SSC CGL 2020

21 sets (525 Questions)

Maths

(English)

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Gagan Pratap Sir

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name Gagan Pratap Maths
Venue Name
Exam Date 13/08/2021
Exam Time 9:00 AM - 10:00 AM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 The income of A is 45% more than the income of B and the income of C is 60% less than the sum of the incomes of A and B. The income of D is 20% more than that of C. If the difference between the incomes of B and D is ₹13200, then the income (in ₹) of C is:

Ans
✗ 1. 75000
✓ 2. 73500
✗ 3. 72500
✗ 4. 72000

Question ID : **81616113973**
Status : **Answered**
Chosen Option : **2**

Q.2 $\triangle ABC \sim \triangle PQR$. The areas of $\triangle ABC$ and $\triangle PQR$ are 64 cm^2 and 81 cm^2, respectively and AD and PT are the medians of $\triangle ABC$ and $\triangle PQR$, respectively. If $PT = 10.8\,cm$, then $AD = ?$

Ans
✗ 1. $8.4\ cm$
✗ 2. $9\ cm$
✓ 3. $9.6\ cm$
✗ 4. $12\ cm$

Question ID : **81616113884**
Status : **Answered**
Chosen Option : **3**

Q.3 If $\frac{\cos^2\theta}{\cot^2\theta+\sin^2\theta-1} = 3,\ 0° < \theta < 90°$, then the value of $(\tan\theta + \operatorname{cosec}\theta)$ is:

Ans
✗ 1. $2\sqrt{3}$
✓ 2. $\frac{5\sqrt{3}}{3}$
✗ 3. $3\sqrt{3}$
✗ 4. $\frac{4\sqrt{3}}{3}$

Question ID : **81616113987**
Status : **Answered**
Chosen Option : **2**

Q.4 Length of each side of a rhombus is 13 cm and one of the diagonal is 24 cm. What is the area (in cm^2) of the rhombus?

Ans

✗ 1. 240

✗ 2. 60

✗ 3. 300

✓ 4. 120

Question ID : **81616113373**
Status : **Answered**
Chosen Option : **4**

Q.5 Some fruits are bought at 15 for ₹140 and an equal number of fruits at 10 for ₹120. If all the fruits are sold at ₹132 per dozen, then what is the profit percent in the entire transaction?

Ans

✓ 1. $3\frac{1}{8}$

✗ 2. $4\frac{1}{2}$

✗ 3. 3

✗ 4. $2\frac{1}{4}$

Question ID : **81616113873**
Status : **Marked For Review**
Chosen Option : **4**

Q.6 Study the following table and answer the question:

Number of cars sold by dealers A, B, C, D & E during first six months of 2018.

Month / Dealer	January	February	March	April	May	June
A	620	640	628	635	430	625
B	600	642	635	580	450	620
C	640	635	640	540	625	740
D	520	645	722	740	600	780
E	548	638	720	740	650	800

The ratio of the total number of cars sold by dealer B in January, April and June to the total number of cars sold by dealers A and D in March is:

Ans

✓ 1. 4 : 3

✗ 2. 10 : 9

✗ 3. 8 : 9

✗ 4. 7 : 5

Question ID : **81616114192**
Status : **Answered**
Chosen Option : **1**

Q.7 Study the following table and answer the question:

Number of cars sold by dealers A, B, C, D & E during first six months of 2018.

Month / Dealer	January	February	March	April	May	June
A	620	640	628	635	430	625
B	600	642	635	580	450	620
C	640	635	640	540	625	740
D	520	645	722	740	600	780
E	548	638	720	740	650	800

In July 2018, if the sales of cars by the dealer D increases by the same percentage as in June 2018 over its previous month, then what is the number of cars sold by D in July 2018?

Ans

✗ 1. 1020

✗ 2. 959

✓ 3. 1014

✗ 4. 975

Question ID : **81616114194**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.8 When x is subtracted from each of 19, 28, 55 and 91, the numbers so obtained in this order are in proportion. What is the value of x?

Ans

✗ 1. 8

✓ 2. 7

✗ 3. 9

✗ 4. 5

Question ID : **81616113066**
Status : **Marked For Review**
Chosen Option : **1**

Q.9 The average of 28 numbers is 77. The average of first 14 numbers is 74 and the average of last 15 numbers is 84. If the 14^{th} number is excluded, then what is the average of remaining numbers? (correct to one decimal places)

Ans

✗ 1. 77

✓ 2. 74.7

✗ 3. 76.9

✗ 4. 73.1

Question ID : **81616113365**
Status : **Answered**
Chosen Option : **2**

Q.10 Sides AB and DC of a cyclic quadrilateral ABCD are produced to meet at E and sides AD and BC are produced to meet at F. If $\angle ADC = 78°$ and $\angle BEC = 52°$, then the measure of $\angle AFB$ is:

Ans

✗ 1. $26°$

✗ 2. $32°$

✗ 3. $30°$

✓ 4. $28°$

Question ID : **81616113984**
Status : **Answered**
Chosen Option : **4**

Q.11 Find the value of $cot\,25°\,cot\,35°\,cot\,45°\,cot\,55°\,cot\,65°$.

Ans

✗ 1. $\sqrt{3}$

✓ 2. 1

✗ 3. $\frac{\sqrt{3}}{2}$

✗ 4. $\frac{1}{\sqrt{3}}$

Question ID : **81616112777**
Status : **Answered**
Chosen Option : **2**

Q.12 Study the table and answer the question.

Table shows District-wise data of the number of primary school teachers posted in schools of a city.

District	Male teachers	Female teachers
East	1650	2375
North	1075	2651
West	1280	1520
South	1170	1085
Central	690	859

What is the ratio of the number of male teachers to the number of female teachers in the city?

Ans

✗ 1. 195 : 283

✗ 2. 78 : 113

✗ 3. 586 : 849

✓ 4. 391 : 566

Question ID : **81616112677**
Status : **Marked For Review**
Chosen Option : **3**

Q.13 $\frac{\text{cosec}\,\theta}{\text{cosec}\,\theta-1}+\frac{\text{cosec}\,\theta}{\text{cosec}\,\theta+1}-\tan^2\theta,\ 0°<\theta<90°,$ is equal to:

Ans
1. ✗ $2\sec^2\theta$
2. ✓ $\sec^2\theta+1$
3. ✗ $\sec^2\theta$
4. ✗ $1-\tan^2\theta$

Question ID : **81616114090**
Status : **Answered**
Chosen Option : **2**

Q.14 If the 5-digit number $676xy$ is divisible by 3, 7 and 11, then what is the value of $(3x-5y)$?

Ans
1. ✗ 10
2. ✗ 7
3. ✓ 9
4. ✗ 11

Question ID : **81616113969**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.15 A chord 21 cm long is drawn in a circle of diameter 25 cm. The perpendicular distance of the chord from the centre is:

Ans
1. ✗ $\sqrt{41}$
2. ✗ $\sqrt{23}$
3. ✗ $\sqrt{56}$
4. ✓ $\sqrt{46}$

Question ID : **81616113377**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.16 Let $\Delta ABC \sim \Delta PQR$ and $\frac{ar(\Delta ABC)}{ar(\Delta QPR)} = \frac{144}{49}$. If AB = 12 cm, BC = 7 cm and AC = 9 cm, then PR (in cm) is equal to:

Ans

✗ 1. 12

✗ 2. $\frac{49}{12}$

✗ 3. $\frac{108}{7}$

✓ 4. $\frac{21}{4}$

Question ID : **81616113380**
Status : **Answered**
Chosen Option : **4**

Q.17 To do a certain work, A and B work on alternate days with B beginning the work on the first day. A alone can complete the same work in 24 days. If the work gets completed in $11\frac{1}{3}$ days, then B alone can complete $\frac{7}{9}$th part of the original work in:

Ans

✗ 1. $5\frac{1}{2}$ days

✗ 2. 4 days

✗ 3. $4\frac{1}{2}$ days

✓ 4. 6 days

Question ID : **81616113977**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.18 Study the table and answer the question.

In the table, production and sale (in 1000 tonnes) of a certain product of a company over 5 years is given.

years	Production (in 1000 tonnes)	Sale (in 1000 tonnes)
2015	1250	1000
2016	1400	1290
2017	1450	1100
2018	1500	1450
2019	1600	1390

In which year(s) sale is more than 90% of the production?

Ans

✓ 1. 2016, 2018

✗ 2. 2017, 2018

✗ 3. 2015, 2017, 2019

✗ 4. 2016, 2017

Question ID : **81616112679**
Status : **Answered**
Chosen Option : **1**

Q.19 A shopkeeper earns a profit of 21% after selling a book at 21% discount on the printed price. The ratio of the cost price and selling price of the book is:

Ans
1. 100 : 79
2. 100 : 121
3. 79 : 100
4. 121 : 100

Question ID : **81616113063**
Status : **Answered**
Chosen Option : **2**

Q.20 If $x + \frac{1}{x} = 4$, then the value of $x^5 + \frac{1}{x^5}$ is:

Ans
1. 736
2. 776
3. 684
4. 724

Question ID : **81616113982**
Status : **Answered**
Chosen Option : **4**

Q.21 If $x + y = 4$ and $\frac{1}{x} + \frac{1}{y} = \frac{16}{15}$, then what is the value of $(x^3 + y^3)$?

Ans
1. 18
2. 19
3. 21
4. 16

Question ID : **81616113879**
Status : **Answered**
Chosen Option : **4**

Q.22 The value of $20 \div 5\ of\ 8 \times [9 \div 6 \times (6 - 3)] - (10 \div 2\ of\ 20)$ is:

Ans
1. 6
2. 1
3. 0
4. 2

Question ID : **81616113869**
Status : **Answered**
Chosen Option : **4**

Q.23 X, Y are two points in a river. Points P and Q divide the straight line XY into three equal parts. The river flows along XY and the time taken by a boat to row from X to Q and from Y to Q are in the ratio 4 : 5. The ratio of the speed of the boat downstream to that of the river current is equal to:

Ans

1. ✗ 3 : 10
2. ✗ 3 : 4
3. ✓ 10 : 3
4. ✗ 4 : 3

Question ID : **81616113069**
Status : **Not Answered**
Chosen Option : **--**

Q.24 What is the compound interest (in ₹) on a sum of ₹8192 for $1\frac{1}{4}$ years at 15% per annum, if interest is compounded 5- monthly?

Ans

1. ✗ 1640
2. ✗ 1740
3. ✓ 1634
4. ✗ 1735

Question ID : **81616113976**
Status : **Answered**
Chosen Option : **3**

Q.25 If $8(x+y)^3 - 27(x-y)^3 = (5y-x)(Ax^2+By^2+Cxy)$, then what is the value of (A + B - C)?

Ans

1. ✗ 16
2. ✗ -26
3. ✓ 36
4. ✗ -16

Question ID : **81616113072**
Status : **Answered**
Chosen Option : **4**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	Gagan Pratap Maths
Venue Name	
Exam Date	13/08/2021
Exam Time	12:00 PM - 1:00 PM
Subject	Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 The value of $3 \div 18\ of\ 3 \times 6 - 22 \times 6 \div 18 - 3 \div 2 + 10 - 3 \div 9\ of\ 3 \times 9$ is:

Ans

✗ 1. $-\frac{1}{3}$

✗ 2. $-\frac{1}{2}$

✓ 3. $\frac{1}{2}$

✗ 4. $\frac{1}{3}$

Question ID : **81616113566**
Status : **Answered**
Chosen Option : **3**

Q.2 In a triangle ABC AB : AC = 5 : 2, BC = 9 cm. BA is produced to D, and the bisector of the Angle CAD meets BC produced at E. What is the length (in cm) of CE?

Ans

✗ 1. 9

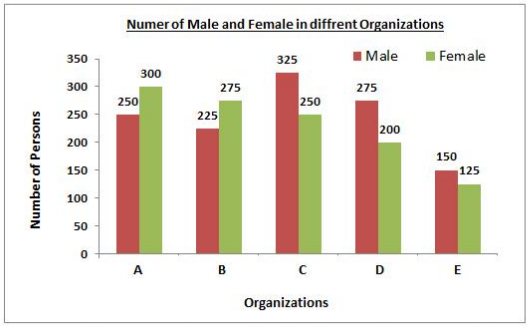
✗ 2. 10

✓ 3. 6

✗ 4. 3

Question ID : **81616113581**
Status : **Answered**
Chosen Option : **3**

Q.3 Number of male and female members in different organizations A, B, C, D and E are given in the bar graph.



What is the ratio of average number of females in all the five organizations to the average number of males in all the five organizations?

Ans

✗ 1. $49 : 51$

✓ 2. $46 : 49$

✗ 3. $49 : 46$

✗ 4. $51 : 49$

Question ID : **81616113283**
Status : **Answered**
Chosen Option : **2**

Q.4 If $2cos^2\theta = 3sin\theta, 0° < \theta < 90°$, then the value of $(sec^2\theta - tan^2\theta + cos^2\theta)$ is:

Ans

✓ 1. $\frac{7}{4}$

✗ 2. $\frac{5}{4}$

✗ 3. $\frac{9}{4}$

✗ 4. $\frac{3}{4}$

Question ID : **81616113078**
Status : **Answered**
Chosen Option : **1**

Q.5 Surbhi sold an article for ₹ 176 after giving 12% discount on its marked price. Had she not given any discount; she would have earned a profit of 25%. What is the cost price (in ₹) of the article?

