

## Combined Graduate Level Examination 2019 Tier II

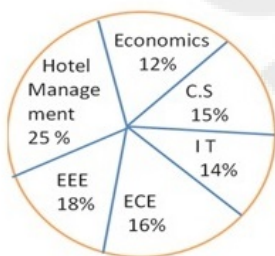
Roll Number	
Venue Name	
Exam Date	18/11/2020
Exam Time	10:00 AM - 12:00 PM
Subject	CGLE Tier II Paper I Quantitative abilities

Section : Quantitative abilities

Q.1 Study the following pie-chart and table to answer the questions numbered 95 to 97.

Total number of students admitted in a university in various fields = 5000

**Distribution of the number of students into various fields:**



Fields	No. of Boys
Economics	56 %
C S	44 %
I T	65 %
ECE	72 %
EEE	68 %
Hotel Management	80 %

What is the average number of boys in CS, ECE and EEE fields?

- Ans
- ☒ 1. 406
  - ☒ 2. 516
  - ☒ 3. 514
  - ☒ 4. 506

Question ID : 8161615473

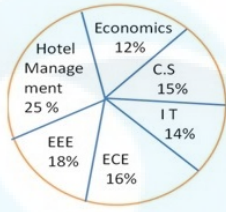
Status : Answered

Chosen Option : 4

**Q.2** Study the following pie-chart and table to answer the questions numbered 95 to 97.

Total number of students admitted in a university in various fields = 5000

**Distribution of the number of students into various fields:**



Fields	No. of Boys
Economics	56 %
C S	44 %
I T	65 %
ECE	72 %
EEE	68 %
Hotel Management	80 %

What is the difference between the number of girls in IT and number of girls in ECE?

- Ans**
- ✓ 1. 21
  - ✗ 2. 30
  - ✗ 3. 25
  - ✗ 4. 20

Question ID : 8161615474

Status : Answered

Chosen Option : 1

**Q.3** A, B and C can do a work separately in 18, 36 and 54 days, respectively. They started the work together, but B and C left 5 days and 10 days, respectively, before the completion of the work. In how many days was the work finished?

- Ans**
- ✗ 1. 15 days
  - ✓ 2. 13 days
  - ✗ 3. 14 days
  - ✗ 4. 12 days

Question ID : 8161615423

Status : Answered

Chosen Option : 2

**Q.4** If  $(\sin \theta + \operatorname{cosec} \theta)^2 + (\cos \theta + \sec \theta)^2 = k + \tan^2 \theta + \cot^2 \theta$ , then the value of  $k$  is equal to:

- Ans**
- ✓ 1. 7
  - ✗ 2. 2
  - ✗ 3. 5
  - ✗ 4. 9

Question ID : 8161615463

Status : Answered

Chosen Option : 1

Q.5 An athlete runs an 800 m race in 96 seconds. His speed (in km/h) is:

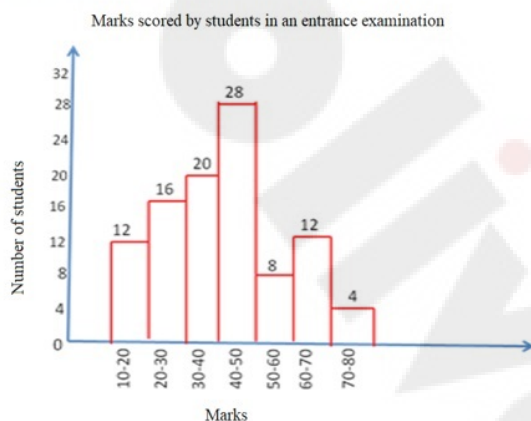
- Ans
- ☒ 1. 20 km/h
  - ☒ 2. 40 km/h
  - ☒ 3. 30 km/h
  - ☒ 4. 25 km/h

Question ID : 8161615419

Status : Answered

Chosen Option : 3

Q.6 Study the following histogram and answer the given question.



What is the ratio of the number of students who scored 30 or more marks, but below 40 marks, to the total number of students in the entrance examination?

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

Question ID : 8161615471

Status : Answered

Chosen Option : 1

Q.7 In a triangle ABC,  $AB = 6\sqrt{3}$  cm,  $AC = 12$  cm and  $BC = 6$  cm. Then measure of  $\angle B$  is equal to:

- Ans
- ☒ 1.  $90^\circ$
  - ☒ 2.  $45^\circ$
  - ☒ 3.  $70^\circ$
  - ☒ 4.  $60^\circ$

Question ID : 8161615448

Status : Answered

Chosen Option : 1

**Q.8** If A's income is 60% less than B's income, then B's income is what percentage more than that of A's income?

- Ans
- ☒ 1. 40%
  - ☒ 2. 150%
  - ☒ 3. 120%
  - ☒ 4. 80%

Question ID : 8161615395

Status : Answered

Chosen Option : 2

**Q.9** ABCD is a rhombus with  $\angle ABC = 52^\circ$ . The measure of  $\angle ACD$  is:

- Ans
- ☒ 1.  $54^\circ$
  - ☒ 2.  $26^\circ$
  - ☒ 3.  $48^\circ$
  - ☒ 4.  $64^\circ$

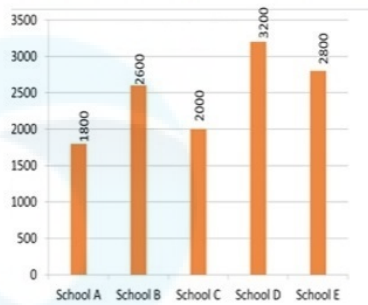
Question ID : 8161615459

Status : Answered

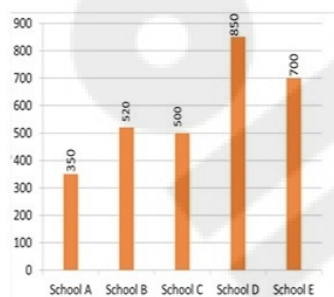
Chosen Option : 4

**Q.10** Study the following bar graph and answer the questions given below.

**Total number of boys and girls in schools A, B, C, D and E.**



**Difference between the number of boys and girls in schools A, B, C, D and E.**



What is the difference between the number of girls in school A and the number of girls in school C?

