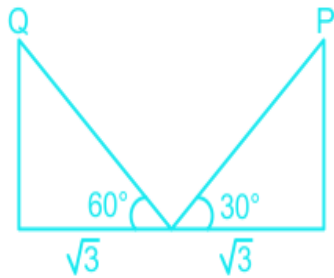
Difficulty : Moderate   **Average Time : 73 Seconds**

Options :

1. 37°

2. 43°

3. 73°

4. 34°

Solution :

The correct answer is **option 4** i.e. **34°**

QIR = 90° + (QPR/2)

 107° - 90° = QPR/2

 QPR = 17 ✕ 2 = 34°

Question 54 :

If x4 - 83x² + 1 = 0, then the value of (x³ - x-3) can be ?

Difficulty : Moderate

Average Time : 73 Seconds

Options :

1. 758
2. 756
3. 739
4. 737

Solution :

The correct answer is option 2 ie 756.

$x^4 - 83x^2 + 1 = 0$

$x^2 + (1/x^2) = 83$

$x - (1/x) = 9 = k$

$x^3 - (1/x^3) = k^3 + 3k$

$= 9^3 + (3 \times 9)$

$= 9 (81 + 3)$

$= 9 \times 84$

$= 756$

Question 55 :

Sujata marks an article 36% above the cost price and allows a 40% discount on the marked price. The loss percentage is?

Difficulty : Moderate

Average Time : 69 Seconds

Options :

1. 15
2. 16.8
3. 18.4
4. 4

Solution :

The correct answer is **option 3** i.e. **18.4**.

Let the CP be 100.

So, the marked price = 100 + (36/100) × 100

= 136

SP = 40% discount on 136

= 136 - (40/100) × 136

= 136 - (54.4)

SP = 81.6

Loss = CP - SP

= 100 - 81.6

= 18.4

Question 56 :

If $3(\cot^2 - \cos^2) = \cos^2$, 0° 90°, then the value of ($\tan^2 + \csc^2 + \sin^2$) is:

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

Options :

1. 13/3

2. 61/12

3. 25/12

4. 15/4

Solution :

The correct answer is **option 2** i.e. **61/12**.

$3(\cot^2 - \cos^2) = \cos^2$

$3\cot^2 = 4\cos^2$

$\sin^2 = 3/4$

$\sin = 3/2, = 60°$

($\tan^2 + \csc^2 + \sin^2$)

= (3 + 4/3 + 3/4)

= 61/12

Question 57 :

A hemispherical bowl of internal diameter 36 cm is full of liquid. This liquid is to be filled into cylinderical bottles each of radius 3 cm and height 12 cm. How many such bottles are required to empty the bowl ?

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

Options :

1. 72

2. 54

3. 36

4. 27

Solution :

The correct answer is option 3 ie 36.

Internal diameter = 36 cm

Radii = 18 cm

$V = (2/3) \, r^3$

$\times (2/3) \times 18^3 = n \times 3^2 \times 12 \times$

$n = 18^3 / (3^3 \times 6)$

n = 36

Question 58 :

If $(5x + 1)^3 + (x - 3)^3 + 8(3x - 4)^3 = 6(5x + 1)(x - 3)(3x - 4)$, then x is equal to ?

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

Options :

1. 5/6

2. 1/3

3. 2/3

4. 3/4

Solution :

The correct answer is **option 1** i.e. **5/6.**

$(5x + 1)^3 + (x - 3)^3 + 8(3x - 4)^3 = 6(5x + 1)(x - 3)(3x - 4)$

of the form

$a^3 + b^3 + c^3 = 3abc$

$a + b + c = 0$

$5x + 1 + x - 3 + 6x - 8 = 0$

$12x - 10 = 0$

$x = 5/6$

Question 59 :

The average of 33 numbers is 74. The average of the first 17 numbers is 72.8 and that of the last 17 numbers is 77.2. If the 17th number is excluded, then what will be the average of the remaining numbers (correct to one decimal place) ?

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

Options :

1. 72.9
2. 73.4
3. 71.6
4. 70.8

Solution :

The correct answer is option 1 ie 72.9.