Ans

✗ 1. 150

✓ 2. 160

✗ 3. 145

✗ 4. 165

Question ID : **81616114275**
Status : **Answered**
Chosen Option : **2**

Q.6 If $x - y = 11$ and $\frac{1}{x} - \frac{1}{y} = \frac{11}{24}$, then what is the value of $x^3 - y^3 + x^2y^2$?

Ans
1. 1331 ✗
2. 1115 ✓
3. 1105 ✗
4. 1307 ✗

Question ID : **81616114284**
Status : **Answered**
Chosen Option : **2**

Q.7 **A 240 m long train overtakes a man walking at 6 km/h, in the same direction, in 9 seconds. How much time (in seconds) will it take to pass a 372 m long tunnel with the same speed?**

Ans
1. 21.6 ✓
2. 20 ✗
3. 18 ✗
4. 20.4 ✗

Question ID : **81616114281**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.8 If length of a rectangle is increased to its three times and breadth is decreased to its half, then the ratio of the area of given rectangle to the area of new rectangle is:

Ans
1. 3 : 2 ✗
2. 3 : 1 ✗
3. 2 : 3 ✓
4. 1 : 3 ✗

Question ID : **81616113575**
Status : **Answered**
Chosen Option : **3**

Q.9 A shopkeeper sold two articles for ₹10591 each. On one he gained 19% and on the other he lost 11%. What was his overall gain or loss percent (correct to one decimal place)?

Ans
1. Loss 2.7% ✗
2. Loss 10% ✗
3. Profit 5% ✗
4. Profit 1.8% ✓

Question ID : **81616113570**
Status : **Answered**
Chosen Option : **4**

Q.10 In a class of 90 students 60% are girls and remaining are boys. Average marks of boys are 63 and that of girls are 70. What are the average marks of the whole class?

Ans

✗ 1. 58.9

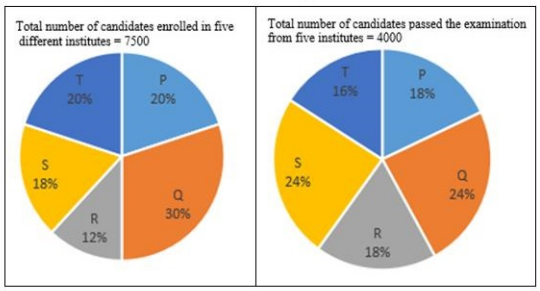
✗ 2. 65.3

✗ 3. 66.7

✓ 4. 67.2

Question ID : **81616113567**
Status : **Answered**
Chosen Option : **4**

Q.11 The following pie charts represent the distribution of candidates who were enrolled for a competitive examination, and the candidates (out of those enrolled) who passed the exam from five different institutes P, Q, R, S and T.



What is the ratio of the total number of candidates enrolled in institutes Q, R and S together, to the number of candidates passed from the institutes Q, R and S together?

Ans

✗ 1. 15 : 71

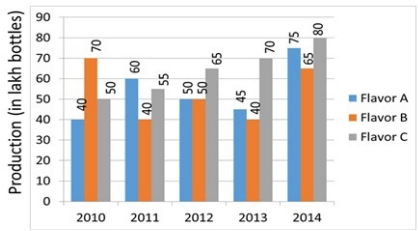
✗ 2. 71 : 15

✗ 3. 44 : 75

✓ 4. 75 : 44

Question ID : **81616113690**
Status : **Answered**
Chosen Option : **4**

Q.12 Cough syrup of three different flavors - A, B and C (in lakh bottles) manufactured by a medicine company over a period of five years from 2010 to 2014 has been shown in the bar graph.



The ratio of the average production of all flavors in 2012 to the difference of the average production of flavor A in 2012, 2013 and 2014 and the average production of flavor C in 2012, 2013 and 2014 is :

Ans

✗ 1. 26 : 15

✗ 2. 15 : 26

✓ 3. 11 : 3

✗ 4. 3 : 11

Question ID : **81616113285**
Status : **Answered**
Chosen Option : **3**

Q.13 In ΔABC, D and E are the points on sides AB and AC, respectively such that $\angle ADE = \angle B$. If AD = 7 cm, BD = 5 cm and BC = 9 cm, then DE (in cm) is equal to:

Ans

✗ 1. 6.75

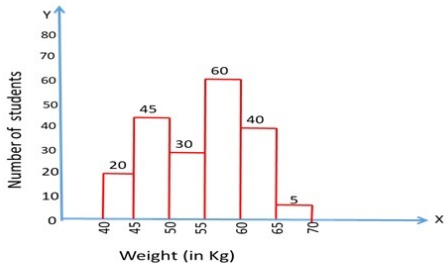
✗ 2. 10

✓ 3. 5.25

✗ 4. 7

Question ID : **81616113582**
Status : **Answered**
Chosen Option : **3**

Q.14 The histogram shows the weights of students of class X in a school.



Let x be the number of students whose weight is less than 50 kg and y be the number of the students whose weight is greater than or equal to 60 kg. What is the value of x : y ?

Ans

✓ 1. 13 : 9

✗ 2. 9 : 13

✗ 3. 11 : 13

✗ 4. 13 : 11

Question ID : **81616113688**
Status : **Answered**
Chosen Option : **1**

Q.15 Eighteen persons working 8 hours a day can complete 3 units of work in 10 days. How many days are required by 25 persons to complete 5 units of work working 6 hours a day?

Ans

✗ 1. 20

✗ 2. 12

✓ 3. 16

✗ 4. 10

Question ID : **81616113068**
Status : **Answered**
Chosen Option : **3**

Q.16 If $16x^2 + y^2 = 48$ and $xy = 2,\ x,\ y > 0,$ then the value of $(64x^3 + y^3)$ is:

Ans

✓ 1. 320

✗ 2. 340

✗ 3. 300

✗ 4. 240

Question ID : **81616113576**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.17 In a circle with centre O, AD is a diameter and AC is a chord. Point B is on AC such that OB = 7 cm and ∠OBA = 60°. If ∠DOC = 60°, then what is the length of BC (in cm)?

Ans

✔ 1. 7

✘ 2. 9

✘ 3. 5

✘ 4. 3.5

Question ID : **81616113579**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.18 ABCD is a cyclic quadrilateral. Diagonals BD and AC intersect each other at E. If ∠BEC = 138° and ∠ECD = 35°, then what is the measure of ∠BAC?

Ans

✘ 1. 133°

✔ 2. 103°

✘ 3. 113°

✘ 4. 123°

Question ID : **81616113075**
Status : **Answered**
Chosen Option : **2**

Q.19 If a five digit number 247xy is divisible by 3, 7 and 11, then what is the value of (2y-8x)?

Ans

✔ 1. 6

✘ 2. 17

✘ 3. 9

✘ 4. 11

Question ID : **81616113060**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.20 Radha saves 25% of her income. If her expenditure increases by 20% and her income increases by 29%, then her savings increase by :

Ans

✔ 1. 56%

✘ 2. 52%

✘ 3. 65%

✘ 4. 70%

Question ID : **81616113064**
Status : **Answered**
Chosen Option : **1**

Q.21 The rate of simple interest for first two years is 8% p.a., for the next 4 years, it is 10% p.a. and for the period beyond 6 years, it is 12% p.a. If a person gets ₹18358.60 as simple interest after 9 years, then how much money (in ₹) did he invest?

Ans
1. 21075
2. 20087
3. 19674
4. 19955

Question ID : **81616113067**
Status : **Answered**
Chosen Option : **4**

Q.22 If $x - \frac{1}{x} = 5, x \neq 0$, then what is the value of $\frac{x^6 - 5x^3 - 1}{x^6 + 7x^3 - 1}$?

Ans
1. $\frac{41}{45}$
2. $\frac{45}{41}$
3. $\frac{45}{49}$
4. $\frac{49}{45}$

Question ID : **81616113073**
Status : **Answered**
Chosen Option : **3**

Q.23 The value of

$$\frac{2\sin^2 30° \tan 60° - 3\cos^2 60° \sec^2 30°}{4\cot^2 45° - \sec^2 60° + \sin^2 60° + \cos^2 90°}$$ is:

Ans
1. $\frac{2(\sqrt{3}+2)}{3}$
2. $\frac{1}{3}(\sqrt{3}-2)$
3. $\frac{2(\sqrt{3}-2)}{3}$
4. $\frac{1}{3}(\sqrt{3}+2)$

Question ID : **81616113988**
Status : **Not Answered**
Chosen Option : **--**

Q.24 Find the value of $\frac{8\sin 30°\sin^2 60°-4\sin 90°-\sec^2 45°}{\tan^2 45°-\cot^2 30°}$.

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

Question ID : **81616112878**
Status : **Not Answered**
Chosen Option : **--**

Q.25 The ratio of two numbers A and B is 5 : 8. If 5 is added to each of A and B, then the ratio of A and B becomes 2 : 3. The sum of A and B is:

Ans
✘ 1. 42
✘ 2. 78
✔ 3. 65
✘ 4. 91

Question ID : **81616114278**
Status : **Not Answered**
Chosen Option : **--**

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	**Gagan Pratap Maths**
Venue Name	
Exam Date	13/08/2021
Exam Time	3:00 PM - 4:00 PM
Subject	Combined Graduate Level Examination 2020 Tier 1 VH

Section : **Quantitative Aptitude**

Q.1 The value of $14 - 20 \times [7 - \{18 \div 2 \text{ of } 3 - (15 - 25 \div 5 \times 4)\}]$ is:

Ans

✗ 1. 0

✗ 2. 24

✗ 3. 6

✓ 4. 34

Question ID : **81616114396**
Status : **Answered**
Chosen Option : **4**

Q.2 A circle touches all the four sides of a quadrilateral $ABCD$ whose sides are $AB = 8.4\,cm, BC = 9.8\,cm$ and $CD = 5.6\,cm$. The length of side AD, in cm, is:

Ans
✗ 1. 4.9
✓ 2. 4.2
✗ 3. 3.8
✗ 4. 2.8

Question ID : **81616113882**
Status : **Answered**
Chosen Option : **2**

Q.3 If $2x^2 - 8x - 1 = 0$, then what is the value of $8x^3 - \frac{1}{x^3}$?

Ans
✓ 1. 560
✗ 2. 540
✗ 3. 524
✗ 4. 464

Question ID : **81616114283**
Status : **Answered**
Chosen Option : **1**

Q.4 A, B and C divide a certain sum of money among themselves. The average of the amounts with them is ₹4520. Share of A is $10\frac{2}{3}\%$ more than share of B and $33\frac{1}{3}\%$ less than share of C. What is the share of B (in ₹)?

Ans
✗ 1. 3500
✗ 2. 5976
✓ 3. 3600
✗ 4. 3984

Question ID : **81616112660**
Status : **Answered**
Chosen Option : **3**

Q.5 If $3\tan\theta = 2\sqrt{3}\sin\theta,\ 0° < \theta < 90°$, then find the value of $2\sin^2 2\theta - 3\cos^2 3\theta$.

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

Question ID : **81616112674**
Status : **Answered**
Chosen Option : **2**

Q.6 The area of a circular park is 12474 m^2 . There is 3.5 m wide path around the park. What is the area (in m^2) of the path? (Take $\pi = \frac{22}{7}$)

Ans

✔ 1. 1424.5

✗ 2. 1435.5

✗ 3. 1380.5

✗ 4. 1440.5

Question ID : **81616113878**
Status : **Answered**
Chosen Option : **1**

Q.7 In $\triangle ABC, \angle C = 90°$ and Q is the midpoint of BC. If $AB = 10\ cm$ and $AC = 2\sqrt{10}\ cm$, then the length of AQ is :

Ans

✔ 1. $\sqrt{55}\ cm$

✗ 2. $5\sqrt{3}\ cm$

✗ 3. $5\sqrt{2}\ cm$

✗ 4. $3\sqrt{5}\ cm$

Question ID : **81616113885**
Status : **Answered**
Chosen Option : **1**

Q.8 The cost price of an article is ₹280. A shopkeeper sells it by allowing 16% discount on its marked price and still gains 20%. What is the marked price (in ₹) of the article?

Ans

✔ 1. 400

✗ 2. 360

✗ 3. 420

✗ 4. 350

Question ID : **81616114377**
Status : **Answered**
Chosen Option : **1**

Q.9 A and B can do a certain work in 18 days and 30 days, respectively. They work together for 5 days. C alone completes the remaining work in 15 days. A and C together can complete $\frac{5}{6}$th part of the same work in:

Ans

✗ 1. 6 days

✗ 2. 8 days

✔ 3. 9 days

✗ 4. 5 days

Question ID : **81616114378**
Status : **Answered**
Chosen Option : **3**

Q.10 $\triangle ABC \sim \triangle DEF$ and the area of $\triangle ABC$ is 13.5 cm^2 and the area of $\triangle DEF$ is 24 cm^2. If BC = 3.15 cm, then the length (in cm) of EF is:

Ans
✗ 1. 4.8
✗ 2. 3.9
✗ 3. 5.1
✓ 4. 4.2

Question ID : **81616114288**
Status : **Answered**
Chosen Option : **4**

Q.11 Atul purchased Bread costing ₹20 and gave a 100 rupee note to the shopkeeper. The shopkeeper gave the balance money in coins of denomination ₹2, ₹5 and ₹10. If these coins are in the ratio 5 : 4 : 1, then how many ₹5 coins did the shopkeeper give?