- Ans**
- ☒ 1. 20
  - ☒ 2. 30
  - ☒ 3. 35
  - ☒ 4. 25

Question ID : 8161615476

Status : Answered

Chosen Option : 4

**Q.11** A man walks at a speed of 8 km/h. After every kilometre, he takes a rest for 4 minutes. How much time will he take to cover a distance of 6 km?

- Ans**
- ☒ 1. 70 minutes
  - ☒ 2. 60 minutes
  - ☒ 3. 69 minutes
  - ☒ 4. 65 minutes

Question ID : 8161615420

Status : Answered

Chosen Option : 4

**Q.12** The ratio between the present ages of A and B is 3 : 5. If the ratio of their ages five years hence becomes 13 : 20, then the present age of B is:

- Ans
- ☐ 1. 30 years
  - ☐ 2. 32 years
  - ☐ 3. 40 years
  - ☒ 4. 35 years

Question ID : 8161615412

Status : Answered

Chosen Option : 4

**Q.13** At what rate per cent per annum will a sum of ₹15,625 amount to ₹21,952 in three years, if the interest is compounded annually?

- Ans
- ☒ 1. 12%
  - ☐ 2. 8%
  - ☐ 3. 9%
  - ☐ 4. 10%

Question ID : 8161615407

Status : Answered

Chosen Option : 1

**Q.14** If  $x\left(3 - \frac{2}{x}\right) = \frac{3}{x}$ , then the value of  $x^3 - \frac{1}{x^3}$  is equal to:

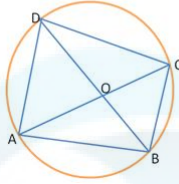
- Ans
- ☐ 1.  $\frac{8}{27}$
  - ☐ 2.  $\frac{61}{27}$
  - ☒ 3.  $\frac{62}{27}$
  - ☐ 4.  $\frac{52}{27}$

Question ID : 8161615445

Status : Answered

Chosen Option : 3

**Q.15** A cyclic quadrilateral ABCD is such that  $AB = BC$ ,  $AD = DC$  and AC and BD intersect at O. If  $\angle CAD = 46^\circ$ , then the measure of  $\angle AOB$  is equal to:



- Ans
- ☒ 1.  $90^\circ$
  - ☐ 2.  $80^\circ$
  - ☐ 3.  $84^\circ$
  - ☐ 4.  $86^\circ$

Question ID : 8161615457

Status : Answered

Chosen Option : 1

**Q.16** The ratio of boys and girls in a school is 27 : 23. If the difference between the number of boys and girls is 200, then find the number of boys.

- Ans
- ☒ 1. 1350
  - ☐ 2. 1250
  - ☐ 3. 1300
  - ☐ 4. 1200

Question ID : 8161615409

Status : Answered

Chosen Option : 1

**Q.17** If the surface area of a sphere is  $1386 \text{ cm}^2$ , then its volume is:

(Take  $\pi = \frac{22}{7}$ )

- Ans
- ☐ 1.  $8451 \text{ cm}^3$
  - ☒ 2.  $4851 \text{ cm}^3$
  - ☐ 3.  $5418 \text{ cm}^3$
  - ☐ 4.  $4581 \text{ cm}^3$

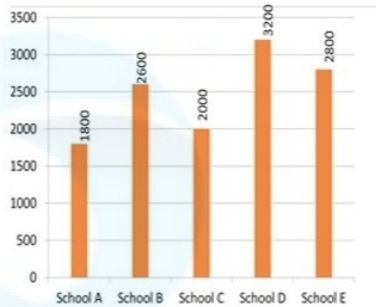
Question ID : 8161615437

Status : Answered

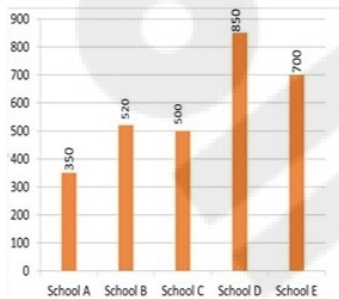
Chosen Option : 2

**Q.18** Study the following bar graph and answer the questions given below.

**Total number of boys and girls in schools A, B, C, D and E.**



**Difference between the number of boys and girls in schools A, B, C, D and E.**



The number of boys in school B is what percentage of the total number of students in that school?

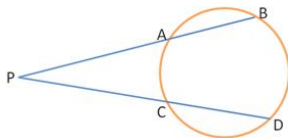
- Ans**
- ☒ 1. 40%
  - ☒ 2. 50%
  - ☒ 3. 60%
  - ☒ 4. 55%

Question ID : 8161615477

Status : Answered

Chosen Option : 3

**Q.19** In the figure, chords AB and CD of a circle intersect externally at P. If AB = 4 cm, CD = 11 cm and PD = 15 cm, then the length of PB is:



- Ans**
- ☒ 1. 10 cm
  - ☒ 2. 8 cm
  - ☒ 3. 14 cm
  - ☒ 4. 12 cm

Question ID : 8161615458

Status : Answered

Chosen Option : 1



**Q.20** The ratio of the height and the diameter of a right circular cone is 6 : 5 and its volume is  $\frac{2200}{7} \text{ cm}^3$ . What is its slant height?  
(Take  $\pi = \frac{22}{7}$ )

- Ans
- ☒ 1. 26 cm
  - ☒ 2. 13 cm
  - ☐ 3. 25 cm
  - ☐ 4. 5 cm

Question ID : 8161615433  
Status : Answered  
Chosen Option : 1

**Q.21** A and B together can do a piece of work in 12 days. A alone can do it in 18 days. In how many days B alone can do the work?