$(a_1 + ...a_{33}) + a_{17} = 17(72.8 + 77.2)$

$(33 \times 74) + a_{17} = 17 \times 150$

$a_{17} = 2550 - 2442 = 108$

If a_{17} is excluded,

New average = 74 - (34/32)

= 74 - (17/16)

= 72.9

Question 60 :

A solid cube is cut into three cuboids of the same volumes. What is the ratio of the surface area of the cube to the sum of the surface areas of any two of the cuboids so formed ?
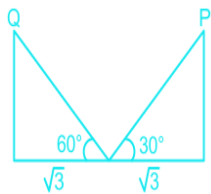
Difficulty : Moderate   **Average Time : 64 Seconds**

Options :

1. 9 : 10
2. 27 : 16
3. 27 : 10
4. 9 : 8

Solution :

The correct answer is option 1 ie 9 : 10.

6 : 2 [2 + (4 × 1/3)]

6 : 2 [10/3]

9 : 10

Question 61 :

If $\left(\dfrac{\sin^2\theta - 3\sin\theta + 2}{\cos^2\theta}\right) = 1$, where $0° \leq \theta \leq 90°$, then what is the value of (cos2 + sin3 + cosec2) ?

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

Options :

1. $\dfrac{2+\sqrt3}{3}$
2. $\dfrac{3+4\sqrt3}{6}$
3. $\dfrac{9+4\sqrt3}{6}$
4. $\dfrac{3+2\sqrt3}{3}$

Solution :

The correct answer is **option 3** i.e. $\dfrac{9+4\sqrt3}{6}$.

Let's assume, sin = x

$${x^2-3x+2}\over{1-x^2}} = 1$$

$${{(x-1)(x-2)}\over({x-1})({x+1})} = -1$$

(x - 2) = - x - 1

x + x = -1 + 2

x = 1/2, sin = 1/2, = 30°

Now, (cos2 + sin3 + cosec2) = (1/2) + 1 + (2/3) = $${3+6+4\sqrt3}\over6$$ = $${9+4\sqrt3}\over6$$

Question 62 :

A loan has to be returned in two equal yearly installments each of Rs.44,100. If the rate of interest is 5% pa, compounded equally, then the total interest is paid ?

Difficulty : Moderate   **Average Time : 82 Seconds**

Options :

1. Rs.5840
2. Rs.6000
3. Rs.6200
4. Rs.6280

Solution :

The correct answer is **option 3** i.e. **Rs.6200**

Total investments = 88200

t = 0   t = 1   t = 2

44100 / 1.05   44100   44100

= 42000 (t = 1)

= 44100/(1.05)² = 40000 (t = 2)

(t = 1) + (t = 2) = 44000 + 40000

            = 82000

Interest = 88200 - 82000

= 6200

Question 63 :

A sum of Rs.x is divided among A, B, and C such that the ratio of the shares of A and B is 6 : 7 and that of B and C is 3 : 2. If the difference between the shares of A and C is Rs 540, then the value of x is?

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

Options :

1. 7425

2. 7020

3. 7155

4. 7290

Solution :

The correct answer is **option 3** i.e **7155**.

A : B   B : C

6 : 7   3 : 2

A : B : C

18 : 21 : 14

(C - A) = 4 parts = 540

       = 1 part = 540/4

(18 + 21 + 14) × (540/4) = 53 × (540/4) = 7155

Question 64 :

The sides PQ and PR of triangle PQR are produced to points S and T, respectively. The bisectors of SQR and TRQ meet at U. If QUR = 79°, then the measure of P is:

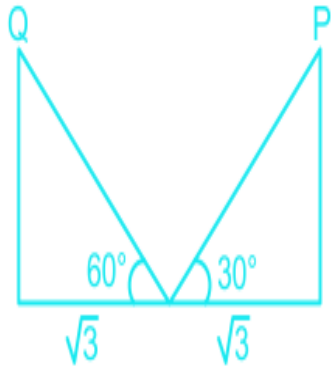**Difficulty : Moderate**   **Average Time : 69 Seconds**

Options :

1. 41°

2. 49°

3. 22°

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Solution :

The correct answer is **option 3** i.e. **22°**.