Ans
✗ 1. 5
✗ 2. 6
✓ 3. 8
✗ 4. 4

Question ID : **81616112864**
Status : **Not Answered**
Chosen Option : **--**

Q.12 The value of $90 \div 20 \text{ of } 6 \times [11 \div 4 \text{ of } \{3 \times 2 - (3 - 8)\}] \div (9 \div 3 \times 2)$ is:

Ans
✗ 1. $\frac{1}{36}$
✓ 2. $\frac{1}{32}$
✗ 3. $\frac{9}{8}$
✗ 4. $\frac{3}{8}$

Question ID : **81616114273**
Status : **Answered**
Chosen Option : **2**

Q.13 The average of eleven numbers is 56. The average of first three numbers is 52 and that of next five numbers is 60. The 9th and 10th number are 3 and 1 more than the 11th number respectively. What is the average of 9th and 11th numbers?

Ans
✓ 1. 53.5
✗ 2. 52
✗ 3. 52.5
✗ 4. 54

Question ID : **81616113870**
Status : **Answered**
Chosen Option : **1**

Q.14 The radii of two concentric circles are 12 cm and 13 cm. AB is a diameter of the bigger circle. BD is a tangent to a smaller circle touching it at D. Find the length (in cm) of AD? (correct to one decimal place)

Ans
✔ 1. 24.5
✘ 2. 23.5
✘ 3. 25.5
✘ 4. 17.6

Question ID : **81616112671**
Status : **Not Answered**
Chosen Option : **--**

Q.15 A train running at $40\frac{1}{2}$ km/h takes 24 seconds to cross a pole. How much time (in seconds) will it take to pass a 450 m long bridge?

Ans
✘ 1. 56
✘ 2. 52
✘ 3. 60
✔ 4. 64

Question ID : **81616114391**
Status : **Answered**
Chosen Option : **4**

Q.16 If $x^4 + \frac{1}{x^4} = 727,\ x > 1,$ then what is the value of $\left(x - \frac{1}{x}\right)$?

Ans
✘ 1. 6
✘ 2. -6
✘ 3. -5
✔ 4. 5

Question ID : **81616112669**
Status : **Answered**
Chosen Option : **4**

Q.17 Find the greatest value of b so that 30a68b (a>b) is divisible by 11.

Ans
✘ 1. 4
✘ 2. 9
✔ 3. 3
✘ 4. 6

Question ID : **81616112656**
Status : **Answered**
Chosen Option : **3**

Q.18 A trader bought 640 kg of rice. He sold a part of rice at 20% profit and the rest at 5% loss. He earned a profit of 15% in the entire transaction. What is the quantity (in kg) of rice that he sold at 5% loss?

Ans

✔ 1. 128

✘ 2. 132

✘ 3. 154

✘ 4. 256

Question ID : **81616114277**
Status : **Answered**
Chosen Option : **1**

Q.19 If $x-\frac{1}{x}=1$, then what is the value of $x^8+\frac{1}{x^8}$?

Ans

✘ 1. 3

✘ 2. 119

✔ 3. 47

✘ 4. -1

Question ID : **81616112870**
Status : **Answered**
Chosen Option : **3**

Q.20 A train is to cover 370 km at a uniform speed. After running 100 km, the train could run at a speed 5 km/h less than its normal speed due to some technical fault. The train got delayed by 36 minutes. What is the normal speed of the train, in km/h?

Ans

✘ 1. 48

✘ 2. 45

✘ 3. 40

✔ 4. 50

Question ID : **81616112867**
Status : **Not Answered**
Chosen Option : **--**

Q.21 Two equal sums were lent on simple interest at 6% and 10% per annum respectively. The first sum was recovered two years later than the second sum and the amount in each case was ₹1105. What was the sum (in ₹) lent in each scheme?

Ans

✘ 1. 900

✔ 2. 850

✘ 3. 936

✘ 4. 891

Question ID : **81616112663**
Status : **Answered**
Chosen Option : **2**

Q.22 If $3sec\theta + 4\cos\theta - 4\sqrt{3} = 0$ where θ is an acute angle then the value of θ is:

Ans

✗ 1. $20°$

✓ 2. $30°$

✗ 3. $60°$

✗ 4. $45°$

Question ID : **81616113079**
Status : **Answered**
Chosen Option : **2**

Q.23 The value of

$$\frac{\tan(45°-\alpha)}{\cot(45°+\alpha)} - \frac{(\cos 19°+\sin 71°)(\sec 19°+\operatorname{cosec} 71°)}{\tan 12°\tan 24°\tan 66°\tan 78°}$$ is:

Ans

✓ 1. -3

✗ 2. 0

✗ 3. -2

✗ 4. 2

Question ID : **81616114292**
Status : **Answered**
Chosen Option : **1**

Q.24 A man and a woman, working together can do a work in 66 days. The ratio of their working efficiencies is 3 : 2. In how many days 6 men and 2 women working together can do the same work?

Ans

✗ 1. 18

✓ 2. 15

✗ 3. 14

✗ 4. 12

Question ID : **81616112664**
Status : **Not Answered**
Chosen Option : **--**

Q.25 A shopkeeper marks his goods 30% higher than the cost price and allows a discount of 10% on the marked price. In order to earn 6.5% more profit, what discount percent should he allow on the marked price?

Ans

✗ 1. 6

✗ 2. 5.5

✗ 3. 4

✓ 4. 5

Question ID : **81616112861**
Status : **Answered**
Chosen Option : **4**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 16/08/2021
Exam Time 9:00 AM - 10:00 AM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 On selling an article for ₹246.80, the gain is 20% more than the amount of loss incurred on selling it for ₹216. If the article is sold for ₹220.75, then what is the gain/loss percent (correct to nearest integer)?

Ans
✗ 1. Loss 5%
✓ 2. Loss 4%
✗ 3. Profit 7%
✗ 4. Profit 3%

Question ID : **81616113267**
Status : **Answered**
Chosen Option : **2**

Q.2 Ratio of the present age of a mother to that of the daughter is 7 : 1. After 5 years the ratio will become 4 : 1. What is the difference (in years) in their present ages?

Ans
✓ 1. 30
✗ 2. 28
✗ 3. 29
✗ 4. 31

Question ID : **81616112763**
Status : **Answered**
Chosen Option : **1**

Q.3 Table shows income (in ₹) received by 4 employees of a company during the month of December 2020 and all their income sources.

Source	Amit	Suresh	Nitin	Varun
Salary	35000	38500	29000	42000
Arrears	6000	6300	5000	7500
Bonus	1000	1100	1000	1240
Overtime	1800	1950	1400	1500

By what percent are the Arrears of Amit and Suresh taken together less than the Arrears of Nitin and Varun taken together?

Ans

✗ 1. 1.2

✗ 2. 1.5

✓ 3. 1.6

✗ 4. 1.4

Question ID : **81616112478**
Status : **Answered**
Chosen Option : **3**

Q.4 The average of 22 numbers is 37.5. The average of first 12 numbers is 40.6 and that of the last 12 numbers is 35.4. If 11th and 12th numbers are excluded, then what is the average of the remaining numbers?

Ans

✓ 1. 36.9

✗ 2. 37.4

✗ 3. 36.4

✗ 4. 37.8

Question ID : **81616114274**
Status : **Marked For Review**
Chosen Option : **3**

Q.5 $x + y + z = 2$ and $xy + yz + zx = -11$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is :

Ans

✗ 1. 78

✗ 2. 69

✓ 3. 74

✗ 4. 71

Question ID : **81616113780**
Status : **Answered**
Chosen Option : **3**

Q.6 Angle between the internal bisectors of two angles $\angle B$ and $\angle C$ of a ΔABC is $132°$, then the value of $\angle A$ is:

Ans
✔ 1. $84°$
✘ 2. $62°$
✘ 3. $48°$
✘ 4. $72°$

Question ID : **81616113278**
Status : **Answered**
Chosen Option : **1**

Q.7 $1 + 2\tan^2\theta + 2\sin\theta\sec^2\theta, 0° < \theta < 90°$, is equal to :

Ans
✘ 1. $\frac{1-\sin\theta}{1+\sin\theta}$
✘ 2. $\frac{1+\cos\theta}{1-\cos\theta}$
✘ 3. $\frac{1-\cos\theta}{1+\cos\theta}$
✔ 4. $\frac{1+\sin\theta}{1-\sin\theta}$

Question ID : **81616113787**
Status : **Marked For Review**
Chosen Option : **2**

Q.8 A train runs first 75 km at a certain uniform speed and next 90 km at an average speed of 10 km/h more than the normal speed. If it takes 3 hours to complete the journey, then how much time will the train take to cover 300 km with normal speed?

Ans
✘ 1. 5 hours 15 minutes
✘ 2. 5 hours
✔ 3. 6 hours
✘ 4. 5 hours 25 minutes

Question ID : **81616112766**
Status : **Not Answered**
Chosen Option : **--**

Q.9 If $a^3 + b^3 = 405$ and $a + b = 9$, then the value of ab is

Ans
✘ 1. 15
✘ 2. 10
✔ 3. 12
✘ 4. 8

Question ID : **81616113273**
Status : **Answered**
Chosen Option : **3**

Q.10 If $3\cos^2\theta - 4\sin\theta + 1 = 0, 0° < \theta < 90°$, then $\tan\theta + \sec\theta = ?$

Ans

✗ 1. $2\sqrt{3}$

✗ 2. $2\sqrt{5}$

✗ 3. $3\sqrt{3}$

✓ 4. $\sqrt{5}$

Question ID : **81616113785**
Status : **Answered**
Chosen Option : **4**

Q.11 Table shows the number of trees planted in 4 cities from 2016 to 2020.

Years	Chandigarh	Ahmadabad	Pune	Kolkata
2016	1800	2500	1800	2000
2017	2500	2300	1850	1800
2018	2300	2400	1840	1760
2019	2440	1950	1900	1600
2020	2250	2100	2000	1750

From 2016 to2020, how many more trees were planted in Ahmedabad as compared to trees planted in Pune?

Ans

✗ 1. 2340

✗ 2. 2000

✗ 3. 1850

✓ 4. 1860

Question ID : **81616112476**
Status : **Marked For Review**
Chosen Option : **4**

Q.12 If the 6-digit number $5x423y$ is divisible by 88, then what is the value of $(5x - 8y)$?

Ans

✗ 1. 28

✗ 2. 14

✗ 3. 16

✓ 4. 24

Question ID : **81616113767**
Status : **Answered**
Chosen Option : **4**

Q.13 In a circle with center O, AB is a diameter and CD is a chord such that $\angle ABC = 34°$ and CD = BD. What is the measure of $\angle DBC$?

Ans

✗ 1. 30°

✗ 2. 24°

✗ 3. 32°

✓ 4. 28°

Question ID : **81616114286**
Status : **Answered**
Chosen Option : **3**

Q.14 If $\frac{cosec\theta+cot\theta}{cosec\theta-cot\theta} = 7$, then the value of $\frac{4\sin^2\theta-1}{4\sin^2\theta+5}$ is:

Ans

✗ 1. $\frac{1}{3}$

✗ 2. $-\frac{1}{3}$

✗ 3. $-\frac{1}{9}$

✓ 4. $\frac{1}{9}$

Question ID : **81616113281**
Status : **Answered**
Chosen Option : **4**

Q.15 A can do a certain work in 15 days. B is 25% more efficient than A. Both worked together for 4 days. C alone completed the remaining work in 8 days. A, B and C together will complete the same work in ?

Ans

✓ 1. 5 days

✗ 2. $4\frac{1}{2}$ days

✗ 3. $6\frac{1}{2}$ days

✗ 4. 4 days

Question ID : **81616113775**
Status : **Answered**
Chosen Option : **1**

Q.16 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in five institutes - A, B, C, D & E.

Year / Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
B	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

The total number of students enrolled for VC in institute C in 2013, 2014 and 2017 is what percent of the total number of students enrolled in all the five institutes in 2018?

Ans

✗ 1. 62

✓ 2. 55

✗ 3. 53

✗ 4. 58

Question ID : **81616114093**
Status : **Answered**
Chosen Option : **2**

Q.17 A sum of ₹7500 amounts to ₹9075 at 10% p.a, interest being compounded yearly in a certain time. The simple interest (in ₹) on the same sum for the same time and the same rate is :

Ans

✔ 1. 1500

✗ 2. 1480

✗ 3. 1520

✗ 4. 1530

Question ID : **81616113774**
Status : **Answered**
Chosen Option : **1**

Q.18 In △ ABC, ∠ A = 90 °, AD ⊥ BC at D. If AB = 12 cm and AC = 16 cm, then what is the length (in cm) of BD?