- Ans
- ☒ 1. 36 days
  - ☐ 2. 24 days
  - ☐ 3. 32 days
  - ☐ 4. 30 days

Question ID : 8161615426  
Status : Answered  
Chosen Option : 1

**Q.22** If  $x^2 + \frac{1}{x^2} = 7$ , then the value of  $x^3 + \frac{1}{x^3}$  where  $x > 0$  is equal to:

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

Question ID : 8161615444  
Status : Answered  
Chosen Option : 1

**Q.23** If  $x - \frac{3}{x} = 6$ ,  $x \neq 0$ , then the value of  $\frac{x^4 - \frac{27}{x^2}}{x^2 - 3x - 3}$  is:

- Ans
- ☐ 1. 80
  - ☐ 2. 270
  - ☐ 3. 54
  - ☒ 4. 90

Question ID : 8161615443  
Status : Answered  
Chosen Option : 4

**Q.24** The numerator of a fraction is 6 less than its denominator. If the numerator is decreased by 1 and the denominator is increased by 5, then the denominator becomes 4 times the numerator. Find the fraction.

Ans

- ☒ 1.  $\frac{5}{11}$   
☐ 2.  $\frac{3}{11}$   
☐ 3.  $\frac{4}{11}$   
☐ 4.  $\frac{7}{11}$

Question ID : 8161615392

Status : Answered

Chosen Option : 1

**Q.25** The volume of a hemisphere is  $2425\frac{1}{2} \text{ cm}^3$ . Find its radius.  
(Take  $\pi = \frac{22}{7}$ )

Ans

- ☐ 1. 12 cm  
☐ 2. 10 cm  
☒ 3. 10.5 cm  
☐ 4. 9.5 cm

Question ID : 8161615428

Status : Answered

Chosen Option : 3

**Q.26** The radius and height of a cylinder are in the ratio 4 : 7 and its volume is  $2816 \text{ cm}^3$ . Find its radius. (Take  $\pi = \frac{22}{7}$ )

Ans

- ☐ 1. 5 cm  
☐ 2. 7 cm  
☒ 3. 8 cm  
☐ 4. 6 cm

Question ID : 8161615430

Status : Answered

Chosen Option : 3

**Q.27** The exterior angle obtained on producing the base of a triangle both the ways are  $121^\circ$  and  $104^\circ$ . What is the measure of the largest angle of the triangle?

Ans

- ☐ 1.  $75^\circ$   
☒ 2.  $76^\circ$   
☐ 3.  $74^\circ$   
☐ 4.  $66^\circ$

Question ID : 8161615446

Status : Answered

Chosen Option : 2

Q.28 Find the sum of  $6 + 8 + 10 + 12 + 14 + \dots + 40$ .

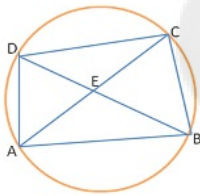
- Ans ☒ 1. 414  
☒ 2. 424  
☒ 3. 1600  
☒ 4. 400

Question ID : 8161615378

Status : Answered

Chosen Option : 1

Q.29 In the given figure,  $\angle DBC = 65^\circ$ ,  $\angle BAC = 35^\circ$  and  $AB = BC$ , then the measure of  $\angle ECD$  is equal to:



- Ans ☒ 1.  $65^\circ$   
☒ 2.  $50^\circ$   
☒ 3.  $55^\circ$   
☒ 4.  $45^\circ$

Question ID : 8161615456

Status : Answered

Chosen Option : 4

Q.30 एक व्यक्ति ने 5 घंटे में 42 km की दूरी तय की। उसने यात्रा का कुछ भाग पैदल 6 km/h की चाल से और कुछ भाग साइकिल से 10 km/h की चाल से तय किया। उसने पैदल कितनी दूरी तय की?

- Ans ☒ 1. 18 km  
☒ 2. 15 km  
☒ 3. 10 km  
☒ 4. 12 km

Question ID : 8161615421

Status : Answered

Chosen Option : 4

**Q.31** Find the least number which when divided by 12, 18, 24 and 30 leaves 4 as remainder in each case, but when divided by 7 leaves no remainder.

- Ans
- ☒ 1. 366
  - ☒ 2. 364
  - ☒ 3. 384
  - ☒ 4. 634

Question ID : 8161615389

Status : Answered

Chosen Option : 2

**Q.32** A conical tent has to accommodate 25 persons. Each person must have  $4 \text{ m}^2$  of space on the ground and  $80 \text{ m}^3$  of air to breathe. Find the height of the tent.