QUR = 90° - (P/2)

P/2 = 90° - 79°

P/2 = 11°

P = 22°

Question 65 :

The value of is ?

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

Options :

1. 2

2. -1

3. -2

4. 0

Solution :

The correct answer is option 2 ie -1.

$$\frac{\sin(78° + \theta) - \cos(12° - \theta) + (\tan^2 70° - cosec^2 20°)}{\sin25°\cos65° + \cos25°\sin65°}$$

= (0 + (-1)) / 1

= -1

Question 66 :

The value of (tan29° cot61° - cosec²61°) + (cot²54°- sec²36°) + (sin²1° + sin²3° + sin²5° + ...+ sin²89°) is ?

Difficulty : Moderate

Average Time : 51 Seconds

Options :

1. 20.5

2. 21

3. 22.5

4. 22

Solution :

The correct answer is option 1 ie 20.5

= (tan29° cot61° - cosec²61°) + (cot²54°- sec²36°)+(sin²1° + sin²3° + sin²5° + ...+ sin²89°)

= (cot²61° - cosec²61°) + cot²54°- cosec²54° + (sin²1° + sin²3° + sin²5° + ...+ sin²89°)

= -1 - 1 + 22 + sin²45°

= -2 + 22 + (1/2)

= 20 + (1/2)

= 20.5

Question 67 :

Alloy A contains copper and zinc in the ratio of 4 : 3 and alloy B contains copper and zinc in the ratio 5 : 2. A and B are taken in the ratio of 5 : 6 and melted to form a new alloy. The percentage of zinc in the alloy is closet to ?

Difficulty : Moderate

Average Time : 68 Seconds

Options :

1. 54

2. 34.2

3. 36.8

4. 35

Solution :

The correct answer is option 4 ie 35.

	Cu	Zn	
A	4	3	(5 parts)
B	5	2	(6 parts)

Final mixture = Zn/T = $\dfrac{\frac{15}{7} + \frac{12}{7}}{11}$

= Zn/T = 22/77

= (22/77) × 100 = 35

Question 68 :

If the price of the petrol increases by 19%, Sunita intends to spend only an additional 12% of petrol, by what percent should she reduce the quantity of petrol purchased (nearest to an integer) ?

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

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

Solution :

The correct answer is option 2 ie 6.

Price × Consumption = Expenditure

P × C = E

C = E/P   eq1

Now, after increase in price

$(P + (19/100) \times P) \times C^1 = (E + (12/100) \times E)$

$(119 \times P) / 100 \times C^1 = (112 \times E) / 100$

$C^1 = (112 \times E \times 100) / (100 \times 119 \times P)$

$C^1 = (112/119) \times (E/P)$

$C^1 = (112/119) \times C$

$C^1 = 0.94 \times C$

% decrease = 100 - 94 = 6%

Question 69 :

A, B and C invested their capitals in the ratio of 2 : 3 : 5. The ratio of months for which A, B and C invested is 4 : 2 : 3. If C gets share of profit which is Rs.147000 more than that of A, then B's share of profit is ?

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

Options :

1. Rs.126000

2. Rs.168000

3. Rs.105000

4. Rs.189000

Solution :

The correct answer is **option 1** i.e. **Rs.126000**

A : B : C

8 : 6 : 15

C - A = 7   147000

= 1   21000

6 parts = 126000

Question 70 :

In a quadrilateral ABCD, the bisectors of C and D meet at E. If CED = 56° and A = 49°, then the measure of B is?

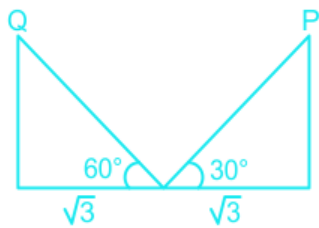**Difficulty : Moderate**   **Average Time : 57 Seconds**

Options :

1. 71°

54°

3. 63°

4. 67°

Solution :

The correct answer is **option 3** i.e. **63°**

$(D/2) + (C/2) = 180° - 56°$

$D + C = 124° × 2$

$D + C = 248°$

Hence,

$B = 360° - (248° + 49°) = 63°$

Question 71 :
The number of factors of 3600 is ?