Ans

✗ 1. 8.4

✗ 2. 7.8

✔ 3. 7.2

✗ 4. 6.4

Question ID : **81616114289**
Status : **Answered**
Chosen Option : **3**

Q.19 If $\left(2x-\frac{3}{x}\right)=2$, then what is the value of $\left(16x^4+\frac{81}{x^4}\right)$?

Ans

✔ 1. 184

✗ 2. 328

✗ 3. 180

✗ 4. 220

Question ID : **81616112769**
Status : **Answered**
Chosen Option : **1**

Q.20 The selling price of an article marked for ₹10000 after giving three discounts, 20%, 10% and k% is ₹6120. What will be selling price (in ₹) of the same article if a single discount of (k + 20)% is allowed?

Ans

✔ 1. 6500

✗ 2. 8500

✗ 3. 6800

✗ 4. 8000

Question ID : **81616112760**
Status : **Answered**
Chosen Option : **1**

Q.21 The value of $\frac{52-1170\div26+13\times2}{2+1\frac{1}{8}\text{ of }2-1\frac{1}{4}}$ is:

Ans

✔ 1. 11

✘ 2. 12

✘ 3. 41

✘ 4. 27

Question ID : **81616113263**
Status : **Answered**
Chosen Option : **2**

Q.22 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in five institutes - A, B, C, D & E.

Year / Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
B	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

The ratio of the total number of students enrolled for VC in institutes A, C and E in 2016 to the total number of students enrolled in institutes B and D in 2018, is

Ans

✘ 1. 14 : 9

✔ 2. 3 : 2

✘ 3. 21 : 19

✘ 4. 8 : 7

Question ID : **81616114091**
Status : **Answered**
Chosen Option : **2**

Q.23 The income of A is 30% less than the income of B and the income of B is 137.5% more than that of C. If the income of A is ₹28500 less than that of B, then the income (in ₹) of C is :

Ans

✔ 1. 40000

✘ 2. 50000

✘ 3. 48000

✘ 4. 36000

Question ID : **81616113771**
Status : **Not Answered**
Chosen Option : **--**

Q.24 In a circle with center O and radius 5 cm, AB and CD are two parallel chords of lengths 6 cm and x cm, respectively and the chords are on the opposite side of the centre O. The distance between the chords is 7 cm. What is the value of x?

Ans

✗ 1. 12

✓ 2. 8

✗ 3. 10

✗ 4. 9

Question ID : **81616113782**
Status : **Answered**
Chosen Option : **2**

Q.25 What is the area (in cm^2) of a circle inscribed in a square of area 784 cm^2? (Take $\pi = \frac{22}{7}$)

Ans

✗ 1. 660

✓ 2. 616

✗ 3. 924

✗ 4. 462

Question ID : **81616114282**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 16/08/2021
Exam Time 12:00 PM - 1:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 In a triangle ABC, point D lies on AB, and points E and F lie on BC such that DF is parallel to AC and DE is parallel to AF. If BE = 4 cm, CF = 3 cm, then find the length (in cm) of EF.

Ans
✗ 1. 3
✗ 2. 1.5
✗ 3. 5
✓ 4. 2

Question ID : **81616112572**
Status : **Answered**
Chosen Option : **4**

Q.2 In $\triangle ABC, AB = 20\,cm, BC = 21\,cm$ and $AC = 29\,cm$. What is the value of $cot\,C + cosec\,C - 2\,tan\,A$?

Ans
✗ 1. $\frac{9}{20}$
✗ 2. $\frac{7}{20}$
✓ 3. $\frac{2}{5}$
✗ 4. $\frac{3}{5}$

Question ID : **81616113786**
Status : **Answered**
Chosen Option : **3**

Q.3 Table shows income (in ₹) received by 4 employees of a company during the month of December 2020 and all their income sources.

Source	Amit	Suresh	Nitin	Varun
Salary	35000	38500	29000	42000
Arrears	6000	6300	5000	7500
Bonus	1000	1100	1000	1240
Overtime	1800	1950	1400	1500

By what percent is the bonus of Varun less than the bonus of Amit and Nitin taken together?

Ans

✔ 1. 38

✗ 2. 40.9

✗ 3. 45

✗ 4. 48

Question ID : **81616112579**
Status : **Answered**
Chosen Option : **1**

Q.4 AB is a diameter of a circle. C and D are points on the opposite sides of the diameter AB, such that $\angle ACD = 25°$. E is a point on the minor arc BD. Find the measure of $\angle BED$ (in degrees).

Ans

✔ 1. 115

✗ 2. 105

✗ 3. 130

✗ 4. 125

Question ID : **81616112267**
Status : **Answered**
Chosen Option : **1**

Q.5 Three shopkeepers A, B and C marked an identical article at ₹4820. A, B and C sold their article on successive discounts of 20% and 20%; 25% and 15%; 30% and 10% respectively. Which shopkeeper gives the maximum discount and how much (in Rs)?

Ans

✗ 1. C,1780

✗ 2. A,1735.20

✗ 3. B, 1800

✔ 4. C,1783.40

Question ID : **81616112962**
Status : **Answered**
Chosen Option : **4**

Q.6 If the nine-digit number 7p5964q28 is completely divisible by 88, what is the value of $(p^2 - q)$, for the largest value of q, where p and q are natural numbers?

Ans
✔ 1. 72
✘ 2. 9
✘ 3. 0
✘ 4. 81

Question ID : **81616112252**
Status : **Answered**
Chosen Option : **1**

Q.7 If $a - \frac{12}{a} = 1$, where $a > 0$, then the value of $a^2 + \frac{16}{a^2}$ is:

Ans
✘ 1. 15
✔ 2. 17
✘ 3. 11
✘ 4. 19

Question ID : **81616113172**
Status : **Answered**
Chosen Option : **2**

Q.8 From an external point A, two tangents AB and AC have been drawn to a circle touching the circle at B and C respectively. P and Q are points on AB and AC respectively such that PQ touches the circle at R. If AB = 11 cm, AP = 7 cm and AQ = 9 cm, then find the length of PQ (in cm).

Ans
✘ 1. 8
✘ 2. 7
✘ 3. 5
✔ 4. 6

Question ID : **81616112569**
Status : **Answered**
Chosen Option : **4**

Q.9 Chamanlal, Arshad and Jagjit Singh contested an election. All the votes polled were valid. Arshad got 35% of the total votes. For every 35 votes Chamanlal got 14 votes. The winner got 4950 more votes than the person who received the least number of votes. Find the total number of votes polled.

Ans
✘ 1. 13378
✘ 2. 38000
✘ 3. 99000
✔ 4. 33000

Question ID : **81616112256**
Status : **Answered**
Chosen Option : **4**

Q.10 What is the ratio of the average of first eight prime numbers to the average of first ten even natural numbers?

Ans

✗ 1. $1:7$

✗ 2. $7:80$

✗ 3. $8:70$

✓ 4. $7:8$

Question ID : **81616112557**
Status : **Answered**
Chosen Option : **4**

Q.11 A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 4 days B had to leave. Then A working with a new worker C completed the remaining work in 3 days. If C works alone, in how many days he can do 40% of the same work?

Ans

✓ 1. 9

✗ 2. 8

✗ 3. 10

✗ 4. $8\frac{1}{2}$

Question ID : **81616112260**
Status : **Answered**
Chosen Option : **1**

Q.12 $\frac{cot^3\theta}{cosec^2\theta} + \frac{tan^3\theta}{sec^2\theta} + 2\,sin\,\theta\,cos\theta = ?$

Ans

✓ 1. $cosec\theta sec\theta$

✗ 2. $cosec^2\theta sec^2\theta$

✗ 3. $sin\theta cos\theta$

✗ 4. $sin^2\theta cos\theta$

Question ID : **81616112373**
Status : **Answered**
Chosen Option : **1**

Q.13 If $(16\sqrt{2}x^3 + 81\sqrt{3}y^3) \div (2\sqrt{2}x + 3\sqrt{3}y) = Ax^2 + By^2 + Cxy$, then find the value of $2A - 3B - 2\sqrt{6}C$.

Ans

✗ 1. 25

✗ 2. 79

✗ 3. 137

✓ 4. 7

Question ID : **81616112971**
Status : **Answered**
Chosen Option : **4**

Q.14 Hridaya opened her piggy bank and found coins of denomination ₹1, ₹2, ₹5 and ₹ 10 in the ratio 10 : 5 : 2 : 1. If there are 72 coins in all, then how much money (in ₹) was there in the piggy bank in the form of coins?

Ans

✔ 1. 160

✘ 2. 90

✘ 3. 72

✘ 4. 100

Question ID : **81616112965**
Status : **Answered**
Chosen Option : **1**

Q.15 The value of $3\frac{5}{6}+\left[3\frac{2}{3}+\left\{\frac{15}{4}\left(5\frac{4}{5}\div 14\frac{1}{2}\right)\right\}\right]$ is equal to:

Ans

✔ 1. 9

✘ 2. 6

✘ 3. 7

✘ 4. 8

Question ID : **81616113162**
Status : **Answered**
Chosen Option : **1**

Q.16 If $4x^4 - 37x^2 + 9 = 0, x > \sqrt{\frac{3}{2}}$, then what is the value of $8x^3 - \frac{27}{x^3}$?

Ans

✔ 1. 215

✘ 2. -215

✘ 3. 35

✘ 4. -35

Question ID : **81616112265**
Status : **Answered**
Chosen Option : **1**

Q.17 A sum at a certain rate of simple interest becomes ₹14880 after 3 years and ₹16800 after 5 years. Find the simple interest on the same sum at 10% per annum for 4 years (in ₹).

Ans

✘ 1. 4740

✔ 2. 4800

✘ 3. 4860

✘ 4. 5184

Question ID : **81616112259**
Status : **Answered**
Chosen Option : **2**

Q.18 If $2\sin(3x-15)^\circ = 1, 0^\circ < (3x-15) < 90^\circ$, then find the value of $cos^2\,(2x+15)^\circ + cot^2\,(x+15)^\circ$.

Ans

✗ 1. 1

✗ 2. $\frac{5}{2}$

✗ 3. $-\frac{7}{2}$

✓ 4. $\frac{7}{2}$

Question ID : **81616112270**
Status : **Answered**
Chosen Option : **4**

Q.19 Table shows the number of trees planted in 4 cities from 2016 to 2020.

Years	Chandigarh	Ahmadabad	Pune	Kolkata
2016	1800	2500	1800	2000
2017	2500	2300	1850	1800
2018	2300	2400	1840	1760
2019	2440	1950	1900	1600
2020	2250	2100	2000	1750

In which year were the maximum number of trees planted?

Ans

✗ 1. 2018

✗ 2. 2020

✓ 3. 2017

✗ 4. 2016

Question ID : **81616112577**
Status : **Answered**
Chosen Option : **3**

Q.20 If one of the angles of a triangle is 74°, then the angle between the bisectors of the other two interior angles is:

Ans

✓ 1. 127°

✗ 2. 16°

✗ 3. 53°

✗ 4. 106°

Question ID : **81616113177**
Status : **Answered**
Chosen Option : **1**

Q.21 A train leaves station A at 8 am and reaches station B at 12 noon. A car leaves station B at 8:30 am and reaches station A at the same time when the train reaches station B. At what time do they meet?

Ans

✗ 1. 9 : 38 am

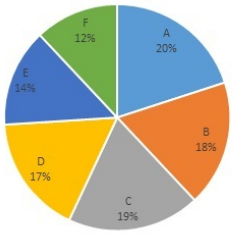
✗ 2. 10 : 22 am

✓ 3. 10 : 08 am

✗ 4. 9 : 52 am

Question ID : **81616112968**
Status : **Not Answered**
Chosen Option : **--**

Q.22 The following Pie chart represents the percentage-wise distribution of 300 students of class X in a school in six different sections A. B. C. D. E and F.



The table given below shows the number of boys of class X in six different sections A, B, C, D, E and F.

Section	A	B	C	D	E	F
No. of boys	36	26	34	28	x	20

If in section E, the ratio of the number of boys to the number of girls is 3 : 4, then the ratio of number of boys in section E to the number of girls in section C is :

Ans

✓ 1. 18 : 23

✗ 2. 24 : 23

✗ 3. 23 : 18

✗ 4. 23 : 24

Question ID : **81616113286**
Status : **Not Answered**
Chosen Option : **--**

Q.23 The bar graph shows the number of students enrolled for a science course in institutes A and B during 5 years from 2014 to 2018,

What is the ratio of the total numbers of students enrolled in institute B in 2015 and 2017 to that of students enrolled in institute A in 2014 and 2016?

