

## Combined Graduate Level Examination (Tier-II), 2018

Roll No.	3010625751
Registration No.	64016809727
Name	PRAMOD KUMAR PANDEY
Test Venue	iON Digital Zone iDZ Sector-9B Vrindawan Colony
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Subject	CGLE Tier II Paper I Quantitative abilities

### Section : Quantitative abilities

**Q.1** The graph of the equation  $x - 7y = -42$ , intersects the y-axis at  $P(\alpha, \beta)$  and the graph of  $6x + y - 15 = 0$ , intersects the x-axis at  $Q(\gamma, \delta)$ . What is the value of  $\alpha + \beta + \gamma + \delta$ ?

- Ans**
- ☒ 1.  $\frac{17}{2}$
- ☐ 2. 5
- ☐ 3. 6
- ☐ 4.  $\frac{9}{2}$

Question ID : **558101321**

Status : **Not Answered**

Chosen Option : --

**Q.2** If the diameter of the base of a cone is 42 cm and its curved surface area is  $2310 \text{ cm}^2$ , then what will be its volume (in  $\text{cm}^3$ )?

- Ans**
- ☒ 1. 12936
- ☐ 2. 38808
- ☐ 3. 25872
- ☐ 4. 19404

Question ID : **558101315**

Status : **Answered**

Chosen Option : 1

**Q.3** Pipes A, B and C can fill a tank in 30 h, 40 h and 60 h respectively. Pipes A, B and C are opened at 7 a.m., 8 a.m., and 10 a.m., respectively on the same day. When will the tank be full?

- Ans**
- ☒ 1. 9.20 p.m.
- ☐ 2. 10.20 p.m.
- ☐ 3. 10.00 p.m.
- ☐ 4. 9.40 p.m.

Question ID : **558101305**

Status : **Answered**

Chosen Option : 1

**Q.4** If  $x = \sqrt{1 + \frac{\sqrt{3}}{2}} - \sqrt{1 - \frac{\sqrt{3}}{2}}$ , then the value of  $\frac{\sqrt{2-x}}{\sqrt{2+x}}$  will be closest to:

- Ans
- ☒ 1. 1.2
  - ☒ 2. 1.4
  - ☒ 3. 0.12
  - ☒ 4. 0.17

Question ID : 558101267

Status : Not Answered

Chosen Option : --

Q.5 If  $(\sqrt{2} + \sqrt{5} - \sqrt{3}) \times k = -12$ , then what will be the value of  $k$ ?

- Ans
- ☒ 1.  $\sqrt{2} + \sqrt{5} + \sqrt{3}$
  - ☒ 2.  $(\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{10})$
  - ☒ 3.  $(\sqrt{2} + \sqrt{5} - \sqrt{3})(2 + \sqrt{5})$
  - ☒ 4.  $(\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{5})$

Question ID : 558101271

Status : Not Answered

Chosen Option : --

Q.6 If  $\sin \theta = \sqrt{3} \cos \theta$ ,  $0^\circ < \theta < 90^\circ$ , then the value of  $2\sin^2\theta + \sec^2\theta + \sin\theta \sec\theta + \operatorname{cosec}\theta$  is:

- Ans
- ☒ 1.  $\frac{19+10\sqrt{3}}{3}$
  - ☒ 2.  $\frac{33+10\sqrt{3}}{6}$
  - ☒ 3.  $\frac{19+10\sqrt{3}}{6}$
  - ☒ 4.  $\frac{33+10\sqrt{3}}{3}$

Question ID : 558101346

Status : Answered

Chosen Option : 4

Q.7 If  $a^3 + b^3 = 218$  and  $a + b = 2$ , then the value of  $ab$  is:

- Ans
- ☒ 1. 32
  - ☒ 2. 34
  - ☒ 3. -35
  - ☒ 4. -31

Question ID : 558101325

Status : Answered

Chosen Option : 3

Q.8 'A' started a business with a capital of ₹54,000 and admitted 'B' and 'C' after 4 months and 6 months, respectively. At the end of the year, the profit was divided in the ratio 1 : 4 : 5. What is the difference between the capitals invested by 'B' and 'C'?

Ans

- ✓ 1. ₹2,16,000  
✗ 2. ₹1,08,000  
✗ 3. ₹1,62,000  
✗ 4. ₹3,24,000

Question ID : 558101296  
Status : Answered  
Chosen Option : 2

**Q.9** From the top of a tower, the angles of depression of two objects on the ground on the same side of it, are observed to be  $60^\circ$  and  $30^\circ$  respectively and the distance between the objects is  $400\sqrt{3}$  m. The height (in m) of the tower is:

- Ans ✗ 1. 800  
✗ 2.  $600\sqrt{3}$   
✓ 3. 600  
✗ 4.  $800\sqrt{3}$

Question ID : 558101351  
Status : Answered  
Chosen Option : 3

**Q.10** If the radius of a right circular cylinder is decreased by 20% while its height is increased by 40%, then the percentage change in its volume will be:

- Ans ✗ 1. 1.04% increase  
✓ 2. 10.4% decrease  
✗ 3. 10.4% increase  
✗ 4. No increase or decrease

Question ID : 558101316  
Status : Answered  
Chosen Option : 2

**Q.11** If a cuboid of dimensions  $32\text{ cm} \times 12\text{ cm} \times 9\text{ cm}$  is cut into two cubes of same size, what will be the ratio of the surface area of the cuboid to the total surface area of the two cubes?