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

Options :

1. 45

2. 44

3. 43

4. 42

Solution :

The correct answer is option 1 ie 45.

No. of factors = $(a + 1)(b + 1)(c + 1)(d + 1)$

$3600 = 2^4 × 3^2 × 5^2$

a = 4, b = 2, c = 2

Factors = (4 + 1)(2 + 1)(2 + 1)

$\qquad$ = (5)(3)(3)

$\qquad$ = 45

Question 72 :

The given pie chart shows the quantity wise sales distribution of five products (A, B, C, Dand E) of a company 2016. If 320 units of product A were sold by the company, then how many units of product B and E together were sold by the company ?

Difficulty : Moderate

Average Time : 62 Seconds

Options :

1. 567

2. 576

3. 512

4. 640

Solution :

The correct answer is option 2 ie 576.

50° = 320

90° = (9/5) × 320

$\qquad$ = 576

Question 73 :

4 men and 5 women can complete a work in 15 days, whereas 9 men and 6 women can do it in 10 days. To complete the same work in 7 days, how many women should assist 4 men ?

Difficulty : Moderate

Average Time : 47 Seconds

Options :

1. 11

2. 14

3. 12

13

Solution :

The correct answer is option 4 ie 13.

(4m + 5w) × 15 = (9m + 6w) × 10

2m = w

m : w

1 : 2

(4 + 2x) × 7 = 14 × 15

2x = (210 / 7) - 4

2x = 30 - 4

2x = 26

x = 13

Question 74 :

If x = (164)169 + (333)337 - (727)726, then what is the units of digit x ?

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

Options :

1. 5

2. 7

3. 8

4. 9

Solution :

The correct naswer is option 3 ie 8.

$x = (164)^{169} + (333)^{337} - (727)^{726}$

Unit digit = 4 + 3 -9

          = 8

Question 75 :

Pipes A and B can fill a tank in 16 hours and 24 hour, respectively. Pipe C can alone empty the full tank in x hours. All the pipes were opened together at 10:30 am, but C was closed at 2:30 pm. If the tank was full at 8:30 pm on the same day, then what is the value of x?

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

Options :

1. 64

2. 48

3. 45

4. 96

Solution :

The correct answer is **option 4** i.e. **96**.

Efficiency of A = 1/16 units/hour

Work done by A in 10 hours = 10/16 = 5/8 units

Efficiency of B = 1/24 units/hour

Work done by B in 10 hours = 10/25 = 5/12 units

Efficiency of C = -1/x units/hour

Work done by C in 4 hours = -4/x units

Now, According to the question:

$5/8 + 5/12 - 4/x = 1$

$(15x + 10x - 96)/24x = 1$

$x = 96.$

Question 76 :

Let x be the least number which when divided by 15, 18, 20 and 27, the remainder in each case is 10 and x is a multiple of 31. What least number should be added to x to make it a perfect square ?

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

Options :

1. 39

37

3. 43

4. 36

Solution :

The correct answer is option 1 ie 39.

$x = k$ LCM(16, 18, 20, 27) + 10

$x = 540k + 10$

$k = 1, x = 550$

$k = 2, x = 1090$

$k = 3, x = 1630$

$k = 4, x = 2170$

Minimum number need to be added to 2170

= 39 (to make it a perfect square)

Question 77 :
The given bar graph shows the imports and exports (in crores) of steel by a country from 2013 to 2017. The total imports of steel in 2014, 2016 and 2017 is what percent less than the total exports in 2013, 2015 and 2017 ? (correct to one decimal place)

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

Options :

1. 13.4

2. 15.8

3. 16.2

4. 14.5

Solution :

The correct answer is option 4 ie 14.5

$I_{14 + 16 + 17}$ $E_{13 + 15 + 17}$

 1410   1650

(24/165) × 100 = 14.5%

Question 78 :
A person sells an article at 16% below its cost price. Had he sold it for Rs.33 more, he would have gain 14%. To gain 25%, he should sell the article for?