Ans

✗ 1. $92 : 137$

✗ 2. $91 : 111$

✗ 3. $111 : 91$

✓ 4. $137 : 92$

Question ID : **81616113284**
Status : **Answered**
Chosen Option : **4**

Q.24 A heap of wheat is in the form of a cone whose base diameter is 8.4 m and height is 1.75 m. The heap is to be covered by canvass. What is the area (in m^2) of the canvas required? $\left(\text{Use } \pi = \frac{22}{7}\right)$

Ans

✓ 1. 60.06

✗ 2. 115.05

✗ 3. 60.6

✗ 4. 115.5

Question ID : **81616112565**
Status : **Not Answered**
Chosen Option : **--**

Q.25 Radha purchased a Computer table for ₹10000 and a Centre table for ₹5000. She sold Computer table with 8% profit. With what profit percent should she sell the Centre table so as to gain 10% on the whole transaction?

Ans

✗ 1. 18%

✗ 2. 12%

✓ 3. 14%

✗ 4. 10%

Question ID : **81616113166**
Status : **Answered**
Chosen Option : **3**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	
Venue Name	Gagan Pratap Maths
Exam Date	16/08/2021
Exam Time	3:00 PM - 4:00 PM
Subject	Combined Graduate Level Examination 2020 Tier 1

Q.1 Find the difference between squares of the greatest value and the smallest value of P if the number 5306P2 is divisible by 3.

Ans

✔ 1. 60

✘ 2. 68

✘ 3. 36

✘ 4. 6

Question ID : **81616112858**
Status : **Answered**
Chosen Option : **1**

Q.2 The area of a square shaped field is 1764 m^2. The breadth of a rectangular park is $\frac{1}{3}rd$ the side of the square field and its length is two times its breadth. What is the cost (in ₹) of levelling the park at ₹15 per m^2?

Ans

✘ 1. 4200

✘ 2. 4290

✔ 3. 5880

✘ 4. 4320

Question ID : **81616114181**
Status : **Answered**
Chosen Option : **3**

Q.3 The value of $\frac{tan^2 30° + sin^2 90° + cot^2 60° + sin^2 30° \, cos^2 45°}{sin 60° \, cos 30° - cos 60° \, sin 30°}$ is:

Ans

✘ 1. $\frac{25}{12}$

✔ 2. $\frac{43}{12}$

✘ 3. $\frac{37}{12}$

✘ 4. $\frac{47}{12}$

Question ID : **81616113181**
Status : **Answered**
Chosen Option : **2**

Q.4 The data given in the table shows the number of boys and girls enrolled in three different streams in a school over 5 years.

years	Arts		Science		Commerce	
	Boys	Girls	Boys	Girls	Boys	Girls
2012	48	36	40	35	35	45
2014	42	43	42	32	32	42
2016	45	42	38	30	36	38
2018	39	46	41	23	28	34
2020	36	43	39	30	39	41

By what percent is the total number of boys in Arts stream more than the total number of boys in Science stream in the years 2012 to 2020?

Ans

✗ 1. $2\frac{18}{41}$

✓ 2. 5

✗ 3. 0

✗ 4. $4\frac{16}{21}$

Question ID : **81616112376**
Status : **Answered**
Chosen Option : **2**

Q.5 Fourth proportion to 12, 18, and 6 is same as the third proportion to k and 6. What is the value of k?

Ans

✗ 1. $3\sqrt{6}$

✗ 2. 13.5

✓ 3. 4

✗ 4. 3

Question ID : **81616112460**
Status : **Answered**
Chosen Option : **2**

Q.6 If a number is first increased by 15%, then reduced by 15%, it results in 782. If the same number is first reduced by 25%, then increased by 25% and again reduced by 20%, then what will be the resulting number?

Ans

✗ 1. 712

✗ 2. 150

✗ 3. 750

✓ 4. 600

Question ID : **81616112862**
Status : **Answered**
Chosen Option : **4**

Q.7 In $\triangle ABC$, $DE \parallel AB$, where D and E are the points on sides AC and BC, respectively. If $AD = x - 3$, $AC = 2x$, $BE = x - 2$ and $BC = 2x + 3$, then what is the value of x?

Ans

✗ 1. 12

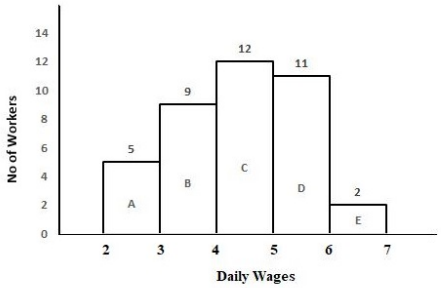
✗ 2. 10

✗ 3. 8

✓ 4. 9

Question ID : **81616113985**
Status : **Answered**
Chosen Option : **4**

Q.8 In a factory, there are 39 workers who have been categorised into five groups (A, B, C, D, E) on the basis of the range of their daily wages (in multiples of ₹100). It is ensured that the daily wage of no worker is an exact multiple of ₹100. The distribution is presented through the given histogram.



If two Managers are engaged to supervise the workers, with daily wages ranging between ₹700 and ₹800, then what will be the average daily wage (nearest to a ₹) of all members of staff of the factory?

Ans

✓ 1. ₹455

✗ 2. ₹400

✗ 3. ₹467

✗ 4. ₹445

Question ID : **81616113589**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.9 If $\sin\left(\frac{2A+B}{2}\right) = \cos\left(\frac{2A-B}{2}\right) = \frac{\sqrt{3}}{2}$, $0° < \frac{2A+B}{2} < 90°$ and $0° < \frac{2A+B}{2} < 90°$ then find the value of $\sin[3(A-B)]$.

Ans

✗ 1. 1

✓ 2. $\frac{1}{\sqrt{2}}$

✗ 3. $\frac{1}{2}$

✗ 4. $\frac{\sqrt{3}}{2}$

Question ID : **81616112876**
Status : **Answered**
Chosen Option : **2**

Q.10 A shopkeeper allows 16% discount on every item. Even after giving the discount, he makes a profit of 8%. If he gives 8% discount instead of 16% on an item marked for ₹1800, then what will be his profit percent? (correct to 2 decimal places)

Ans

✗ 1. 18.31

✗ 2. 19

✓ 3. 18.29

✗ 4. 18

Question ID : **81616112457**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.11 In △ ABC, D is the mid-point of side AC and E is a point on side AB such that EC bisects BD at F. If AE = 30 cm, then the length of EB is:

Ans

✗ 1. 10 cm

✗ 2. 20 cm

✓ 3. 15 cm

✗ 4. 18 cm

Question ID : **81616114188**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.12 If $x + y = 2$ and $\frac{1}{x} + \frac{1}{y} = \frac{18}{5}$, then the value of $(x^3 + y^3)$ is:

Ans

✓ 1. $4\frac{2}{3}$

✗ 2. $4\frac{3}{5}$

✗ 3. $3\frac{1}{3}$

✗ 4. $3\frac{1}{5}$

Question ID : **81616113980**
Status : **Answered**
Chosen Option : **1**

Q.13 The value of $25 \div 15 \text{ of } 4 \times [4 \div 5 \times (9 - 7)] - (20 \div 5 \text{ of } 9)$ is:

Ans

✗ 1. $\frac{4}{9}$

✗ 2. $\frac{2}{3}$

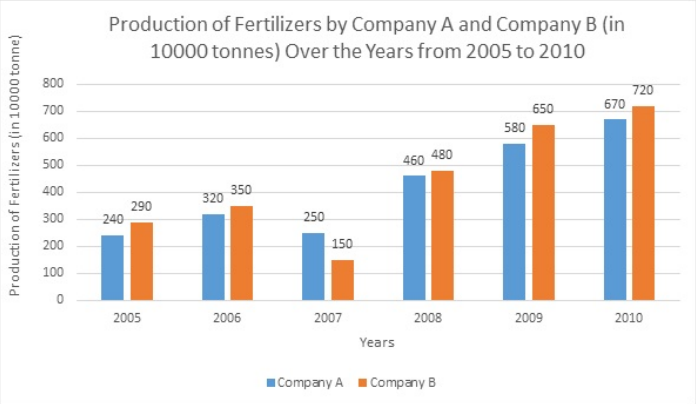
✗ 3. $\frac{1}{3}$

✓ 4. $\frac{2}{9}$

Question ID : **81616113970**
Status : **Answered**
Chosen Option : **4**

Q.14 The following Bar Graph represents the Production of Fertilizers by Company A and Company B (in 10000 tonnes) Over the Years from 2005 to 2010. The X-axis represents the years, and the Y-axis represents the Production of Fertilizers (in 10000 tonnes).

(Note: The data shown below is only for mathematical exercise. They do not represent the actual figures of the companies)



What is the average production (in 10000 tonnes) of fertilizers in 2008, 2009 and 2010 of Company A?

Ans

✗ 1. 590

✗ 2. 600

✗ 3. 620

✓ 4. 570

Question ID : **81616112374**
Status : **Answered**
Chosen Option : **4**

Q.15 In a circle with centre O, AB and CD are two parallel chords on the same side of the diameter. If AB = 12 cm, CD = 18 cm and distance between the chords AB and CD is 3 cm, then find the radius of the circle (in cm).

Ans

✗ 1. 15

✗ 2. 12

✓ 3. $3\sqrt{13}$

✗ 4. 9

Question ID : **81616112873**
Status : **Answered**
Chosen Option : **3**

Q.16 A certain sum amounts to ₹291600 in 2 years and to ₹314928 in 3 years on compound interest compounded annually. How much will be the simple interest (in ₹) on ₹40000 at the same rate for 2 years?

Ans

✗ 1. 7500

✓ 2. 6400

✗ 3. 8000

✗ 4. 9600

Question ID : **81616112865**
Status : **Answered**
Chosen Option : **2**

Q.17 △ABC is incribed in a circle with center O, such that ∠ACB = 115°. O is joined to A. What is the measure of ∠OAB?

Ans

✗ 1. 30°

✗ 2. 20°

✓ 3. 25°

✗ 4. 35°

Question ID : **81616114185**
Status : **Answered**
Chosen Option : **3**

Q.18 The average height of some students in a group is 156 cm. If 5 students of average height 160 cm join the group, then the average height of all the students in the group increases by 0.8 cm. What is the number of students in the group, initially?

Ans

✓ 1. 20

✗ 2. 10

✗ 3. 25

✗ 4. 15

Question ID : **81616114173**
Status : **Answered**
Chosen Option : **1**

Q.19 The value of $4(\sin^4 30° + \cos^4 30°) - 3(\sin^2 45° - 2\cos^2 45°)$ is:

Ans
1. ✗ 1
2. ✓ 4
3. ✗ 2
4. ✗ 0

Question ID : **81616114190**
Status : **Answered**
Chosen Option : **3**

Q.20 If $x^2 + 4y^2 = 53$ and $x - 2y = 5$, then what is the value of $x^3 - 8y^3$?

Ans
1. ✗ -85
2. ✓ 335
3. ✗ 155
4. ✗ 85

Question ID : **81616112871**
Status : **Answered**
Chosen Option : **2**

Q.21 A boat goes 27 km upstream and 33 km downstream in 6 hours. In the same time it can go 36 km upstream and 22 km downstream. How much time will it take to go 36 km upstream and 44 km downstream?

Ans
1. ✓ 8 h
2. ✗ 8 h 10 m
3. ✗ 7 h 50 m
4. ✗ 8 h 30 m

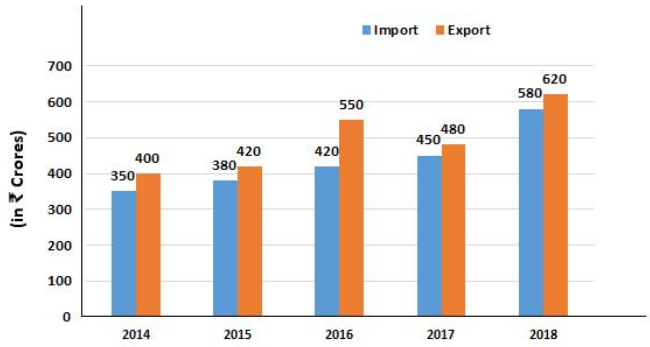
Question ID : **81616112463**
Status : **Answered**
Chosen Option : **1**

Q.22 If $p - 2q = 3$ and $pq = 5$, then what is the value of $(p^3 - 8q^3)$?

Ans
1. ✗ -63
2. ✓ 117
3. ✗ 72
4. ✗ 27

Question ID : **81616112466**
Status : **Answered**
Chosen Option : **2**

Q.23 The given bar graph shows the imports and exports (in crore ₹) of steel for 5 years from 2014 to 2018.



What is the ratio of average export to average import over the five years?

Ans

✗ 1. 109 : 247

✗ 2. 218 : 247

✗ 3. 247 : 109

✓ 4. 247 : 218

Question ID : **81616113587**
Status : **Answered**
Chosen Option : **4**

Q.24 Samir and Puneet can complete the same work in 10 days and 15 days respectively. The work was assigned for ₹4500. After working together for 3 days Samir and Puneet involved Ashok. The work was completed in total 5 days. What amount (in ₹) was paid to Ashok?