- Ans ✗ 1. 32 : 39  
✓ 2. 65 : 72  
✗ 3. 37 : 48  
✗ 4. 24 : 35

Question ID : 558101319  
Status : Not Attempted and Marked For Review  
Chosen Option : --

**Q.12** The average of thirteen numbers is 47. The average of the first three numbers is 39 and that of next seven numbers is 49. The 11<sup>th</sup> number is two times the 12<sup>th</sup> number and 12<sup>th</sup> number is 3 less than the 13<sup>th</sup> number. What is the average of 11<sup>th</sup> and 13<sup>th</sup> numbers?

- Ans ✗ 1. 54.5  
✓ 2. 57  
✗ 3. 55.5

 4. 56

Question ID : **558101294**  
Status : **Answered**  
Chosen Option : **2**

**Q.13** If  $x^8 - 1442x^4 + 1 = 0$ , then a possible value of  $x - \frac{1}{x}$  is:

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


Question ID : **558101322**  
Status : **Answered**  
Chosen Option : **4**

**Q.14** The base of right prism is a trapezium whose parallel sides are 11 cm and 15 cm and the distance between them is 9 cm. If the volume of the prism is  $1731.6 \text{ cm}^3$ , then the height (in cm) of the prism will be:

- Ans  1. 15.2  
 2. 14.8  
 3. 15.6  
 4. 14.2





Question ID : **558101317**  
Status : **Not Answered**  
Chosen Option : --

**Q.15** The sides AB and AC of  $\triangle ABC$  are produced to P and Q respectively. The bisectors of  $\angle CBP$  and  $\angle BCQ$  meet at R. If the measure of  $\angle A$  is  $44^\circ$ , then what is the measure of  $\frac{1}{2}\angle BOC$ ?

- Ans  1.  $32^\circ$   
 2.  $33^\circ$   
 3.  $34^\circ$   
 4.  $38^\circ$

Question ID : **558101327**  
Status : **Not Answered**  
Chosen Option : --

**Q.16** A circle is inscribed in  $\triangle ABC$ , touching AB, BC and AC at the points P, Q and R respectively. If  $AB - BC = 4 \text{ cm}$ ,  $AB - AC = 2 \text{ cm}$  and the perimeter of  $\triangle ABC = 32 \text{ cm}$ , then  $PB + AR$  is equal to:

- Ans  1.  $\frac{33}{5} \text{ cm}$   
 2. 12 cm  
 3. 13 cm  
 4.  $\frac{38}{3} \text{ cm}$

Question ID : **558101338**  
Status : **Answered**

Chosen Option : 4

**Q.17** A shopkeeper allows 28% discount on the marked price of an article and still makes a profit of 20%. If he gains ₹30.80 on the sale of one article, then what will be the cost price of the article?

- Ans  1. ₹154  
 2. ₹164  
 3. ₹160  
 4. ₹145

Question ID : 558101284

Status : Answered

Chosen Option : 1

**Q.18** Radha marks her goods 25% above the cost price. She sells 35% of goods at the marked price, 40% at 15% discount and the remaining at 20% discount. What is her overall percentage gain?

- Ans  1. 10  
 2. 11.75  
 3. 12.75  
 4. 11.25

Question ID : 558101283

Status : Answered

Chosen Option : 4

**Q.19** A and B started their journeys from X to Y and Y to X, respectively. After crossing each other, A and B completed the remaining parts of their journeys in  $6\frac{1}{8}$  h and 8 h respectively. If the speed of B is 28 km/h, then the speed (in km/h) of A is:

- Ans  1. 36  
 2. 32  
 3. 42  
 4. 40

Question ID : 558101300

Status : Answered

Chosen Option : 2

**Q.20** The sum of the digits of a two-digit number is  $\frac{1}{7}$  of the number. The units digit is 4 less than the tens digit. If the number obtained on reversing its digits is divided by 7, the remainder will be:

- Ans  1. 5  
 2. 1  
 3. 4  
 4. 6

Question ID : 558101272

Status : Answered

Chosen Option : 4

**Q.21** A certain number of persons can complete a work in 34 days working 9 h a day. If the number of persons is decreased by 40%, then how many hours a day should the remaining persons work to complete the work in 51 days?

- Ans  1. 9  
 2. 12

-  3. 8
-  4. 10

Question ID : 558101307  
Status : Answered  
Chosen Option : 4

**Q.22** If  $2\sqrt{2}x^3 - 3\sqrt{3}y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$ , then the value of  $A^2 + B^2 - C^2$  is:

- Ans  1. 10
-  2. 19
-  3. 11
-  4. 7





Question ID : 558101323  
Status : Not Answered  
Chosen Option : --

**Q.23** When the price of an item was reduced by 25%, then its sale was increased by  $x\%$ . If there is an increase of 20% in the receipt of the revenue, then the value of  $x$  will be:

- Ans  1. 45
-  2. 60
-  3. 75
-  4. 50

Question ID : 558101274  
Status : Answered  
Chosen Option : 2

**Q.24** 
$$\frac{(1 + \cos \theta)^2 + \sin^2 \theta}{(\operatorname{cosec}^2 \theta - 1)\sin^2 \theta} =$$

- Ans  1.  $\sec \theta(1 + \sin \theta)$
-  2.  $2 \sec \theta(1 + \sec \theta)$
-  3.  $\cos \theta(1 + \sin \theta)$
-  4.  $2 \cos \theta(1 + \sec \theta)$

Question ID : 558101342  
Status : Not Answered  
Chosen Option : --

**Q.25** A and B can do a piece of work in 6 days and 8 days, respectively. With the help of C, they completed the work in 3 days and earned ₹1,848. What was the share of C?