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

Options :

1. Rs 128

2. Rs 137.5

3. Rs 135

4. Rs 130.5

Solution :

The correct answer is **option 2** i.e. **Rs 137.5**

30% = 33

10% = 11

100% = 110

(1/4) × 110 = 27.5

Selling price of the article to gain 25% = 110 + 27.5

= 137.5

Question 79 :
The given bar graph shows the imports and exports (in crores) of steel by a country from 2013 to 2017. In how many years were the imports more than 80% of the average exports (per year) of the country during the given 5 years ?

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

Options :

1. 4

2. 2

3. 1

4. 3

Solution :

The correct answer is option 4 ie 3.

Average export = 2540 / 5 = 508

(80 / 100) × 508 = 406.4

Total number of years = 3

Question 80 :

In triangle ABC, AB = AC and D is a point on BC. If BD = 5 cm, AB = 12 cm and AD = 8 cm, then the length of CD is:
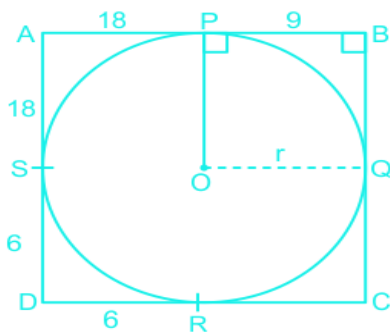
Difficulty : Moderate

Average Time : 46 Seconds

Options :

1. 14.8 cm

2. 16.2 cm

3. 16 cm

4. 14 cm

Solution :

The correct answer is option **3** i.e. **16**.

Applying cosine rule:

$$\cos = \frac{12^2 + 5^2 - 8^2}{2 \times 12 \times 5} = \frac{12^2 + x^2 - 8^2}{2 \times 12 \times x}$$

$$= \frac{13^2 - 8^2}{5} = \frac{20 \times 4 + x^2}{x}$$

$$21 = \frac{80 + x^2}{x}$$

$21x = 80 + x^2$

$x^2 - 21x + 80 = 0$

$(x - 16)(x - 5) = 0$

$x = 16$ as $x \neq 5$

Hence,

CD = 16 cm

Question 81 :

The ratio of the incomes of A and B last year was 4 : 3, respectively. The ratio of their individual incomes of the last year and the present year are 3 : 4 and 5 : 6, respectively. If their total income for the present is Rs 8.04 lakhs, then the income of B last year was ?

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

Options :

1. Rs 2.7 lakh

2. Rs 3.6 lakh

3. Rs 2.4 lakh

4. Rs 2.8 lakh

Solution :

The correct answer is option 1 ie Rs 2.7 lakh.

A : B   or   A : B

4 : 3   60 : 45

(4/3) × 4 : (6/5) × 3

80 : 54

  +134 0.06 8.04

Income of B last year = 45 × 0.06

              = 2.7 lakh

Question 82 :

When a two digit number is multiplied by the sum of its digits, the product is 424. When the number obtained by interchanging its digits is multiplied by the sum of the digits, the result is 280. The sum of the digits of the given number is ?

Difficulty : Moderate

Average Time : 74 Seconds

Options :

1. 6

2. 9

3. 8

4. 7

Solution :

The correct answer is option 3 ie 8.

$(10a + b)(a + b) = 424$

$(10b + a)(a + b) = 280$

$(10a + b) / (10b + a) = 424/280$

$= 53/35$

$ab/ba = 53/35$

$ab = 53$

$ba = 35$

hence, sum of digits = 8

Question 83 :

To do a certain work, the ratio of the efficiencies of X and Y is 5 : 4. Working together, they can complete the same work in 10 days. Y alone starts the work and leaves after 5 days. The remaining work will be completed by X alone in ?

Difficulty : Moderate

Average Time : 63 Seconds

Options :

1. 14 days

2. 12 days

3. 15 days

10 days

Solution :

The correct answer is option 1 ie 14 days.