- Ans
- ☒ 1. 60 m
  - ☒ 2. 50 m
  - ☒ 3. 40 m
  - ☒ 4. 45 m

Question ID : 8161615434

Status : Answered

Chosen Option : 1

**Q.33** The graphs of the linear equations  $4x - 2y = 10$  and  $4x + ky = 2$  intersect at a point  $(a, 4)$ . The value of  $k$  is equal to:

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

Question ID : 8161615439

Status : Answered

Chosen Option : 4

**Q.34** At what rate of interest will a sum of ₹4,500 amount to ₹6,525 at simple interest for 5 years?

- Ans
- ☒ 1. 10%
  - ☒ 2. 9%
  - ☒ 3. 8%
  - ☒ 4. 12%

Question ID : 8161615406

Status : Answered

Chosen Option : 2

**Q.35** The average of five positive numbers is 56. If the first number is three-fourth of the sum of the last four numbers, then the average of the last four numbers is:

- Ans
- ☒ 1. 35
  - ☒ 2. 40
  - ☒ 3. 30
  - ☒ 4. 50

Question ID : 8161615414

Status : Answered

Chosen Option : 2

**Q.36** The sum of three numbers is 280. If the ratio between the first and second numbers is 2 : 3 and the ratio between second and third numbers is 4 : 5, then find the second number.

- Ans
- ☒ 1. 80
  - ☒ 2. 90
  - ☒ 3. 86
  - ☒ 4. 96

Question ID : 8161615410

Status : Answered

Chosen Option : 4

**Q.37** If  $\frac{\sec \theta + \tan \theta}{\sec \theta - \tan \theta} = 2\frac{51}{79}$ , then the value of  $\sin \theta$  is equal to:

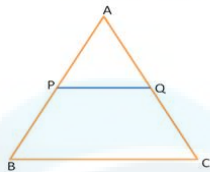
- Ans
- ☒ 1.  $\frac{35}{72}$
  - ☒ 2.  $\frac{39}{72}$
  - ☒ 3.  $\frac{91}{144}$
  - ☒ 4.  $\frac{65}{144}$

Question ID : 8161615467

Status : Answered

Chosen Option : 4

**Q.38** In a triangle ABC, P and Q are points on AB and AC, respectively, such that AP = 1 cm, PB = 3 cm, AQ = 1.5 cm, and CQ = 4.5 cm. If the area of  $\triangle APQ$  is  $12 \text{ cm}^2$ , then find the area of BPQC.



- Ans
- ☒ 1.  $192 \text{ cm}^2$
  - ☒ 2.  $182 \text{ cm}^2$
  - ☒ 3.  $190 \text{ cm}^2$
  - ☒ 4.  $180 \text{ cm}^2$

Question ID : 8161615455

Status : Answered

Chosen Option : 4

**Q.39** If  $\frac{8+2\sqrt{3}}{3\sqrt{3}+5} = a\sqrt{3} - b$ , then the value of  $a+b$  is equal to:

- Ans
- ☒ 1. 18
  - ☒ 2. 15
  - ☒ 3. 24
  - ☒ 4. 16

Question ID : 8161615390

Status : Answered

Chosen Option : 1

**Q.40** In a two-digit number, its units digit exceeds its tens digit by 2 and that the product of the given number and the sum of its digits is equal to 460. The number is:

- Ans
- ☒ 1. 48
  - ☒ 2. 64
  - ☒ 3. 46
  - ☒ 4. 36

Question ID : 8161615391

Status : Answered

Chosen Option : 3

**Q.41** An article is listed at ₹7,600 and the discount offered unit is 10%. What additional discount must be given to bring the net selling price to ₹5,814?

- Ans
- ☒ 1. 8%
  - ☒ 2. 10%
  - ☒ 3. 12%
  - ☒ 4. 15%

Question ID : 8161615404  
Status : Answered  
Chosen Option : 4

**Q.42** A and B can do a piece of work in 18 days. B and C together can do it in 30 days. If A is twice as good a workman as C, find in how many days B alone can do the work?

- Ans
- ☒ 1. 90 days
  - ☒ 2. 100 days
  - ☒ 3. 80 days
  - ☒ 4. 75 days

Question ID : 8161615424  
Status : Answered  
Chosen Option : 1

**Q.43** Anil bought two articles A and B at a total cost of ₹10,000. He sold the article A at 15% profit and the article B at 10% loss. In the whole deal, he made no profit or no loss. Find the selling price of the article A.

- Ans
- ☒ 1. ₹4,500
  - ☒ 2. ₹5,400
  - ☒ 3. ₹4,600
  - ☒ 4. ₹4,200

Question ID : 8161615399  
Status : Answered  
Chosen Option : 3

**Q.44** ABC is an equilateral triangle with side 12 cm and AD is the median. Find the length of GD if G is the centroid of  $\triangle ABC$ .

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

Question ID : 8161615449  
Status : Answered  
Chosen Option : 4

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**Q.45** A, B and C together invests ₹53,000 in a business. A invests ₹5,000 more than B and B invests ₹6,000 more than C. Out of a total profit of ₹31,800, find the share of A.

- Ans
- ☐ 1. ₹12,800
  - ☐ 2. ₹12,500
  - ☐ 3. ₹13,500
  - ☒ 4. ₹13,800

Question ID : 8161615415  
Status : Answered  
Chosen Option : 4

**Q.46** Rahul invested equal sums of money at compound interest under two schemes A and B. Under scheme A, the interest rate was 10% per annum and under scheme B, the interest rate was 12% p.a. The compound interest after two years on the sum invested in scheme A was ₹1,050. How much is the interest earned under scheme B after two years, if the interest is compounded annually in both schemes?