- Ans  1. ₹924
-  2. ₹462
-  3. ₹693
-  4. ₹231

Question ID : 558101306



Status : **Answered**  
Chosen Option : 4

**Q.26** The value of the expression  $(\cos^6 \theta + \sin^6 \theta - 1)(\tan^2 \theta + \cot^2 \theta + 2)$  is:

- Ans
- ☒ 1.  $-1$
  - ☒ 2.  $0$
  - ☒ 3.  $-3$
  - ☒ 4.  $1$

Question ID : **558101343**  
Status : **Not Answered**  
Chosen Option : --

**Q.27** What will be the compound interest on a sum of ₹31,250 for 2 years at 12% p.a., if the interest is compounded 8-monthly?

- Ans
- ☒ 1. ₹8,156
  - ☒ 2. ₹8,016
  - ☒ 3. ₹8,106
  - ☒ 4. ₹8,116

Question ID : **558101288**  
Status : **Answered**  
Chosen Option : 4

**Q.28** Abhi rows upstream a distance of 28 km in 4 h and rows downstream a distance of 50 km in 2 h. To row a distance of 44.8 km in still water, he will take:

- Ans
- ☒ 1. 2.8 h
  - ☒ 2. 3.2 h
  - ☒ 3. 2.4 h
  - ☒ 4. 2.2 h

Question ID : **558101302**  
Status : **Answered**  
Chosen Option : 1

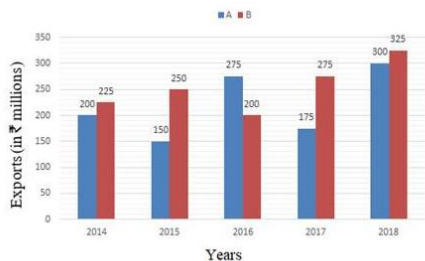
**Q.29** A shopkeeper bought 120 quintals of wheat. 20% of it was sold at 25% loss. At what percent gain should he sell the rest to gain 25% on the whole transaction?

- Ans
- ☒ 1. 40
  - ☒ 2.  $37\frac{1}{2}$
  - ☒ 3.  $36\frac{1}{2}$
  - ☒ 4. 35

Question ID : **558101282**  
Status : **Answered**  
Chosen Option : 2

**Q.30**

The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



What is the ratio of the total exports of cars of type A in 2014 and 2018 to the total exports of cars of type B in 2015 and 2016?

- Ans
- ☒ 1. 11 : 10
  - ☒ 2. 3 : 2
  - ☒ 3. 5 : 4
  - ☒ 4. 10 : 9

Question ID : 558101356

Status : Answered

Chosen Option : 4

**Q.31** The ratio of the volumes of two cylinders is  $x : y$  and the ratio of their diameters is  $a : b$ . What is the ratio of their heights?

- Ans
- ☒ 1.  $xa : yb$
  - ☒ 2.  $xa^2 : yb^2$
  - ☒ 3.  $xb : ya$
  - ☒ 4.  $xb^2 : ya^2$

Question ID : 558101312

Status : Not Answered

Chosen Option : --

**Q.32** The ratio of the income of A to that of B is 5 : 7. A and B save ₹4,000 and ₹5,000 respectively. If the expenditure of A is equal to  $66\frac{2}{3}\%$  of the expenditure of B, then the total income of A and B is:

- Ans
- ☒ 1. ₹24,000
  - ☒ 2. ₹25,200
  - ☒ 3. ₹28,800
  - ☒ 4. ₹26,400

Question ID : 558101292

Status : Answered

Chosen Option : 1

**Q.33** A number is first increased by 16% and then increased by 14%. The number, so obtained, is now decreased by 30%. What is the net increase or decrease percent in the original number (nearest to an integer)?

- Ans
- ☒ 1. 7% decrease
  - ☒ 2. 9% decrease
  - ☒ 3. 6% increase
  - ☒ 4. No increase or decrease




Question ID : 558101277


Status : Answered


Chosen Option : 1


Q.34 In  $\triangle ABC$ ,  $AB = 6$  cm,  $AC = 8$  cm, and  $BC = 9$  cm. The length of median  $AD$  is:

Ans

 1.  $\frac{\sqrt{115}}{2}$  cm

 2.  $\frac{\sqrt{313}}{2}$  cm

 3.  $\frac{\sqrt{119}}{2}$  cm

 4.  $\frac{\sqrt{317}}{2}$  cm

Question ID : 558101329

Status : Not Answered

Chosen Option : --

Q.35 If  $x + y + z = 11$ ,  $x^2 + y^2 + z^2 = 133$  and  $x^3 + y^3 + z^3 = 881$ , then the value of  $\sqrt[3]{xyz}$  is:

Ans

 1. 6

 2. 8

 3. -8

 4. -6


Question ID : 558101324


Status : Not Answered


Chosen Option : --


Q.36 To do a certain work, the ratio of efficiency of A to that of B is 3 : 7. Working together, they can complete the work in  $10\frac{1}{2}$  days. They work together for 8 days. 60% of the remaining work will be completed by A alone in:

Ans

 1.  $6\frac{1}{2}$  days

 2. 5 days

 3.  $5\frac{1}{2}$  days

 4. 4 days

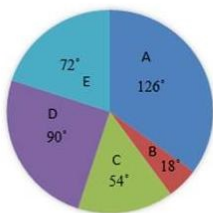
Question ID : 558101304

Status : Answered

Chosen Option : 2

Q.37

The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).  
Total No. of employees = 2400



If 40% of the number of employees in office A are shifted equally to office B and E, then what is the difference between the number of employees in B and that in C?

- Ans
- ☒ 1. 82
  - ☒ 2. 130
  - ☒ 3. 72
  - ☒ 4. 120

Question ID : 558101355

Status : Answered

Chosen Option : 3

**Q.38** The volume of a right pyramid is  $45\sqrt{3}\text{cm}^3$  and its base is an equilateral triangle with side 6 cm. What is the height (in cm) of the pyramid?