5 : 4   [9 × 10 = 90]

5 × 4 = 20 units

Remaining work = 90 - 20

= 70 units

= 70/5 = 14 days

Question 84 :

The value of (0.5overline{6} - 0.7overline{23}+0.3overline{9} imes0.overline{8}) is?

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

Options :

1. $0.1\overline{54}$

2. $0.\overline{154}$

3. $0.\overline{158 }$

4. $0.1\overline{58}$

Solution :

The correct answer is **option 1** i.e. $0.1\overline{54}$

$=0.5\overline{6} - 0.7\overline{23}+0.3\overline{9} \times0.\overline{8}$
$=0.5\overline{6}-0.7\overline{23}+0.\overline{31}$
$=0.8\overline{7}-0.7\overline{23}$
$= 0.1\overline{54}$

Question 85 :

A circle is inscribed in a quadrilateral ABCD touching AB, BC, CD and AD at the point P, Q, R and S, respectively and B = 90°. If AD = 24 cm, AB = 27 cm and DR = 6 cm, then what is the circumference of the circle ?

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

Options :

1. 20

18
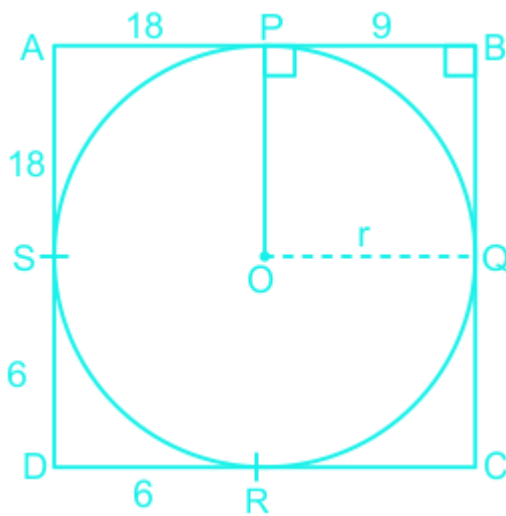
3. 15

4. 12

Solution :

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

Given: B = 90°, AD = 24 cm, AB = 27 cm and DR = 6 cm.

In the figure:

DS = DR = 6 cm [Length of tangents to a circle from a same point are equal]

So,

AS = AD - DS = 24 - 6 = 18 cm

So, AP = AS = 18 cm

Now,

PB = AB - AP = 27 - 18 = 9 cm

â€‹â€‹â€‹â€‹Since, B = 90° and OPB = 90°

Radius of the circle = 9 cm

Hence,

Circumference of the circle = 2r = 2(9) = 18

Question 86 :

Places A and B are 396 km apart. Train X leaves from A for B and Train Y leaves from B for A at the same time on the same day in parallel tracks. Both trains meet after 5.5 hours. The speed of Y is 10 km/hr more than that of X. What is the speed of Y (in km/hr) ?

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

Options :

1. 41
2. 54
3. 31
4. 56

Solution :

The correct answer is option 1 ie 41.

t = constant

Speed Ratio

x + y = 396 / (11/2)

      = 36 × 2 = 72

x + y = 72

x + x + 10 = 72

x = 31

y = 41

Question 87 :

If the curved surface area of a solid cylinder is one-third of its total surface area, then what is the ratio of its diameter to its height?

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

Options :

1. 5 : 2
2. 1 : 1

2 : 1

4. 4 : 1

Solution :

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

Given,

2rh : 2r(r + h) = 1 : 3

where, r = radius and h = height (of cylinder)

h : (r + h) = 1 : 3

So,

h = x, r = 2x

d = 2r = 2(2x) = 4x

Hence,

d : h = 4x : x = 4 : 1

Question 88 :
A sum amounts to Rs14,395.20 at 9.25% pa simple interest 5.4 years. What will be the simple interest on the same sum at 8.6% pa in 4.5 years ?

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

Options :

1. Rs 3715.20

2. Rs 3627

3. Rs 3797.76

4. Rs 3672

Solution :

The correct answer is option 1 ie Rs 3715.20.

x 9.25% $\times$ 5.4 14395.20

x 49.95 14395.20

x + (50/100)x   14400

x = 9600

9600 38.70% 3715.20

Question 89 :

When an article is sold at its marked price, it gives a profit of 25%. If a discount of 9.6% is allowed on the marked price, then the profit percentage will be?