- Ans
- ☐ 1. ₹1,722
  - ☐ 2. ₹1,270
  - ☒ 3. ₹1,272
  - ☐ 4. ₹1,372

Question ID : 8161615408  
Status : Answered  
Chosen Option : 3

**Q.47** If  $\sec \theta + \tan \theta = 3$ , then the value of  $\sec \theta$  is:

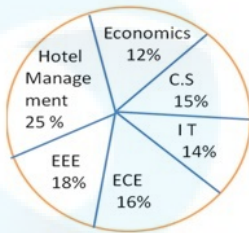
- Ans
- ☐ 1.  $\frac{4}{3}$
  - ☐ 2.  $\frac{3}{4}$
  - ☐ 3.  $\frac{3}{5}$
  - ☒ 4.  $\frac{5}{3}$

Question ID : 8161615464  
Status : Answered  
Chosen Option : 4

Q.48 Study the following pie chart and table to answer the question

Total number of students admitted in a university in various fields = 5000

Distribution of the number of students into various fields:



Fields	No. of Boys
Economics	56 %
C S	44 %
I T	65 %
ECE	72 %
EEE	68 %
Hotel Management	80 %

The ratio of the number of boys in Economics to the number of students in Economics is:

- Ans ☒ 1. 14 : 25  
☒ 2. 12 : 25  
☒ 3. 13 : 25  
☒ 4. 17 : 25

Question ID : 8161615472

Status : Answered

Chosen Option : 1

Q.49 A divisor is 15 times the quotient and 3 times the remainder. If the remainder is 40, find the dividend.

- Ans ☒ 1. 900  
☒ 2. 750  
☒ 3. 1000  
☒ 4. 600

Question ID : 8161615379

Status : Answered

Chosen Option : 3

Q.50

If  $x + \frac{16}{x} = 8$ , then the value of  $x^2 + \frac{32}{x^2}$  is:

- Ans ☒ 1. 20  
☒ 2. 24  
☒ 3. 16  
☒ 4. 18

Question ID : 8161615442

Status : Answered

Chosen Option : 4

**Q.51** A sum of ₹1,50,000 is distributed among three persons – A, B and C – so that they receive 20%, 30% and 50%, respectively. A receives the same amount from another sum of money which is distributed among them so that they receive 50%, 30% and 20%, respectively. Find the total amount received from both sums of money, by B.

- Ans
- ☒ 1. ₹58,000
  - ☒ 2. ₹60,000
  - ☒ 3. ₹55,000
  - ☒ 4. ₹63,000

Question ID : 8161615397  
Status : Answered  
Chosen Option : 4

**Q.52** An umbrella is marked for ₹150 and sold for ₹138. The rate of discount is:

- Ans
- ☒ 1. 5%
  - ☒ 2. 8%
  - ☒ 3. 6%
  - ☒ 4. 9%

Question ID : 8161615403  
Status : Answered  
Chosen Option : 2

**Q.53** The sum of length, breadth and height of a cuboid is 20 cm. If the length of the diagonal is 12 cm, then find the total surface area of cuboid.

- Ans
- ☒ 1.  $364 \text{ cm}^2$
  - ☒ 2.  $256 \text{ cm}^2$
  - ☒ 3.  $356 \text{ cm}^2$
  - ☒ 4.  $264 \text{ cm}^2$

Question ID : 8161615438  
Status : Answered  
Chosen Option : 2

**Q.54** The interior angle of a regular polygon exceeds its exterior angle by  $90^\circ$ . The number of sides of the polygon is:

- Ans
- ☒ 1. 8
  - ☒ 2. 6
  - ☒ 3. 10
  - ☒ 4. 12

Question ID : 8161615452  
Status : Answered  
Chosen Option : 1

**Q.55** A and B can do a work together in 18 days. A is three times as efficient as B. In how many days can B alone complete the work?

- Ans
- ☒ 1. 60 days
  - ☒ 2. 72 days
  - ☒ 3. 54 days
  - ☒ 4. 64 days

Question ID : 8161615425

Status : Answered

Chosen Option : 2

**Q.56** The curved surface area of a cylinder is five times the area of its base. Find the ratio of radius and height of the cylinder.

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

Question ID : 8161615431

Status : Answered

Chosen Option : 3

**Q.57** The value of  $5 - \frac{8 + 2\sqrt{15}}{4} - \frac{1}{8 + 2\sqrt{15}}$  is equal to:

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

Question ID : 8161615386

Status : Answered

Chosen Option : 2

**Q.58** In an examination, 92% of the students passed and 480 students failed. If so, how many students appeared in the examination?

- Ans
- ☒ 1. 5800
  - ☒ 2. 6200
  - ☒ 3. 6000
  - ☒ 4. 5000

Question ID : 8161615393

Status : Answered

Chosen Option : 3

**Q.59** The sum of weights of A and B is 80 kg. 50% of A's weight is  $\frac{5}{6}$  times the weight of B. Find the difference between their weights.

- Ans
- ☒ 1. 20 kg
  - ☐ 2. 10 kg
  - ☐ 3. 25 kg
  - ☐ 4. 15 kg

Question ID : 8161615394  
Status : Answered  
Chosen Option : 1

**Q.60** If  $\frac{b}{a} = 0.7$ , find the value of  $\frac{a-b}{a+b} + \frac{11}{34}$ .

- Ans
- ☐ 1. 0.2
  - ☐ 2. 1
  - ☒ 3. 0.5
  - ☐ 4. 0.3

Question ID : 8161615382  
Status : Answered  
Chosen Option : 3

**Q.61** If  $\frac{\cos^2 \theta}{\cot^2 \theta - \cos^2 \theta} = 3$ , where  $0^\circ < \theta < 90^\circ$  then the value of  $\theta$  is:

- Ans
- ☐ 1.  $45^\circ$
  - ☐ 2.  $50^\circ$
  - ☒ 3.  $60^\circ$
  - ☐ 4.  $30^\circ$

Question ID : 8161615460  
Status : Answered  
Chosen Option : 3

**Q.62** The price of a variety of a commodity is ₹7/kg and that of another is ₹12/kg. Find the ratio in which two varieties should be mixed so that the price of the mixture is ₹10/kg.