- Ans
- ☒ 1. 15
  - ☒ 2. 20
  - ☒ 3. 18
  - ☒ 4. 12

Question ID : 558101308

Status : Not Answered

Chosen Option : --

**Q.39** In a constituency, 55% of the total number of voters are males and the rest are females. If 40% of the males are illiterate and 40% of the females are literate, then by what percent is the number of literate males more than that of illiterate females?

- Ans
- ☒ 1.  $18\frac{2}{9}$
  - ☒ 2.  $18\frac{2}{11}$
  - ☒ 3.  $22\frac{2}{9}$
  - ☒ 4.  $22\frac{8}{11}$


Question ID : 558101278

Status : Answered

Chosen Option : 3

**Q.40** PQRS is a cyclic quadrilateral in which PQ = 14.4 cm, QR = 12.8 cm and SR = 9.6 cm. If PR bisects QS, what is the length of PS?

- Ans
- ☒ 1. 15.8 cm
  - ☒ 2. 16.4 cm
  - ☒ 3. 19.2 cm

 4. 13.6 cm

Question ID : 558101337

Status : Not Attempted and  
Marked For Review

Chosen Option : --

**Q.41** The sides of a triangle are 11 cm, 60 cm and 61 cm. What is the radius of the circle circumscribing the triangle?

- Ans  1. 30 cm  
 2. 31.5 cm  
 3. 31 cm  
 4. 30.5 cm

Question ID : 558101328

Status : Answered

Chosen Option : 4

**Q.42** Travelling at 60 km/h, a person reaches his destination in a certain time. He covers 60% of his journey in  $\frac{2}{5}$ th of the time. At what speed (in km/h) should he travel to cover the remaining journey so that he reaches the destination right on time?

- Ans  1. 48  
 2. 42  
 3. 36  
 4. 40

Question ID : 558101301

Status : Answered

Chosen Option : 4

**Q.43** If  $a^2 + b^2 + c^2 + 96 = 8(a + b - 2c)$ , then  $\sqrt{ab - bc + ca}$  is equal to:

- Ans  1.  $2\sqrt{3}$   
 2. 4  
 3. 6  
 4.  $2\sqrt{2}$

Question ID : 558101326

Status : Not Answered

Chosen Option : --

**Q.44** Let  $x = (633)^{24} - (277)^{38} + (266)^{54}$ . What is the units digit of  $x$  ?

- Ans  1. 4  
 2. 7  
 3. 8  
 4. 6

Question ID : 558101259

Status : Marked For Review

Chosen Option : 2

**Q.45** In  $\triangle ABC$ , D and E are the points on sides AB and BC respectively such that  $DE \parallel AC$ . If  $AD : DB = 5 : 3$ , then what is the ratio of the area of  $\triangle BDE$  to that of the trapezium ACED?

- Ans
- ☒ 1. 4 : 25
  - ☒ 2. 9 : 55
  - ☒ 3. 1 : 6
  - ☒ 4. 9 : 64

Question ID : 558101334

Status : Marked For Review

Chosen Option : 4

**Q.46** A sum of ₹18,000 is lent at 10% p.a. compound interest, compounded annually. What is the difference between the compound interest for 3<sup>rd</sup> year and 4<sup>th</sup> year?

- Ans
- ☒ 1. ₹217.80
  - ☒ 2. ₹221.80
  - ☒ 3. ₹215.40
  - ☒ 4. ₹220.60

Question ID : 558101289

Status : Answered

Chosen Option : 1

**Q.47** In a trapezium ABCD,  $DC \parallel AB$ ,  $AB = 12$  cm and  $DC = 7.2$  cm. What is the length of the line segment joining the mid-points of its diagonals?

- Ans
- ☒ 1. 4.8 cm
  - ☒ 2. 2.4 cm
  - ☒ 3. 3.6 cm
  - ☒ 4. 2.6 cm

Question ID : 558101335

Status : Answered

Chosen Option : 2

**Q.48** The ratio of investment by A to that by B in a business is 14 : 15 and the ratio of their respective profits at the end of a year is 2 : 5. If A invested the money for 3 months, then for how much time (in months) B invested his money?

- Ans
- ☒ 1. 7
  - ☒ 2. 6
  - ☒ 3. 5
  - ☒ 4. 9

Question ID : 558101297

Status : Answered

Chosen Option : 1

**Q.49** Raghav spends 80% of his income. If his income increases by 12% and the savings decrease by 10%, then what will be the percentage increase in his expenditure?

- Ans
- ☒ 1. 22
  - ☒ 2. 20.5
  - ☒ 3. 17.5

 4. 16

Question ID : 558101275

Status : Answered

Chosen Option : 3

**Q.50** The internal and external radii of a hollow hemispherical vessel are 6 cm and 7 cm respectively. What is the total surface area (in  $\text{cm}^2$ ) of the vessel?





- Ans  1.  $174\pi$   
 2.  $183\pi$   
 3.  $177\pi$   
 4.  $189\pi$

Question ID : 558101309

Status : Not Attempted and  
Marked For Review

Chosen Option : --

**Q.51** In  $\triangle ABC$ ,  $AB = 7$  cm,  $BC = 10$  cm, and  $AC = 8$  cm. If  $AD$  is the angle bisector of  $\angle BAC$ , where  $D$  is a point on  $BC$ , then  $BD$  is equal to:

- Ans  1.  $\frac{16}{3}$  cm  
 2.  $\frac{15}{4}$  cm  
 3.  $\frac{17}{4}$  cm  
 4.  $\frac{14}{3}$  cm

Question ID : 558101330

Status : Not Answered

Chosen Option : --

**Q.52** The lateral surface area of a cylinder is  $352 \text{ cm}^2$ . If its height is 7 cm, then its volume (in  $\text{cm}^3$ ) is:  
(Take  $\pi = \frac{22}{7}$ )

- Ans  1. 1078  
 2. 1243  
 3. 891  
 4. 1408

Question ID : 558101311

Status : Answered

Chosen Option : 4

**Q.53** In what ratio, sugar costing ₹60 per kg be mixed with sugar costing ₹42 per kg such that by selling the mixture at ₹56 per kg there is a gain of 12%?