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

Options :

1. 13
2. 15.4
3. 15
4. 16.6

Solution :

The correct answer is **option 1** i.e. **13**.

Let the cost price of the article be 100.

Marked price = 100 × 1.25 = 125

Selling price when a discount of 9.6% is applied.

125 × (100 - 9.6)/100

125 × 90.4/100

5 × 90.4/4

5 × 22.6

113

Profit of 13%.

Question 90 :

A man sells goods at a certain price, 20% of which is his profit. If the price at which he buys the goods increases by 10% and he sells them at an 12.5% higher price, then what will be his profit percent (correct to one decimal place)?

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

Options :

1. 21.8
2. 23.4
3. 21.4
4. 22.7

Solution :

The correct answer is **option 4** i.e. **22.7**

20% on SP

+25% on CP

100   125

110   135

    +25%

= (25/110) × 100 = 22.7%

Question 91 :

The given pie chart shows the quantity wise sales distribution of five products (A, B, C, D and E) of a company in 2016. Quantity wise sales distribution of five products (A, B, C, D and E) In 2016, if total of 14616 units were sold, then the number of units of product D sold was ?

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

Options :

1. 4263
2. 4872
3. 4060
4. 4096

Solution :

The correct answer is option 3 ie 4060.

360° = 14616

100° = 4060

Question 92 :

The value of 9 × 6 ÷ 24 + 8 ÷ 2 of 5 - 30 ÷ 4 of 4 + 27 × 5 ÷ 9 is ?

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

Options :

1. 647 / 40

2. 243 / 8

3. 493 / 8

4. 259 / 8

Solution :

The correct answer is option 1 ie 647 / 40.

Applying BODMAS

= 9 × 6 ÷ 24 + 8 ÷ 2 of 5 - 30 ÷ 4 of 4 + 27 × 5 ÷ 9

= 9 × 6 ÷ 24 + 8 ÷ 10 - 30 ÷ 16 + 27 × 5 ÷ 9

= 9 × (1/4) + (8/10) - (30/16) + (135/9)

= 647 / 40

Question 93 :

A field roller, in a shape of a cylinder, has a diameter of 1 m and length of . If the speed at which the roller rolls is 14 revolutions per minute, then the maximum area (in m²) that it can roll in 1 hour ? (Take = 22/7)

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

Options :

1. 3960

2. 3600

3. 3300

4. 3560

Solution :

The correct answer is option 3 ie 3300.

= 14 × 60 × 2rh

= 80 × 60 × (1/2) × (5/4)

= 60 × 55

= 3300

Question 94 :

If the volume of a sphere is 4851 cm3, then its surface area (in cm²) is ? (Take = 22/7)

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

Options :

1. 1386

2. 2772

3. 1323

4. 1337

Solution :

The correct answer is option 1 ie 1386.

(4/3) r³ = 4851

r³ = (4851 × 3 × 7) / (22 × 4)

r³ = (21² × 21)/2×4

r = 21/2

4 r² = 4 × (22/7) × (21/2)²

= 1386

Question 95 :

From a point exactly midway between the foot of two towers Pand Q, the angles of elevation of their tops are 30° and 60°, respectively. The ratio of the height of P to that of Q is ?

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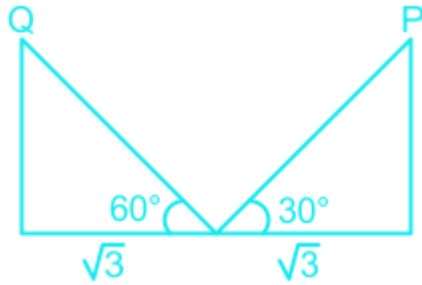
Options :

1. 1 : 3

2. 1 : 2

   1 : 23

4. 2 : 33

Solution :

The correct answer is option 1 ie 1 : 3.

tan 60 = Q/3 , tan 30 = P/3

 3 = Q/3 ,   1/3 = P/3

  Q = 3,   P = 1

 P : Q = 1 : 3

Question 96 :

The graph of the equations 2x + 3y = 11 and x - 2y + 12 = 0 intersects at P(x_1, y_1) and the graph of the equation x - 2y + 12 = 0 intersects the x-axis at Q(x_2, y_2). What is the value of (x_1 - x_2 + y_1 + y_2) ?