- Ans
- ☐ 1. 3 : 4
  - ☒ 2. 2 : 3
  - ☐ 3. 4 : 5
  - ☐ 4. 2 : 5

Question ID : 8161615418  
Status : Answered  
Chosen Option : 2

**Q.63** A dealer sold an article at a loss of 2%. Had he sold it for ₹44 more, he would have gained 20%. Find the cost price of the article.

- Ans
- ☒ 1. ₹250
  - ☒ 2. ₹300
  - ☒ 3. ₹400
  - ☒ 4. ₹200

Question ID : 8161615400

Status : Answered

Chosen Option : 4

**Q.64** If  $2 = x + \frac{1}{1 + \frac{1}{5 + \frac{1}{2}}}$ , then the value of  $x$  is equal to:

- Ans
- ☒ 1.  $\frac{14}{13}$
  - ☒ 2. 1
  - ☒ 3.  $\frac{13}{15}$
  - ☒ 4.  $\frac{15}{13}$

Question ID : 8161615383

Status : Answered

Chosen Option : 4

**Q.65** Evaluate the following:  
 $5 - [96 \div 4 \text{ of } 3 - (16 - 55 \div 5)]$

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

Question ID : 8161615380

Status : Answered

Chosen Option : 4

Q.66 In a triangle ABC, D is a point on BC such that  $\frac{AB}{AC} = \frac{BD}{DC}$ . If  $\angle B = 68^\circ$  and  $\angle C = 52^\circ$ , then measure of  $\angle BAD$  is equal to:

- Ans
- ☒ 1.  $50^\circ$
  - ☒ 2.  $40^\circ$
  - ☒ 3.  $60^\circ$
  - ☒ 4.  $30^\circ$

Question ID : 8161615450  
Status : Answered  
Chosen Option : 4

Q.67 If  $\frac{1}{4.263} = 0.2346$ , find the value of  $\frac{1}{0.0004263}$ .

- Ans
- ☒ 1. 2346
  - ☒ 2. 4.263
  - ☒ 3. 2.346
  - ☒ 4. 4263

Question ID : 8161615381  
Status : Answered  
Chosen Option : 1

Q.68 The length of the shadow of a vertical tower on level ground increases by 10 m when the altitude of the sun changes from  $45^\circ$  to  $30^\circ$ . The height of the tower is:

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

Question ID : 8161615470  
Status : Answered  
Chosen Option : 3

Q.69 Find the number of prime factors in the product  $(30)^5 \times (24)^5$ .

- Ans
- ☒ 1. 35
  - ☒ 2. 30
  - ☒ 3. 45
  - ☒ 4. 10

Question ID : 8161615384  
Status : Answered  
Chosen Option : 1

**Q.70** Ramesh started a business investing a sum of ₹40,000. Six months later, Kevin joined by investing ₹20,000. If they make a profit of ₹10,000 at the end of the year, how much is the share of Kevin?

- Ans
- ☒ 1. ₹2,000
  - ☐ 2. ₹4,000
  - ☐ 3. ₹3,000
  - ☐ 4. ₹2,500

Question ID : 8161615416  
Status : Answered  
Chosen Option : 1

**Q.71** If  $3 \sin x + 4 \cos x = 2$ , then the value of  $3 \cos x - 4 \sin x$  is equal to:

- Ans
- ☐ 1.  $\sqrt{23}$
  - ☒ 2.  $\sqrt{21}$
  - ☐ 3.  $\sqrt{29}$
  - ☐ 4. 21

Question ID : 8161615462  
Status : Answered  
Chosen Option : 2

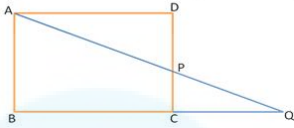
**Q.72** If  $\cos \theta = \frac{5}{13}$ , then the value of  $\tan^2 \theta + \sec^2 \theta$  is equal to:

- Ans
- ☐ 1.  $\frac{303}{25}$
  - ☒ 2.  $\frac{313}{25}$
  - ☐ 3.  $\frac{233}{25}$
  - ☐ 4.  $\frac{323}{25}$

Question ID : 8161615465  
Status : Answered  
Chosen Option : 2



**Q.73** In the given figure, ABCD is a rectangle and P is a point on DC such that  $BC = 24$  cm,  $DP = 10$  cm, and  $CD = 15$  cm. If AP produced intersects BC produced at Q, then find the length of AQ.



- Ans
- ☒ 1. 24 cm
  - ☒ 2. 26 cm
  - ☒ 3. 39 cm
  - ☒ 4. 35 cm

Question ID : 8161615454  
Status : Answered  
Chosen Option : 3

**Q.74** In a triangle ABC,  $AB = AC$  and the perimeter of  $\triangle ABC$  is  $8(2 + \sqrt{2})$  cm. If the length of BC is  $\sqrt{2}$  times the length of AB, then find the area of  $\triangle ABC$ .