Ans

✓ 1. 750

✗ 2. 1500

✗ 3. 1071

✗ 4. 800

Question ID : **81616112866**
Status : **Answered**
Chosen Option : **2**

Q.25 A trader bought two articles for ₹490. He sold one at a loss of 20% and the other at a profit of 16%. If the selling price of both articles is same, then the cost price (in ₹) of the article sold at 20% loss is:

Ans

✓ 1. 290

✗ 2. 310

✗ 3. 280

✗ 4. 300

Question ID : **81616113974**
Status : **Answered**
Chosen Option : **1**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 17/08/2021
Exam Time 9:00 AM - 10:00 AM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 In a circle with centre O, PAX and PBY are the tangents to the circle at points A and B, from an external point P. Q is any point on the circle such that $\angle QAX = 59°$ and $\angle QBY = 72°$. What is the measure of $\angle AQB$?

Ans
✗ 1. $31°$
✗ 2. $72°$
✗ 3. $59°$
✓ 4. $49°$

Question ID : **81616113580**
Status : **Answered**
Chosen Option : **4**

Q.2 By selling an article for ₹640, a person loses 15% of its selling price. At what price (in ₹) should he sell it to gain 15% on its cost price?

Ans

✗ 1. 835

✗ 2. 832

✗ 3. 836.60

✓ 4. 846.40

Question ID : **81616114075**
Status : **Answered**
Chosen Option : **4**

Q.3 If $a^2 + c^2 + 17 = 2(a - 8b - 2b^2)$, then what is the value of $(a^3 + b^3 + c^3)$?

Ans

✗ 1. 9

✓ 2. -7

✗ 3. 10

✗ 4. -4

Question ID : **81616113779**
Status : **Answered**
Chosen Option : **2**

Q.4 The average of 8 consecutive even numbers written in ascending order is 17. What is the average of the last three numbers, 36 and 53?

Ans

✗ 1. 32.2

✗ 2. 29.8

✗ 3. 31.6

✓ 4. 31

Question ID : **81616112456**
Status : **Answered**
Chosen Option : **4**

Q.5 The marked price of an article is ₹1500. A shopkeeper sells it by giving 20% discount on its marked price. If the cost price of the article is ₹991, then his profit (in ₹) is:

Ans

✗ 1. 319

✗ 2. 189

✗ 3. 229

✓ 4. 209

Question ID : **81616113770**
Status : **Answered**
Chosen Option : **4**

Q.6 If $\left(54\sqrt{2}\,x^3 + 24\sqrt{3}\,y^3\right) \div \left(\sqrt{18}\,x + \sqrt{12}\,y\right) = Ax^2 + By^2 + Cxy$, then what is the value of $A^2 - (B^2 + C^2)$?

Ans

✗ 1. 24

✗ 2. 12

✗ 3. -24

✓ 4. -36

Question ID : **81616114081**
Status : **Answered**
Chosen Option : **4**

Q.7 In △ ABC, D and E are the points on sides AB and AC, respectively and DE || BC. BC = 8 cm and DE = 5 cm. If the area of △ ADE = 45 cm^2, then what is the area (in cm^2) of △ ABC?

Ans

✗ 1. 105.2

✓ 2. 115.2

✗ 3. 64

✗ 4. 125

Question ID : **81616114086**
Status : **Answered**
Chosen Option : **2**

Q.8 A sum of ₹31866 is divided between A, B and C such that the ratio of shares of A and B is 9 : 8 and that of A and C is 4 : 5. The share (in ₹) of B is:

Ans

✓ 1. 9024

✗ 2. 8460

✗ 3. 10152

✗ 4. 12690

Question ID : **81616113773**
Status : **Answered**
Chosen Option : **1**

Q.9 A takes 8 hours more than the time taken by B to cover a distance of 160 km. If A doubles his speed, he takes 3 hours more than B to cover the same distance. The speed (in km/h) of B is :

Ans

✗ 1. 72

✓ 2. 80

✗ 3. 70

✗ 4. 75

Question ID : **81616113776**
Status : **Answered**
Chosen Option : **2**

Q.10 The table shows the daily income (in ₹) of 50 persons.

Study the table and answer the question:

Income (Rs)	No. of persons
less than 200	12
less than 250	26
less than 300	34
less than 350	40
less than 400	50

How many persons earn ₹200 or more but less than ₹300?

Ans
✗ 1. 12
✓ 2. 22
✗ 3. 8
✗ 4. 38

Question ID : **81616112981**
Status : **Answered**
Chosen Option : **2**

Q.11 Two men and 7 women can complete a work in 28 days whereas 6 men and 16 women can do the same work in 11 days. In how many days can 7 men complete the same work?

Ans
✗ 1. 12
✗ 2. 11
✗ 3. 24
✓ 4. 22

Question ID : **81616113573**
Status : **Answered**
Chosen Option : **4**

Q.12 The curved surface area of a cylinder is $462\ cm^2$ and its base area is $346.5\ cm^2$. What is the volume (in cm^3) of the cylinder? $\left(\text{Use } \pi = \frac{22}{7}\right)$

Ans
✗ 1. 4800
✓ 2. 2425.5
✗ 3. 4850
✗ 4. 2400

Question ID : **81616112464**
Status : **Answered**
Chosen Option : **2**

Q.13 If $\cos(A-B)=\frac{\sqrt{3}}{2}$ and $\cot(A+B)=\frac{1}{\sqrt{3}}$, where A-B and A+B are acute angles, then (2A-3B) is equal to:

Ans

✗ 1. $30°$

✓ 2. $45°$

✗ 3. $60°$

✗ 4. $15°$

Question ID : **81616113583**
Status : **Answered**
Chosen Option : **2**

Q.14 A certain sum becomes ₹13650 at 15% p.a. simple interest after 2 years. What will be the amount (in ₹) of the same sum after 1 year at the same rate of interest, if the interest is compounded half yearly? (nearest to a ₹)

Ans

✗ 1. 13625

✗ 2. 11000

✓ 3. 12134

✗ 4. 10500

Question ID : **81616113572**
Status : **Answered**
Chosen Option : **1**

Q.15 If $x+y+z=7$, $x^2+y^2+z^2=85$ and $x^3+y^3+z^3=913$, then the value of $\sqrt[3]{xyz}$ is:

Ans

✓ 1. 4

✗ 2. 2

✗ 3. 1

✗ 4. 8

Question ID : **81616113578**
Status : **Answered**
Chosen Option : **1**

Q.16 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in institutes A, B, C, D, E & F.

Years / Institutes	2014	2015	2016	2017	2018
A	110	150	165	180	205
B	120	180	176	200	220
C	140	220	180	175	225
D	125	210	175	180	230
E	150	200	160	200	240
F	165	230	200	220	210

The ratio of the total number of students enrolled for VC in institutes A, C and E in 2015 to the total number of students enrolled in institutes B and D in 2017, is:

Ans

✗ 1. $9 : 10$

✗ 2. $3 : 4$

✓ 3. $3 : 2$

✗ 4. $10 : 11$

Question ID : **81616113990**
Status : **Answered**
Chosen Option : **3**

Q.17 A ΔABC has sides 5 cm, 6 cm and 7 cm. AB extended touches a circle at P and AC extended touches the same circle at Q. Find the length (in cm) of AQ.

Ans

✗ 1. 13

✗ 2. 12

✓ 3. 9

✗ 4. 11

Question ID : **81616112468**
Status : **Answered**
Chosen Option : **3**

Q.18 Find the value of $\frac{3}{4}cot^2 30° + cos^2 30° - 3\text{cosec}^2 60° + tan^2 60°$.

Ans

✗ 1. -4

✗ 2. 10

✓ 3. 2

✗ 4. $\frac{\sqrt{3}}{4}$

Question ID : **81616112372**
Status : **Answered**
Chosen Option : **3**

Q.19 In a triangle ABC, a point D lies on AB and points E and F lie on BC such that DF is parallel to AC and DE is parallel to AF. If BE = 4 cm, EF = 6cm, then find the length (in cm) of BC.

Ans

✔ 1. 25

✘ 2. 30

✘ 3. 15

✘ 4. 20

Question ID : **81616112471**
Status : **Answered**
Chosen Option : **1**

Q.20 The data given in the table shows the number of students studying in four different disciplines in 5 institutes.

Study the table and answer the question:

Institutes	Arts	Science	Commerce	Computer Science
A	36	48	59	57
B	45	54	55	48
C	55	36	56	51
D	45	48	55	53
E	48	44	52	55

By what percent is the number of students studying Computer Science in institutes A and B more than the number of students studying Arts in institutes B and C?

Ans

✘ 1. 2

✘ 2. 24

✘ 3. 14

✔ 4. 5

Question ID : **81616112983**
Status : **Answered**
Chosen Option : **4**

Q.21 The value of $32 \div 12 \ of \ 3 \times [5 - (15 - 12) \div 9] \ of \frac{3}{7} + 4 - 8 \div 2 \ of \ 4$ is:

Ans

✘ 1. $1\frac{7}{9}$

✔ 2. $4\frac{7}{9}$

✘ 3. $3\frac{1}{3}$

✘ 4. $3\frac{1}{6}$

Question ID : **81616114071**
Status : **Answered**
Chosen Option : **2**

Q.22 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in institutes A, B, C, D, E & F.

Years / Institutes	2014	2015	2016	2017	2018
A	110	150	165	180	205
B	120	180	176	200	220
C	140	220	180	175	225
D	125	210	175	180	230
E	150	200	160	200	240
F	165	230	200	220	210

The total number of students enrolled for VC in institutes B, C and E in 2015 is x % more than the total number of students enrolled in institutes A, D and F in 2016. The value of x is closest to:

Ans

✗ 1. 10.3

✗ 2. 10.8

✗ 3. 11.8

✓ 4. 11.1

Question ID : **81616113992**
Status : **Not Answered**
Chosen Option : **--**

Q.23 If the seven-digit number $94x29y6$ is divisible by 72, then what is the value of $(2x + 3y)$ for $x \neq y$?

Ans

✗ 1. 35

✗ 2. 21

✓ 3. 37

✗ 4. 23

Question ID : **81616113565**
Status : **Answered**
Chosen Option : **3**

Q.24 A certain number of students from school X appeared in an examination and 20% students failed. From school Y, 130% more students than that from school X, appeared in the same examination. If 90% of the total number of students appeared from from both the schools passed, then what is the percentage of students from school Y who failed (correct to one decimal place)?

Ans

✗ 1. 8.3%

✗ 2. 10%

✗ 3. 6.4%

✓ 4. 5.7%

Question ID : **81616113569**
Status : **Not Answered**
Chosen Option : **--**

Q.25 $\left(\sqrt{\sec^2\theta + \operatorname{cosec}^2\theta}\right)\left(\frac{\sin\theta(1+\cos\theta)}{1+\cos\theta-\sin^2\theta}\right), 0° < \theta < 90°$ is equal to:

Ans
✗ 1. $\cot\theta$

✗ 2. $\operatorname{cosec}^2\theta$

✓ 3. $\sec^2\theta$

✗ 4. $\tan\theta$

Question ID : **81616114191**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 17/08/2021
Exam Time 12:00 PM - 1:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 ABCD is a cyclic quadrilateral such that AB is the diameter of the circle and $\angle ADC = 145°$, then what is the measure of $\angle BAC$?

Ans
✗ 1. $35°$
✗ 2. $45°$
✗ 3. $65°$
✓ 4. $55°$

Question ID : **81616113175**
Status : **Not Answered**
Chosen Option : **--**

Q.2 What is the volume (in cm^3) of a spherical shell whose inner and outer radii are respectively 2 cm and 3 cm?

Ans
✓ 1. $\frac{76\pi}{3}$
✗ 2. $\frac{106\pi}{3}$
✗ 3. $\frac{56\pi}{3}$
✗ 4. $\frac{86\pi}{3}$

Question ID : **81616113171**
Status : **Not Answered**
Chosen Option : **--**

Q.3 If $(x+y)^3+27\,(x-y)^3=(Ax-2y)(B\,x^2+Cxy+13\,y^2)$, then the value of $A-B-C$ is:

Ans
✗ 1. 27
✗ 2. 20
✗ 3. 15
✓ 4. 13

Question ID : **81616113677**
Status : **Not Answered**
Chosen Option : **--**

Q.4 $5\frac{1}{5}\div\left[3\frac{1}{2}-\left\{\frac{5}{6}-\left(\frac{3}{5}+\frac{1}{10}-\frac{4}{15}\right)\right\}\right]$ is equal to:

Ans
✗ 1. $\frac{12}{31}$
✗ 2. $\frac{22}{31}$
✓ 3. $\frac{52}{31}$
✗ 4. $\frac{72}{31}$

Question ID : **81616113667**
Status : **Answered**
Chosen Option : **3**

Q.5 If $x^8-433x^4+16=0, x>0$, then what is the value of $\left(x+\frac{2}{x}\right)$?

Ans
✓ 1. 5
✗ 2. 7
✗ 3. 4
✗ 4. 9

Question ID : **81616112770**
Status : **Answered**
Chosen Option : **1**

Q.6 Points P, Q, R, S and T lie in this order on a circle with centre O. If chord TS is parallel to diameter PR and $\angle RQT = 58°$, then find the measure (in degrees) of $\angle RTS$.