- Ans  1. 5 : 7  
 2. 4 : 5  
 3. 5 : 6  
 4. 8 : 9

Question ID : 558101299

Status : Answered

Chosen Option : 2

**Q.54** A right circular cylinder of maximum volume is cut out from a solid wooden cube. The material left is what percent of the volume (nearest to an integer) of the original cube?

- Ans
- ☒ 1. 23
  - ☒ 2. 19
  - ☒ 3. 21
  - ☒ 4. 28

Question ID : 558101313

Status : Answered

Chosen Option : 3

**Q.55** In  $\triangle ABC$ ,  $\angle A = 52^\circ$  and  $O$  is the orthocentre of the triangle ( $BO$  and  $CO$  meet  $AC$  and  $AB$  at  $E$  and  $F$  respectively when produced). If the bisectors of  $\angle OBC$  and  $\angle OCB$  meet at  $P$ , then the measure of  $\angle BPC$  is:

- Ans
- ☒ 1.  $154^\circ$
  - ☒ 2.  $132^\circ$
  - ☒ 3.  $124^\circ$
  - ☒ 4.  $138^\circ$

Question ID : 558101331

Status : Not Answered

Chosen Option : --

**Q.56** If the radius of a sphere is increased by 4 cm, its surface area is increased by  $464\pi \text{ cm}^2$ . What is the volume (in  $\text{cm}^3$ ) of the original sphere?

- Ans
- ☒ 1.  $\frac{15625}{6}\pi$
  - ☒ 2.  $\frac{11979}{2}\pi$
  - ☒ 3.  $\frac{15625}{8}\pi$
  - ☒ 4.  $\frac{35937}{8}\pi$

Question ID : 558101318

Status : Not Answered

Chosen Option : --

**Q.57** If a nine-digit number  $389x6378y$  is divisible by 72, then the value of  $\sqrt{6x+7y}$  will be:

- Ans
- ☒ 1.  $\sqrt{13}$
  - ☒ 2. 8
  - ☒ 3.  $\sqrt{46}$
  - ☒ 4. 6

Question ID : 558101260

Status : Answered

Chosen Option : 2



**Q.58** Let  $a$ ,  $b$  and  $c$  be the fractions such that  $a < b < c$ . If  $c$  is divided by  $a$ , the result is  $\frac{5}{2}$ , which exceeds  $b$  by  $\frac{7}{4}$ . If  $a + b + c = 1\frac{11}{12}$ , then  $(c - a)$  will be equal to:

- Ans**
- ☒ 1.  $\frac{1}{3}$
  - ☒ 2.  $\frac{1}{6}$
  - ☒ 3.  $\frac{1}{2}$
  - ☒ 4.  $\frac{2}{3}$

Question ID : 558101266

Status : Not Answered

Chosen Option : --

**Q.59** A train travelling at the speed of  $x$  km/h crossed a 200 m long platform in 30 seconds and overtook a man walking in the same direction at the speed of 6 km/h in 20 seconds. What is the value of  $x$ ?

- Ans**
- ☒ 1. 56
  - ☒ 2. 60
  - ☒ 3. 50
  - ☒ 4. 54

Question ID : 558101303

Status : Marked For Review

Chosen Option : 4

**Q.60**  $\left(\frac{1 - \tan \theta}{1 - \cot \theta}\right)^2 + 1 =$

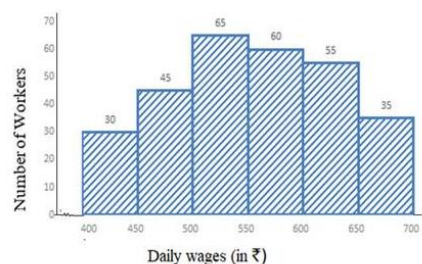
- Ans**
- ☒ 1.  $\sin^2 \theta$
  - ☒ 2.  $\operatorname{cosec}^2 \theta$
  - ☒ 3.  $\cos^2 \theta$
  - ☒ 4.  $\sec^2 \theta$

Question ID : 558101345

Status : Not Answered

Chosen Option : --

**Q.61** Study the graph and answer the question that follows.

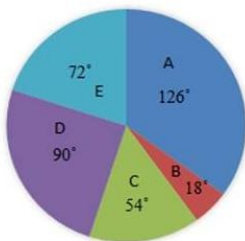


What is the ratio of the total number of workers whose daily wages are less than ₹500 to the total number of workers whose daily wages are ₹600 and above?

- Ans
- ☒ 1. 6 : 7
  - ☒ 2. 3 : 4
  - ☒ 3. 15 : 11
  - ☒ 4. 5 : 6

Question ID : **558101352**  
 Status : **Answered**  
 Chosen Option : **4**

**Q.62** The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).  
 Total No. of employees = 2400



What is the number of offices in which the number of employees of the company is between 350 and 650?

- Ans
- ☒ 1. 4
  - ☒ 2. 1
  - ☒ 3. 2
  - ☒ 4. 3

Question ID : **558101353**  
 Status : **Answered**  
 Chosen Option : **4**

**Q.63** The ratios of copper to zinc in alloys A and B are 3 : 4 and 5 : 9, respectively. A and B are taken in the ratio 2 : 3 and melted to form a new alloy C. What is the ratio of copper to zinc in C?