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

Options :

1. 13

2. -11

3. 15

4. -9

Solution :

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

2x + 3y = 11　　eq1

x - 2y + 12 = 0　eq2

x - 2y + 12 = 0 intersects at x-axis

y = 0, x = -12

$Q(x_2, y_2)$ = (-12, 0)

from eq1 and eq2

x = (11 - 3y)/2   [from eq1]

Putting in eq2

[(11 - 3y)/2] - 2y + 12 = 0

11 - 3y - 4y + 24 = 0

-7y = -35

y = 5, x = -2

$P(x_1, y_1)$ = (-2, 5)

$(x_1 - x_2 + y_1 + y_2)$ = (-2 + 12 + 5 + 0) = 10 + 5 = 15

Question 97 :
If x = and y is the reciprocal of x, then what is the value of $(x^3 + y^3)$?

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

Options :
1. 488
2. 504
3. 472
4. 476

Solution :
The correct answer is option 1 ie 488.

$$x = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$$

$$y = 1/x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$$

We know , x + (1/x) = a

$$\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} + \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = a$$

$$\frac{5 + 3 - 2\sqrt{15} + 8 + 2\sqrt{5}}{5 - 3} = a$$

16/2 = a

a = 8

$x^3 + (1/x^3) = a^3 - 3a$

= 64 × 8 - 3 × 8

= 8 × (64 - 3)

= 8 × 61 = 488

Question 98 :
A man starts from his house and travelling at 30 km/hr, he reaches his office late by 10 minutes and travelling at 24 km/hr , he reaches to his offcie late by 18 minutes. The distance (in km) from his house to his office is ?

Difficulty : Moderate

Average Time : 95 Seconds

Options :
1. 18
2. 16
3. 12
4. 20

Solution :
The correct answer is 2 ie 16.

30   18

-6   8

24   18

+1/4 = 8 min

t = 32 min

30 × (32/60) = 16 km

Question 99 :

If , where a and b are positive integers, then the value of ab is closest to ?

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

Options :

1. 4.6

2. 5.9

3. 6.8

4. 7.2

Solution :

The correct answer is option 2 ie 5.9

$$\sqrt{10 - 2\sqrt{21}} + \sqrt{8 + 2\sqrt{15}} = \sqrt{a} + \sqrt{b}$$

$$\sqrt{\left(\sqrt{3}\right)^2 + \left(\sqrt{7}\right)^2 - 2\sqrt{7}\sqrt{3}} + \sqrt{\left(\sqrt{5}\right)^2 + \left(\sqrt{3}\right)^2 + 2\sqrt{5}\sqrt{3}} = \sqrt{a} + \sqrt{b}$$

(7 - 3) + (5 + 3) = a + b

7 + 5 = a + b

a = 7

b = 5

ab = (7 × 5) = 35 = 5.9

Question 100 :

A can do 40% of work in 12 days, whereas B can do 60% of the same work in 15 days. Both work together for 10 days. C completes the remaining work alone in 4 days. A, B and C together will complete 28% of the same work in ?

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

Options :

1. 2.5 days

3 days

3. 1.5 days

4. 2 days

Solution :

The correct answer is option ie 4 ie 2 days.

A = 40% 12 days   30%

B = 60% 15 days   25%

30 × 5 = 150

25 × 6 = 150

(5 + 6) × 11 = 1100

(150 - 110) / 4 = 10 units per day

(28 × 1.5) / 21 = 2 days

Ssc Cgl Tier II Previous Year Question Paper Analysis

The analysis of Ssc Cgl Tier II Previous Year Question Paper held on 2019-09-12 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. 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 - 15
2. Percentage - 5

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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