Ans
✗ 1. 58
✗ 2. 29
✗ 3. 45
✓ 4. 32

Question ID : **81616112772**
Status : **Not Answered**
Chosen Option : **--**

Q.7 In the table, production and sale (in 1000 tonnes) of a certain product of a company over 5 years is given.
Study the table and answer the question:

years	Production (in 1000 tonnes)	Sale (in 1000 tonnes)
2015	1250	1000
2016	1400	1290
2017	1450	1100
2018	1500	1450
2019	1600	1390

In which year(s) the sale increases by more than 25% of the previous year?

Ans

✗ 1. 2018

✗ 2. 2017 and 2019

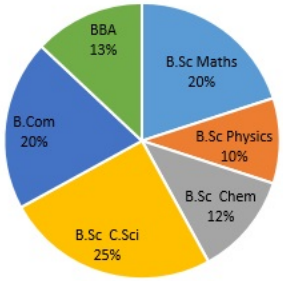
✗ 3. 2017

✓ 4. 2016 and 2018

Question ID : **81616112881**
Status : **Answered**
Chosen Option : **4**

Q.8

Pie-chart shows the distribution of percentage of students in various courses.
Total number of students is 1400



Percentage-wise distribution of number of boys:

Course	Number of boys
B.Sc Maths	40%
B.Sc Physics	68%
B.Sc Chem	58%
B.Sc C.Sci	80%
B.Com	75%
BBA	65%

What is the ratio of number of girls in B.Sc. Maths to number of boys in B.Sc. C. Sci.?

Ans

✗ 1. $2:7$

✓ 2. $3:5$

✗ 3. $5:3$

✗ 4. $7:2$

Question ID : **81616113588**
Status : **Answered**
Chosen Option : **2**

Q.9

If $x^2 - \sqrt{11}x + 1 = 0$, then $(x^3 + x^{-3}) =$

Ans

✗ 1. $7\sqrt{11}$

✗ 2. $4\sqrt{11}$

✗ 3. $10\sqrt{11}$

✓ 4. $8\sqrt{11}$

Question ID : **81616113476**
Status : **Answered**
Chosen Option : **4**

Q.10 There are two water taps in a tank which can fill the empty tank in 12 hours and 18 hours respectively. It is seen that there is a leakage point at the bottom of the tank which can empty the completely filled tank in 36 hours. If both the water taps are opened at the same time to fill the empty tank and the leakage point was repaired after 1 hour, then in how much time the empty tank will be completely filled?

Ans

✗ 1. 7 hours 12 minutes

✗ 2. 8 hours 24 minutes

✗ 3. 7 hours

✓ 4. 7 hours 24 minutes

Question ID : **81616112765**
Status : **Answered**
Chosen Option : **4**

Q.11 A borrowed a sum of ₹160000 from B at 10% per annum simple interest. At the same time he lent the same sum to C at the same rate on compound interest, compounded semi-annually for 2 years. Find the amount (in ₹) earned by A in the whole transaction.

Ans

✗ 1. 4280

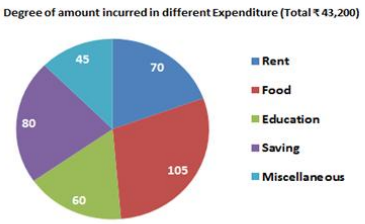
✗ 2. 4281

✓ 3. 2481

✗ 4. 2840

Question ID : **81616112764**
Status : **Answered**
Chosen Option : **3**

Q.12 The given Pie-Chart shows the degree wise breakup of expenditure of a family in a month. Total income of a family is ₹43200.



The amount spent on food is what percent of the savings and miscellaneous expenses?

Ans

✓ 1. 84%

✗ 2. 75%

✗ 3. 90%

✗ 4. 60%

Question ID : **81616113586**
Status : **Answered**
Chosen Option : **1**

Q.13

If $\sin A = \frac{1}{2}$, A is an acute angle, then find the value of $\frac{\tan A - \cot A}{\sqrt{3}(1+\operatorname{cosec} A)}$.

Ans

✔ 1. $-\frac{2}{9}$

✘ 2. $-\frac{4\sqrt{3}}{9}$

✘ 3. $\frac{4\sqrt{3}}{9}$

✘ 4. $\frac{2}{9}$

Question ID : **81616112676**
Status : **Answered**
Chosen Option : **1**

Q.14 A train running at 72 km/h crosses a pole in 12 seconds. How much time (in seconds) will it take to cross a bridge 360 m long?

Ans

✔ 1. 30

✘ 2. 40

✘ 3. 75

✘ 4. 60

Question ID : **81616113473**
Status : **Answered**
Chosen Option : **1**

Q.15 In ΔABC, AD is the bisector of $\angle A$ meeting BC at D. If AC = 21 cm, BC = 11 cm and the length of BD is 3 cm less than DC, then the length (in cm) of side AB is:

Ans

✘ 1. 10

✔ 2. 12

✘ 3. 15

✘ 4. 18

Question ID : **81616113682**
Status : **Not Answered**
Chosen Option : **--**

Q.16 In a class the ratio of rural to urban students is 4 : 7. In an examination the average percentage marks of the rural and the urban students are respectively 65 and 63. What is the overall average percentage marks of the class (correct to two decimal places)?

Ans

✗ 1. 65.87%

✗ 2. 73.63%

✓ 3. 63.73%

✗ 4. 64.37%

Question ID : **81616113163**
Status : **Answered**
Chosen Option : **3**

Q.17 The marked price of an article is ₹2720. If a shopkeeper sold the article at 15% loss after giving 25% discount, then the cost price (in ₹) of the article is:

Ans

✗ 1. 2000

✗ 2. 1800

✓ 3. 2400

✗ 4. 1200

Question ID : **81616113467**
Status : **Answered**
Chosen Option : **3**

Q.18 What is the difference in the mean proportional between 1.8 and 3.2 and the third proportional to 5 and 3?

Ans

✓ 1. 0.6

✗ 2. 0.4

✗ 3. 0.5

✗ 4. 0.7

Question ID : **81616113470**
Status : **Answered**
Chosen Option : **1**

Q.19 Table shows District-wise data of the number of primary school teachers posted in schools of a city.
Study the table and answer the question:

District	Male teachers	Female teachers
East	1650	2375
North	1075	2651
West	1280	1520
South	1170	1085
Central	690	859

What is the average number of female teachers in the five districts?

Ans

✗ 1. 1690

✗ 2. 2871

✓ 3. 1698

✗ 4. 1173

Question ID : **81616112879**
Status : **Answered**
Chosen Option : **3**

Q.20 Rajan spent 10% of his salary on rent. He spent 20% of the remaining part of the salary on transport. After which he spent 40% of the balance of the salary on food. Further, he spent 80% of the balance on various bills. He deposits ₹5000 in the bank and kept the remaining ₹1480 for his own petty expenditure. Find his monthly salary (in ₹).

Ans

✓ 1. 75000

✗ 2. 80000

✗ 3. 82500

✗ 4. 64800

Question ID : **81616112761**
Status : **Not Answered**
Chosen Option : **--**

Q.21 If $cos\,\theta - sin\,\theta = \sqrt{3}\,cos(90° - \theta)$, $0° < \theta < 90°$ then find the value of $tan\,\theta - cot\,\theta$.

Ans

✗ 1. $\frac{3+2\sqrt{3}}{(1+\sqrt{3})}$

✓ 2. $-\frac{3+2\sqrt{3}}{(1+\sqrt{3})}$

✗ 3. $-\frac{3+2\sqrt{3}}{(1-\sqrt{3})}$

✗ 4. $\frac{3-2\sqrt{3}}{(1+\sqrt{3})}$

Question ID : **81616112775**
Status : **Answered**
Chosen Option : **2**

Q.22 In ΔABC, $AD \perp BC$ at D and AE is the bisector of $\angle A$. If $\angle B = 62°$ and $\angle C = 36°$, then what is the measure of $\angle DAE$?

Ans

✔ 1. $13°$

✘ 2. $54°$

✘ 3. $23°$

✘ 4. $27°$

Question ID : **81616113178**
Status : **Answered**
Chosen Option : **1**

Q.23 For $0° < \theta < 90°$,
$\frac{1}{\cos\theta} + \frac{1}{\tan\theta - \sec\theta}$
is equal to:

Ans

✘ 1. $-\sec\theta$

✘ 2. $\tan\theta$

✘ 3. $\sec\theta$

✔ 4. $-\tan\theta$

Question ID : **81616113989**
Status : **Answered**
Chosen Option : **4**

Q.24 A shopkeeper bought 20 kg of sugar at ₹45 per Kg, 25 kg of sugar at ₹50 per kg and 35 kg of sugar at ₹40 per kg. He spent a sum of ₹450 on transportation and other expenses. He mixed all the three types of sugar and sold all the stock at ₹52.50 per kg. His profit percent in the entire transaction is:

Ans

✔ 1. 5%

✘ 2. 7.25%

✘ 3. 4.25%

✘ 4. 6.5%

Question ID : **81616113671**
Status : **Answered**
Chosen Option : **1**

Q.25 Find the smallest value of a so that 42a48b (a > b) is divisible by 11.

Ans

✘ 1. 4

✔ 2. 5

✘ 3. 0

✘ 4. 9

Question ID : **81616112757**
Status : **Answered**
Chosen Option : **3**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 17/08/2021
Exam Time 3:00 PM - 4:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

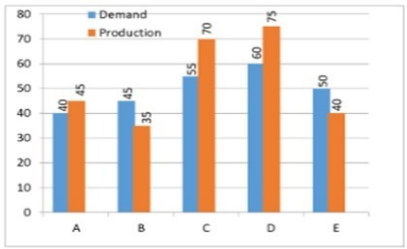
Section : **Quantitative Aptitude**

Q.1 A sports-goods shop has tennis balls of 3 colors - red, green and white. The number of white balls is 60% more than number of red balls and the number of green balls is 12.5% less than number of white balls. If total number of balls is 120, then how many green balls are there?

Ans
✗ 1. 48
✗ 2. 40
✗ 3. 30
✓ 4. 42

Question ID : **81616112458**
Status : **Answered**
Chosen Option : **4**

Q.2 The following bar graph shows the demand and production (in Lakhs) of motor cycles of five different companies A, B, C, D and E in 2020.



What is the ratio of total production of motor cycles of companies A, B, C, D and E, to that of the total demand of motor cycles of all the companies during the five years?

Ans
✓ 1. 52%
✗ 2. 30%
✗ 3. 65%
✗ 4. 45%

Question ID : **81616113082**
Status : **Not Answered**
Chosen Option : **--**

Q.3 Each one of five men independently can complete a work in 20 days. The work is started by one person. Next day one more person joins and every next day one more person joins. From the fifth day, five persons continued working as a team. In how many days, will the work be completed?

Ans

✗ 1. 2

✓ 2. 6

✗ 3. 3

✗ 4. 5

Question ID : **81616112462**
Status : **Not Answered**
Chosen Option : **--**

Q.4 In triangle ABC, D is a point on BC such that BD : DC = 3 : 4. E is a point on AD such that AE : ED = 2 : 3. Find the ratio area (ΔECD) : area (ΔAEB).

Ans

✗ 1. 9 : 8

✗ 2. 1 : 2

✓ 3. 2 : 1

✗ 4. 8 : 9

Question ID : **81616112269**
Status : **Not Answered**
Chosen Option : **--**

Q.5 What is the area of the square $(in\ cm^2)$ whose vertices lie on a circle of radius 5 cm?

Ans

✗ 1. 100

✗ 2. 80

✓ 3. 50

✗ 4. 75

Question ID : **81616112262**
Status : **Answered**
Chosen Option : **3**

Q.6 Simplify the following expression.

$$\left(\frac{7}{16} \div \frac{1}{2} \text{ of } \frac{1}{5}\right) \times \frac{4}{5} - \frac{1}{3} \times \frac{5}{8} \div \frac{1}{2} + \frac{3}{4}$$

Ans

✗ 1. $\frac{317}{96}$

✗ 2. $\frac{10}{3}$

✗ 3. $\frac{71}{150}$

✓ 4. $\frac{23}{6}$

Question ID : **81616112354**
Status : **Answered**
Chosen Option : **4**

Q.7 If $4\sin^2(2x-10)^\circ = 3, 0 \le (2x-10) \le 90$, then find the value of $\frac{\sin^4(x-5)^\circ + \cos^4(x-5)^\circ}{1-2\sin^2(3x-15)^\circ \cos^2(3x-15)^\circ}$.

Ans

✗ 1. 1

✓ 2. $\frac{5}{8}$

✗ 3. $-\frac{5}{8}$

✗ 4. -1

Question ID : **81616112472**
Status : **Answered**
Chosen Option : **2**

Q.8 The value of $\frac{\sqrt{2}\tan(60^\circ-\theta)\tan(30^\circ+\theta)}{\sin^2(45^\circ+\theta)+\sin^2(45^\circ-\theta)}$ is:

Ans

✗ 1. $\frac{1}{\sqrt{2}}$

✗ 2. 1

✗ 3. 2

✓ 4. $\sqrt{2}$

Question ID : **81616112271**
Status : **Answered**
Chosen Option : **4**

Q.9 If $4x^4 = 5x^2 - 1, x > \frac{1}{\sqrt{2}}$, then what is the value of $(2x^2 - x - 1)$?