- Ans
- ☒ 1. 27 : 43
  - ☒ 2. 9 : 11
  - ☒ 3. 3 : 5
  - ☒ 4. 8 : 13

Question ID : **558101298**  
 Status : **Answered**  
 Chosen Option : **1**

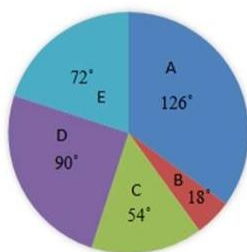
**Q.64** When 12, 16, 18, 20 and 25 divide the least number  $x$ , the remainder in each case is 4 but  $x$  is divisible by 7. What is the digit at the thousands' place in  $x$ ?

- Ans
- ☒ 1. 4
  - ☒ 2. 8
  - ☒ 3. 3
  - ☒ 4. 5

Question ID : **558101270**  
 Status : **Not Attempted and Marked For Review**

Chosen Option : --

- Q.65** The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).  
Total No. of employees = 2400



If the percentage of male employees in office C is 20% and that of female employees in E is 40%, then what is the ratio of the number of female employees in C to that of female employees in E?

- Ans**
- ☒ 1. 3 : 8
  - ☒ 2. 2 : 3
  - ☒ 3. 3 : 2
  - ☒ 4. 5 : 4

Question ID : 558101354

Status : Answered

Chosen Option : 3

- Q.66** If  $5 \sin \theta - 4 \cos \theta = 0$ ,  $0^\circ < \theta < 90^\circ$ , then the value of  $\frac{5 \sin \theta - 2 \cos \theta}{5 \sin \theta + 3 \cos \theta}$  is:

- Ans**
- ☒ 1.  $\frac{2}{7}$
  - ☒ 2.  $\frac{5}{8}$
  - ☒ 3.  $\frac{3}{8}$
  - ☒ 4.  $\frac{3}{7}$

Question ID : 558101347

Status : Answered

Chosen Option : 1

- Q.67** What is the value of  $\operatorname{cosec}(65^\circ + \theta) - \sec(25^\circ - \theta) + \tan^2 20^\circ - \operatorname{cosec}^2 70^\circ$ ?

- Ans**
- ☒ 1. 0
  - ☒ 2. -1
  - ☒ 3. 1
  - ☒ 4. 2

Question ID : 558101350

Status : Not Answered

Chosen Option : --

- Q.68** In quadrilateral ABCD, the bisectors of  $\angle A$  and  $\angle B$  meet at O and  $\angle AOB = 64^\circ$ ,  $\angle C + \angle D$  is equal to:

- Ans**
- ☒ 1.  $148^\circ$

✓ 2.  $128^\circ$

✗ 3.  $136^\circ$

✗ 4.  $116^\circ$

Question ID : 558101340

Status : Answered

Chosen Option : 2

**Q.69** Chord AB of a circle is produced to a point P, and C is a point on the circle such that PC is a tangent to the circle. If PC = 18 cm, and BP = 15 cm, then AB is equal to:

Ans ✗ 1. 8.5 cm

✗ 2. 5.8 cm

✗ 3. 6.2 cm

✓ 4. 6.6 cm

Question ID : 558101339

Status : Answered

Chosen Option : 4

**Q.70** The value of  $\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times 1\frac{1}{9} \div \left(\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4}\right)$  is:

Ans ✓ 1. 5

✗ 2. 8

✗ 3.  $\frac{1}{5}$

✗ 4.  $\frac{1}{8}$

Question ID : 558101264

Status : Not Attempted and Marked For Review

Chosen Option : --

**Q.71** A sum of ₹5,000 is divided into two parts such that the simple interest on the first part for  $4\frac{1}{5}$  years at  $6\frac{2}{3}\%$  p.a is double the simple interest on the second part for  $2\frac{3}{4}$  years at 4% p.a. What is the difference between the two parts?

Ans ✗ 1. ₹680

✓ 2. ₹600

✗ 3. ₹560

✗ 4. ₹620

Question ID : 558101287

Status : Not Attempted and Marked For Review

Chosen Option : --

**Q.72** The number of students in a class is 75, out of which  $33\frac{1}{3}\%$  are boys and the rest are girls. The average score in mathematics of the boys is  $66\frac{2}{3}\%$  more than that of the girls. If the average score of all the students is 66, then the average score of the girls is:

Ans ✓ 1. 54

- ☒ 2. 58
- ☒ 3. 52
- ☒ 4. 55

Question ID : **558101295**  
 Status : **Answered**  
 Chosen Option : 1

**Q.73** In  $\triangle ABC$ ,  $\angle A = 58^\circ$ . If  $I$  is the incentre of the triangle, then the measure of  $\angle BIC$  is:

- Ans ☒ 1.  $112^\circ$
- ☒ 2.  $123^\circ$
- ☒ 3.  $109^\circ$
- ☒ 4.  $119^\circ$

Question ID : **558101332**  
 Status : **Answered**  
 Chosen Option : 4

**Q.74** When an article is sold for ₹355, there is a loss of 29%. To gain 21%, it should be sold for ₹:

- Ans ☒ 1. 580.80
- ☒ 2. 635
- ☒ 3. 605
- ☒ 4. 629.20

Question ID : **558101279**  
 Status : **Answered**  
 Chosen Option : 3

**Q.75** One of the factors of  $(8^{2k} + 5^{2k})$ , where  $k$  is an odd number, is:

- Ans ☒ 1. 89
- ☒ 2. 86
- ☒ 3. 88
- ☒ 4. 84

Question ID : **558101265**  
 Status : **Answered**  
 Chosen Option : 1

**Q.76** An article is sold at a certain price. If it is sold at  $33\frac{1}{3}\%$  of this price, there is a loss of  $33\frac{1}{3}\%$ . What is the percentage profit when it is sold at 60% of the original selling price?