- Ans
- ☒ 1.  $32 \text{ cm}^2$
  - ☒ 2.  $28 \text{ cm}^2$
  - ☒ 3.  $16 \text{ cm}^2$
  - ☒ 4.  $36 \text{ cm}^2$

Question ID : 8161615451  
Status : Answered  
Chosen Option : 1

**Q.75** The radii of two cylinders are in the ratio 3 : 4 and their heights are in the ratio 8 : 5. The ratio of their volumes is equal to:

- Ans
- ☒ 1. 9 : 10
  - ☒ 2. 8 : 9
  - ☒ 3. 9 : 11
  - ☒ 4. 7 : 10

Question ID : 8161615432  
Status : Answered  
Chosen Option : 1

**Q.76** If  $\sin(x + y) = \cos(x - y)$ , then the value of  $\cos^2 x$  is:

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

Question ID : 8161615469  
Status : Answered  
Chosen Option : 1

Q.77 If  $\sin \theta + \sin^2 \theta = 1$ , then the value of  $\cos^2 \theta + \cos^4 \theta$  is equal to:

- Ans
- ☐ 1. 5
  - ☐ 2.  $\frac{1}{2}$
  - ☒ 3. 1
  - ☐ 4. 0

Question ID : 8161615461

Status : Answered

Chosen Option : 3

Q.78 The number of lead balls, each 3 cm in diameter, that can be made from a solid lead sphere of diameter 42 cm is:

- Ans
- ☒ 1. 2744
  - ☐ 2. 4722
  - ☐ 3. 7244
  - ☐ 4. 2742

Question ID : 8161615429

Status : Answered

Chosen Option : 1

Q.79 A delivery boy started from his office at 10 a.m. to deliver an article. He rode his scooter at a speed of 32 km/h. He delivered the article and waited for 15 minutes to get the payment. After the payment was made, he reached his office at 11.25 a.m., travelling at a speed of 24 km/h. Find the total distance travelled by the boy.

- Ans
- ☐ 1. 35 km
  - ☐ 2. 40 km
  - ☒ 3. 32 km
  - ☐ 4. 30 km

Question ID : 8161615422

Status : Answered

Chosen Option : 3

Q.80 If  $x = \sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$  where  $x > 0$ , then the value of  $x$  is equal to:

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

Question ID : 8161615387

Status : Answered

Chosen Option : 4

**Q.81** If the perimeter of an isosceles right triangle is  $8(\sqrt{2}+1)$  cm, then the length of the hypotenuse of the triangle is:

- Ans ☒ 1. 8 cm  
☒ 2. 12 cm  
☒ 3. 10 cm  
☒ 4. 24 cm

Question ID : 8161615447

Status : Answered

Chosen Option : 1

**Q.82** The base of a pyramid is an equilateral triangle of side 10 m. If the height of the pyramid is  $40\sqrt{3}$  m, then the volume of the pyramid is:

- Ans ☒ 1.  $1000 \text{ m}^3$   
☒ 2.  $1200 \text{ m}^3$   
☒ 3.  $900 \text{ m}^3$   
☒ 4.  $800 \text{ m}^3$

Question ID : 8161615427

Status : Answered

Chosen Option : 1

**Q.83** What is to be added to 15% of 180 so that the sum is equal to 20% of 360?

- Ans ☒ 1. 45  
☒ 2. 40  
☒ 3. 60  
☒ 4. 50

Question ID : 8161615396

Status : Answered

Chosen Option : 1

**Q.84** On selling 38 balls at ₹2,240, there is a loss equal to the cost price of 6 balls. The cost price of a ball is equal to:

- Ans ☒ 1. ₹80  
☒ 2. ₹70  
☒ 3. ₹60  
☒ 4. ₹50

Question ID : 8161615401

Status : Answered

Chosen Option : 2

**Q.85** The sum of two positive numbers is 240 and their HCF is 15. Find the number of pairs of numbers satisfying the given condition.

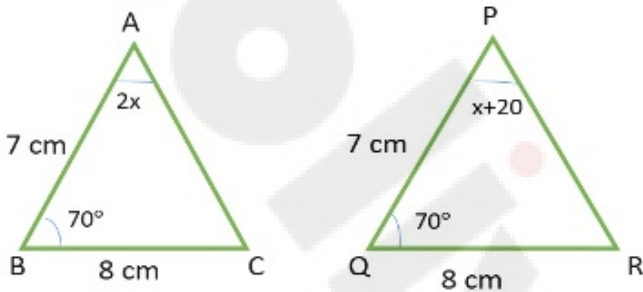
- Ans
- ☐ 1. 5
  - ☐ 2. 2
  - ☐ 3. 8
  - ☒ 4. 4

Question ID : 8161615388

Status : Answered

Chosen Option : 4

**Q.86** In the given figure, the measure of  $\angle A$  is:



- Ans
- ☐ 1.  $50^\circ$
  - ☒ 2.  $40^\circ$
  - ☐ 3.  $20^\circ$
  - ☐ 4.  $60^\circ$

Question ID : 8161615453

Status : Answered

Chosen Option : 2

**Q.87** What is the reflection of the point  $(5, -3)$  in the line  $y = 3$ ?

- Ans
- ☐ 1.  $(5, 3)$
  - ☒ 2.  $(5, 9)$
  - ☐ 3.  $(5, -6)$
  - ☐ 4.  $(-5, 3)$

Question ID : 8161615440

Status : Answered

Chosen Option : 2

Q.88

If  $\sqrt{x} + \frac{1}{\sqrt{x}} = 3$ , then the value of  $x^3 + \frac{1}{x^3}$  is:

Ans

☒ 1. 326☒ 2. 322☒ 3. 324☒ 4. 422

Question ID : 8161615441

Status : Answered

Chosen Option : 2

Q.89

The average ages of Kishore, his wife and their child 6 years ago was 38 years and that of his wife and their child 8 years ago was 32 years. Find the present age of Kishore.

Ans

☒ 1. 48 years☒ 2. 52 years☒ 3. 55 years☒ 4. 50 years

Question ID : 8161615413

Status : Answered

Chosen Option : 2

Q.90

The selling price of one article after allowing a discount of 15% on its cost price, is the same as the selling price of another article after allowing a discount of 25% on its cost price. If the sum of the cost prices of both the articles is ₹640, then find the selling price of each article.