- Ans ☒ 1. 20
- ☒ 2.  $17\frac{1}{3}$
- ☒ 3.  $33\frac{1}{3}$
- ☒ 4. 30

Question ID : 558101280

Status : Answered

Chosen Option : 1

**Q.77** A sum of ₹8,400 amounts to ₹11,046 at 8.75% p.a. simple interest in certain time. What is the simple interest on the sum of ₹9,600 at the same rate for the same time?

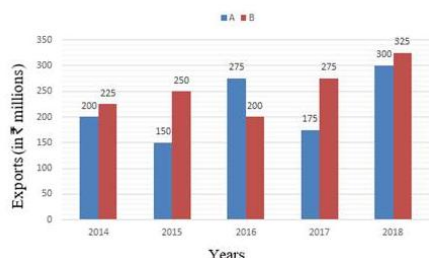
- Ans
- ☒ 1. ₹3,012
  - ☐ 2. ₹2,990
  - ☐ 3. ₹2,686
  - ☒ 4. ₹3,024

Question ID : 558101286

Status : Not Attempted and Marked For Review

Chosen Option : --

**Q.78** The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



The total exports of cars of type A in 2014 to 2017 is approximately what percentage less than the total exports of cars of type B in 2015 to 2018?

- Ans
- ☒ 1. 23.8
  - ☐ 2. 30.4
  - ☐ 3. 31.3
  - ☐ 4. 14.3

Question ID : 558101357

Status : Answered

Chosen Option : 4

**Q.79** In a school,  $\frac{4}{9}$  of the number of students are girls and the rest are boys.  $\frac{3}{5}$  of the number of boys are below 12 years of age and  $\frac{5}{12}$  of the number of girls are 12 years or above 12 years of age.

If the number of students below 12 years of age is 480, then  $\frac{5}{18}$  of the total number of students in the school will be equal to:

- Ans
- ☒ 1. 225
  - ☐ 2. 240
  - ☐ 3. 270
  - ☐ 4. 315

Question ID : 558101273

Status : Answered

Chosen Option : 1

**Q.80**



If each interior angle of a regular polygon is  $\left(128\frac{4}{7}\right)^\circ$ , then what is the sum of the number of its diagonals and the number of its sides?

- Ans
- ☒ 1. 19
  - ☒ 2. 15
  - ☒ 3. 21
  - ☒ 4. 17

Question ID : 558101333  
Status : Answered  
Chosen Option : 3

**Q.81** One year ago, the ratio of the age (in years) of A to that of B was 4 : 3. The ratio of their respective ages, 3 years from now, will be 6 : 5. What will be the ratio of respective ages of A and B, 9 years from now?

- Ans
- ☒ 1. 10 : 9
  - ☒ 2. 9 : 8
  - ☒ 3. 7 : 6
  - ☒ 4. 8 : 7

Question ID : 558101293  
Status : Answered  
Chosen Option : 2

**Q.82** The value of  $\frac{(253)^3 + (247)^3}{25.3 \times 25.3 - 624.91 + 24.7 \times 24.7}$  is  $50 \times 10^k$ , where the value of  $k$  is:

- Ans
- ☒ 1. 3
  - ☒ 2. -3
  - ☒ 3. 4
  - ☒ 4. 2

Question ID : 558101263  
Status : Answered  
Chosen Option : 1

**Q.83** A person marks his goods  $x\%$  above the cost price and allows a discount of 30% on the marked price. If his profit is 5%, then the value of  $x$  will be:

- Ans
- ☒ 1. 50
  - ☒ 2. 60
  - ☒ 3. 45
  - ☒ 4. 35

Question ID : 558101285  
Status : Answered  
Chosen Option : 1

**Q.84**  $\frac{(2 \sin A)(1 + \sin A)}{1 + \sin A + \cos A}$  is equal to:

- Ans
- ☒ 1.  $1 + \sin A \cos A$
  - ☒ 2.  $1 + \cos A - \sin A$

✓ 3.  $1 + \sin A - \cos A$

✗ 4.  $1 - \sin A \cos A$

Question ID : 558101344

Status : Not Answered

Chosen Option : --

**Q.85** Three solid metallic spheres whose radii are 1 cm,  $x$  cm and 8 cm, are melted and recast into a single solid sphere of diameter 18 cm. The surface area (in  $\text{cm}^2$ ) of the sphere with radius  $x$  cm is:

Ans ✓ 1.  $144\pi$

✗ 2.  $100\pi$

✗ 3.  $64\pi$

✗ 4.  $72\pi$

Question ID : 558101310

Status : Not Answered

Chosen Option : --

**Q.86** If  $(a + b) : (b + c) : (c + a) = 7 : 6 : 5$  and  $a + b + c = 27$ , then what will be the value of  $\frac{1}{a} : \frac{1}{b} : \frac{1}{c}$ ?

Ans ✓ 1.  $4 : 3 : 6$

✗ 2.  $3 : 2 : 4$

✗ 3.  $3 : 4 : 2$

✗ 4.  $3 : 6 : 4$

Question ID : 558101291

Status : Answered

Chosen Option : 1

**Q.87** If  $\theta$  lies in the first quadrant and  $\cos^2 \theta - \sin^2 \theta = \frac{1}{2}$ , then the value of  $\tan^2 2\theta + \sin^2 3\theta$  is:

Ans ✗ 1. 3

✗ 2.  $\frac{7}{2}$

✓ 3. 4

✗ 4.  $\frac{4}{3}$

Question ID : 558101348

Status : Not Attempted and Marked For Review

Chosen Option : --

**Q.88** The value of  $\frac{(\cos 9^\circ + \sin 81^\circ)(\sec 9^\circ + \operatorname{cosec} 81^\circ)}{\sin 56^\circ \sec 34^\circ + \cos 25^\circ \operatorname{cosec} 65^\circ}$  is:

Ans ✗ 1.  $\frac{1}{4}$

✗ 2.  $\frac{1}{2}$

✗ 3. 4



 4. 2

Question ID : 558101349

Status : Marked For Review

Chosen Option : 2

**Q.89** If the radius of the base of a cone is doubled, and the volume of the new cone is three times the volume of the original cone, then what will be the ratio of the height of the original cone to that of the new cone?

Ans  1. 4 : 3 2. 9 : 4 3. 1 : 3 4. 2 : 9

Question ID : 558101314

Status : Answered

Chosen Option : 1

**Q.90** When  $x$  is added to each of 2, 3, 30 and 35, then the numbers obtained in this order, are in proportion. What is the mean proportional between  $(x + 7)$  and  $(x - 2)$ ?

Ans  1. 7 2. 6 3. 4 4. 5

Question ID : 558101290

Status : Answered

Chosen Option : 2

**Q.91** The graphs of the equations  $3x + y - 5 = 0$  and  $2x - y - 5 = 0$  intersect at the point  $P(\alpha, \beta)$ . What is the value of  $(3\alpha + \beta)$ ?

Ans  1. 4 2. -4 3. 3 4. 5

Question ID : 558101320

Status : Answered

Chosen Option : 4

**Q.92** When 7897, 8110 and 8536 are divided by the greatest number  $x$ , then the remainder in each case is the same. The sum of the digits of  $x$  is:

Ans  1. 14 2. 6 3. 9 4. 5

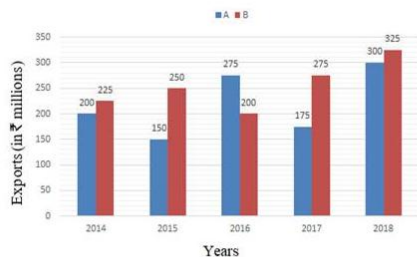
Question ID : 558101269

Status : Not Answered

Chosen Option : --

**Q.93**

The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



In which year, the exports of cars of type A was 10% more than the average exports (per year) of cars of type A over the five years?

- Ans
- ☒ 1. 2015
  - ☒ 2. 2014
  - ☒ 3. 2017
  - ☒ 4. 2016

Question ID : 558101358

Status : Answered

Chosen Option : 4

**Q.94** If A is 28% more than B and C is 25% less than the sum of A and B, then by what percent will C be more than A (correct to one decimal place)?

- Ans
- ☒ 1. 32.2%
  - ☒ 2. 33.6%
  - ☒ 3. 28%
  - ☒ 4. 43%

Question ID : 558101276

Status : Answered

Chosen Option : 2

**Q.95** In  $\triangle ABC$ , D is a point on side BC such that  $\angle ADC = \angle BAC$ . If CA = 12 cm, CB = 8 cm, then CD is equal to:

- Ans
- ☒ 1. 15 cm
  - ☒ 2. 12 cm
  - ☒ 3. 16 cm
  - ☒ 4. 18 cm

Question ID : 558101336

Status : Answered

Chosen Option : 4

**Q.96** Anu sold an article for ₹480 at some profit. Had she sold it for ₹400, then there would have been a loss equal to one-third of the initial profit. What was the cost price of the article?

- Ans
- ☒ 1. ₹450
  - ☒ 2. ₹420
  - ☒ 3. ₹425
  - ☒ 4. ₹430

Question ID : 558101281

Status : Answered

Chosen Option : 2

Q.97  $\sqrt{\frac{\cot \theta + \cos \theta}{\cot \theta - \cos \theta}}$  is equal to:

- Ans ☒ 1.  $\sec \theta + \tan \theta$   
☒ 2.  $\sec \theta - \tan \theta$   
☒ 3.  $1 - \sec \theta \tan \theta$   
☒ 4.  $1 + \sec \theta \tan \theta$

Question ID : 558101341

Status : Not Answered

Chosen Option : --

Q.98 If  $\sqrt{86 - 60\sqrt{2}} = a - b\sqrt{2}$ , then what will be the value of  $\sqrt{a^2 + b^2}$ , correct to one decimal place?

- Ans ☒ 1. 8.4  
☒ 2. 7.2  
☒ 3. 8.2  
☒ 4. 7.8

Question ID : 558101268

Status : Not Answered

Chosen Option : --

Q.99 The value of  $22.\bar{4} + 11.5\bar{67} - 33.5\bar{9}$  is:

- Ans ☒ 1.  $0.\overline{412}$   
☒ 2.  $0.3\bar{1}$   
☒ 3.  $0.4\overline{12}$   
☒ 4.  $0.\overline{32}$

Question ID : 558101262

Status : Answered

Chosen Option : 1

Q.100 The value of  $\frac{7+8 \times 8 \div 8 \text{ of } 8+8 \div 8 \times 4 \text{ of } 4}{4 \div 4 \text{ of } 4+4 \times 4 \div 4 - 4 \div 4 \text{ of } 2}$  is:

- Ans ☒ 1. 6.4  
☒ 2. 7.8  
☒ 3. 4.6  
☒ 4. 8.7

Question ID : 558101261

Status : Answered

Chosen Option : 2