Ans

☒ 1. ₹250☒ 2. ₹340☒ 3. ₹280☒ 4. ₹255

Question ID : 8161615402

Status : Answered

Chosen Option : 4

Q.91

In how much time will the simple interest on a certain sum of money be  $\frac{6}{5}$  times of the sum at 20% per annum?

Ans

☒ 1. 7 years☒ 2. 8 years☒ 3. 5 years☒ 4. 6 years

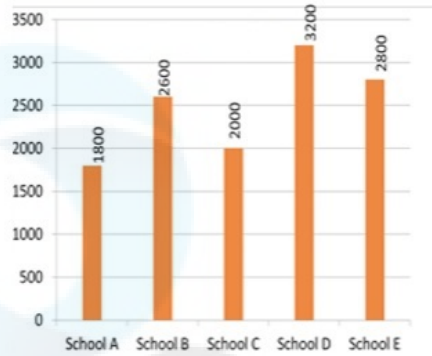
Question ID : 8161615405

Status : Answered

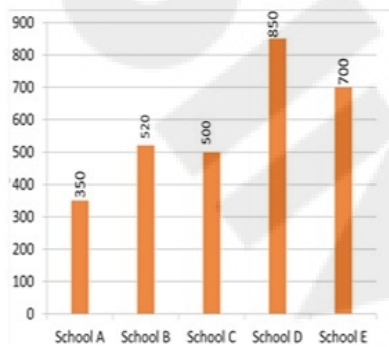
Chosen Option : 4

Q.92 Study the following bar graph and answer the questions given below.

**Total number of boys and girls in schools A, B, C, D and E.**



**Difference between the number of boys and girls in schools A, B, C, D and E.**



What is the ratio of number of boys to the number of girls in school E?

- Ans ☒ 1. 5 : 3  
☒ 2. 7 : 4  
☒ 3. 4 : 3  
☒ 4. 5 : 4

Question ID : 8161615475

Status : Answered

Chosen Option : 1

Q.93 If the radius of a cylinder is decreased by 20% and the height is increased by 20% to form a new cylinder, then the volume will be decreased by:

- Ans ☒ 1. 23.2%  
☒ 2. 22.3%  
☒ 3. 32.2%  
☒ 4. 20.5%

Question ID : 8161615435

Status : Answered

Chosen Option : 1

**Q.94** The train ticket fare from places A to B in 2<sup>nd</sup> class AC and 3<sup>rd</sup> class AC is ₹2,500 and ₹2,000, respectively. If the fares of 2<sup>nd</sup> class AC and 3<sup>rd</sup> class AC are increased by 20% and 10%, respectively, then find the ratio of the new fares of 2<sup>nd</sup> class AC and 3<sup>rd</sup> class AC.

- Ans
- ☒ 1. 15 : 11
  - ☐ 2. 12 : 11
  - ☐ 3. 13 : 11
  - ☐ 4. 15 : 13

Question ID : 8161615411  
Status : Answered  
Chosen Option : 1

**Q.95** The base of a right prism is a square having side of 15 cm. If its height is 8 cm, then find the total surface area.

- Ans
- ☐ 1. 940 cm<sup>2</sup>
  - ☐ 2. 920 cm<sup>2</sup>
  - ☐ 3. 900 cm<sup>2</sup>
  - ☒ 4. 930 cm<sup>2</sup>

Question ID : 8161615436  
Status : Answered  
Chosen Option : 4

**Q.96** If  $\operatorname{cosec} 39^\circ = x$ , then the value of  $\frac{1}{\operatorname{cosec}^2 51^\circ} + \sin^2 39^\circ + \tan^2 51^\circ - \frac{1}{\sin^2 51^\circ \sec^2 39^\circ}$  is:

- Ans
- ☒ 1.  $x^2 - 1$
  - ☐ 2.  $\sqrt{x^2 - 1}$
  - ☐ 3.  $\sqrt{1 - x^2}$
  - ☐ 4.  $1 - x^2$

Question ID : 8161615468  
Status : Answered  
Chosen Option : 1

**Q.97** A container contains 20 L mixture in which there is 10% sulphuric acid. Find the quantity of sulphuric acid to be added in it to make the solution to contain 25% sulphuric acid.

- Ans
- ☐ 1. 2 L
  - ☐ 2. 3 L
  - ☒ 3. 4 L
  - ☐ 4. 5 L

Question ID : 8161615417  
Status : Answered  
Chosen Option : 3

Q.98 Evaluate:  $\frac{1}{15} + \frac{1}{35} + \frac{1}{63} + \frac{1}{99} + \frac{1}{143}$ .

Ans

☐ 1.  $\frac{4}{39}$

☒ 2.  $\frac{5}{39}$

☐ 3.  $\frac{10}{39}$

☐ 4.  $\frac{7}{39}$

Question ID : 8161615385

Status : Answered

Chosen Option : 2

Q.99 If  $\alpha + \beta = 90^\circ$  and  $\alpha = 2\beta$ , then the value of  $3\cos^2\alpha - 2\sin^2\beta$  is equal to:

Ans

☐ 1.  $\frac{3}{4}$

☐ 2.  $\frac{3}{2}$

☒ 3.  $\frac{1}{4}$

☐ 4.  $\frac{4}{3}$

Question ID : 8161615466

Status : Answered

Chosen Option : 3

Q.100 A man sells two articles at ₹9,975 each. He gains 5% on one article and loses 5% on the other. Find his overall gain or loss.

Ans

☐ 1. Loss ₹60

☐ 2. Profit ₹50

☐ 3. Profit ₹60

☒ 4. Loss ₹50

Question ID : 8161615398

Status : Answered

Chosen Option : 1

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