Ans

✓ 1. 0

✗ 2. 1

✗ 3. -2

✗ 4. 2

Question ID : **81616112467**
Status : **Answered**
Chosen Option : **1**

Q.10 A man can row a distance of 8 km downstream in a certain time and can row 6 km upstream in the same time. If he rows 24 km upstream and the same distance downstream in $1\frac{3}{4}$ hours, then the speed (in km/h) of the current is:

Ans

✓ 1. 4

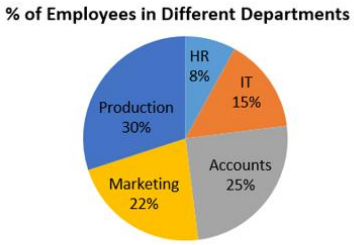
✗ 2. $4\frac{1}{2}$

✗ 3. 3

✗ 4. $2\frac{1}{2}$

Question ID : **81616113978**
Status : **Answered**
Chosen Option : **1**

Q.11 The pie chart shows the percentage distribution of a total of 800 employees in different departments of a company.



How many employees are working in the field of marketing?

Ans

✗ 1. 240

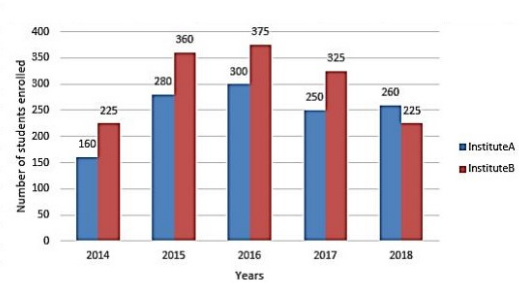
✗ 2. 120

✗ 3. 200

✓ 4. 176

Question ID : **81616113385**
Status : **Answered**
Chosen Option : **4**

Q.12 Bar graph shows the number of students enrolled for a vocational course in institutes A and B during 5 years from 2014 to 2018.



The total number of students enrolled in institute B during 2014, 2016 and 2018 is what percent of the total number of students enrolled in institute A during the five Years?

Ans

✗ 1. 49%

✓ 2. 66%

✗ 3. 75%

✗ 4. 57%

Question ID : **81616113387**
Status : **Answered**
Chosen Option : **2**

Q.13 The cost price and the marked price of an item are ₹720 and ₹900 respectively. When it is sold at a discount of $x\%$, the profit is $\frac{5x}{3}\%$. What is the value of x ?

Ans

✗ 1. $7\frac{4}{7}$

✓ 2. $8\frac{4}{7}$

✗ 3. $5\frac{5}{7}$

✗ 4. $5\frac{4}{7}$

Question ID : **81616112358**
Status : **Answered**
Chosen Option : **2**

Q.14 Points A and B are on a circle with centre O. PAM and PBN are tangents to the circle at A and B respectively from a point P outside the circle. Point Q is on the major arc AB such that $\angle QAM = 58°$ and $\angle QBN = 50°$, then find the measure (in degrees) of $\angle APB$.

Ans

✗ 1. 30

✗ 2. 32

✓ 3. 36

✗ 4. 40

Question ID : **81616112469**
Status : **Not Answered**
Chosen Option : **--**

Q.15 The marked price of an article is ₹240. A shopkeeper sells it by allowing 18% discount on its marked price and still gains 23%. What is the cost price (in ₹) of the article?

Ans

✗ 1. 200

✗ 2. 180

✓ 3. 160

✗ 4. 150

Question ID : **81616113972**
Status : **Answered**
Chosen Option : **3**

Q.16 If $x^2 + 9y^2 + 4z^2 = 12(x - 2y + 2z) - 88$, then the value of $(x - 3y + z)$ is:

Ans

✗ 1. 10

✓ 2. 13

✗ 3. 11

✗ 4. 5

Question ID : **81616113981**
Status : **Answered**
Chosen Option : **2**

Q.17 The average score of 40 students in a class test is 45. Later on, it was found that at two places 25 was read as 35 and at one place 38 was read as 32. What is the actual average score of the class?

Ans

✗ 1. 45.35

✗ 2. 39.69

✓ 3. 44.65

✗ 4. 43.80

Question ID : **81616112254**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.18 A man borrowed a certain sum and agrees to repay it by paying ₹4000 at the end of first year and ₹7700 at the end of second year. If the rate of compound interest compounded annually is 10% per annum, then find the sum (in ₹) borrowed.

Ans

✗ 1. 11500

✗ 2. 11000

✗ 3. 9000

✓ 4. 10000

Question ID : **81616112461**
Status : **Not Answered**
Chosen Option : **--**

Q.19 The following Pie charts represent the distribution of candidates who were enrolled for competitive examination and the candidates (out of those enrolled) who passed the exam from five different institutes P, Q, R, S and T.

Fig.(i) Total number of candidates enrolled in five different institutes = 7500

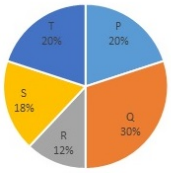
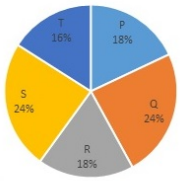


Fig.(ii) Total number of candidates passed the examination from five Institutes = 4000



What is the pass percentage for institute Q? (correct upto one decimal place.)

Ans

✓ 1. 42.7%

✗ 2. 80%

✗ 3. 48%

✗ 4. 71.1%

Question ID : **81616113084**
Status : **Answered**
Chosen Option : **1**

Q.20 In a circle, a ten cm long chord is at a distance of 12 cm from the centre of the circle. Length of the diameter of the circle (in cm) is :

Ans

✗ 1. 20

✓ 2. 26

✗ 3. 13

✗ 4. 22

Question ID : **81616112266**
Status : **Answered**
Chosen Option : **2**

Q.21 In triangle ABC, P and Q are the mid points of AB and AC, respectively. R is a point on PQ such that PR : RQ = 3 : 5 and QR = 20 cm, then what is the length (in cm) of BC?

Ans
✗ 1. 24
✗ 2. 40
✓ 3. 64
✗ 4. 66.66

Question ID : **81616112369**
Status : **Answered**
Chosen Option : **3**

Q.22 If $7\cos^2\theta + 5\sin^2\theta - 6 = 0, (0^\circ < \theta < 90^\circ)$, then what is the value of $\sqrt{\frac{\text{cosec}\theta + \tan\theta}{\sec\theta - \cot\theta}}$

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

Question ID : **81616113382**
Status : **Answered**
Chosen Option : **3**

Q.23 Find the sum of squares of the greatest value and the smallest value of K in the number so that the number 45082K is divisible by 3.

Ans
✓ 1. 68
✗ 2. 64
✗ 3. 100
✗ 4. 50

Question ID : **81616112454**
Status : **Answered**
Chosen Option : **1**

Q.24 The ratio of present ages of A and B is 7 : 8. After 6 years from now, the ratio of their ages will be 8 : 9. If C's present age is 10 years more than the present age of A, then the present age (in years) of C is:

Ans
✗ 1. 56
✓ 2. 52
✗ 3. 59
✗ 4. 45

Question ID : **81616113975**
Status : **Answered**
Chosen Option : **2**

Q.25 Simplify the following expression:

$$\frac{108\times108\times108-92\times92\times92}{108\times108+92\times92+108\times92}$$

Ans

✗ 1. 200

✗ 2. 1

✓ 3. 16

✗ 4. -1

Question ID : **81616112364**
Status : **Answered**
Chosen Option : **3**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name 18/08/2021
Exam Date 9:00 AM - 10:00 AM
Exam Time Combined Graduate Level Examination 2020 Tier 1
Subject

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	
Venue Name	Gagan Pratap Maths
Exam Date	18/08/2021
Exam Time	9:00 AM - 10:00 AM
Subject	Combined Graduate Level Examination 2020 Tier 1

Section : **General Intelligence and Reasoning**

Q.1 **नीचे चार शब्द दिए गए हैं जिनमें से तीन किसी संदर्भ में एक समान हैं और उनमें से एक असंगत है। उस असंगत शब्द का चयन करें।**

Ans
✗ 1. गठिया (आर्थ्राइटिस)
✗ 2. वात-रोग (गाउट)
✓ 3. उच्च रक्तचाप (हाइपरटेंशन)
✗ 4. सूखा रोग (रिकेट्स)

Question ID : **81616114124**
Status : **Answered**
Chosen Option : **3**

Q.2 **In a certain code language, 'FORENSIC' is coded as '61218221419183' and'DORM' is coded as '4121813'.How will 'CARAMEL' be coded in that language?**

Ans
✗ 1. 3011801132212
✗ 2. 3260926130512
✗ 3. 3261826142212
✓ 4. 3261826132212

Question ID : **81616114128**
Status : **Answered**
Chosen Option : **4**

Q.3 **The total of three numbers is 240. The second number is four times the first number. The third number is three times the first number. What will be the average of the three numbers?**

Ans
✓ 1. 80
✗ 2. 50
✗ 3. 60
✗ 4. 70

Question ID : **81616113229**
Status : **Answered**
Chosen Option : **1**

Q.1 Study the following table and answer the question:

Number of students Appeared (A) and Passed (P) in an annual examination from four schools Q, R, S & T in five years (2014 to 2018)

School / Year	Q		R		S		T	
	A	P	A	P	A	P	A	P
2014	320	240	400	340	420	273	250	225
2015	400	320	380	285	350	280	300	228
2016	440	286	360	288	330	264	320	256
2017	350	252	420	294	380	247	350	315
2018	375	320	450	405	400	344	375	300

The ratio of the total number of students appeared from school Q in 2017 and from school S in 2018 to the total number of students passed from school R in 2018 and school T in 2014, is:

Ans
✗ 1. 16 : 9
✗ 2. 5 : 7
✗ 3. 7 : 8
✓ 4. 25 : 21

Question ID : **81616114293**
Status : **Answered**
Chosen Option : **4**

Q.2 The value of

$$(\sin 37^\circ \cos 53^\circ + \cos 37^\circ \sin 53^\circ) - \frac{4\cos^2 37^\circ - 7 + 4\cos^2 53^\circ}{\tan^2 47^\circ + 4 - \operatorname{cosec}^2 43^\circ}$$ is:

Ans
✗ 1. 1
✗ 2. -2
✗ 3. 0
✓ 4. 2

Question ID : **81616114089**
Status : **Answered**
Chosen Option : **4**

Q.3 AB is a chord of a circle in minor segment with center O. C is a point on the minor arc of the circle between the points A and B. The tangents to the circle at A and B meet at the point P. If $\angle ACB = 102^\circ$, then what is the measure of $\angle APB$?

Ans
✗ 1. 27°
✗ 2. 29°
✓ 3. 24°
✗ 4. 23°

Question ID : **81616114186**
Status : **Answered**
Chosen Option : **3**

Q.4 A shopkeeper marked every item 25% above the cost price and allowed 10% discount. Shruti being a regular customer got 5% additional discount on the bill and paid ₹2394 for the item purchased. What is the cost price of the item (in ₹)?

Ans
✗ 1. 2440
✓ 2. 2240
✗ 3. 2220
✗ 4. 2420

Question ID : **81616112255**
Status : **Answered**
Chosen Option : **2**

Q.5 The average of x occurring 5 times and y occurring 7 times is 37. Also, the average of x occurring 7 times and y occurring 5 times is 35. The value of y is:

Ans

✗ 1. 30

✗ 2. 27

✓ 3. 42

✗ 4. 45

Question ID : **81616113264**
Status : **Answered**
Chosen Option : **3**

Q.6 In an examination, 45% of all the students who appeared are boys and the rest are girls. If 60% of the boys and 70% of the girls passed, then what is the percentage of students who failed?

Ans

✗ 1. 36

✗ 2. 35.4

✗ 3. 40

✓ 4. 34.5

Question ID : **81616114175**
Status : **Answered**
Chosen Option : **4**

Q.7 The value of $18 \div [26 - \{25 - (15 - 5) \div 2\}]$ *of* $12 + 2 - 2 \div 4 \times 16$ is:

Ans

✗ 1. $\frac{9}{4}$

✗ 2. $\frac{3}{2}$

✗ 3. $-\frac{25}{2}$

✓ 4. $-\frac{23}{4}$

Question ID : **81616113768**
Status : **Answered**
Chosen Option : **4**

Q.8 What is the difference (in ₹) between the simple interest and the compound interest on a sum of ₹8000 for $2\frac{2}{5}$ years at the rate of 10% p.a., when the interest is compounded yearly?

Ans

✗ 1. 152.80

✗ 2. 150

✗ 3. 155

✓ 4. 147.20

Question ID : **81616114178**
Status : **Answered**
Chosen Option : **4**

Q.9 If $x^4 + y^4 + x^2y^2 = 21$ and $x^2 + y^2 - xy = 7$, then what is the value of $\frac{x}{y} + \frac{y}{x}$?

Ans

✗ 1. $\frac{3}{4}$

✗ 2. $-\frac{3}{2}$

✓ 3. $-\frac{5}{2}$

✗ 4. $\frac{5}{4}$

Question ID : **81616114184**
Status : **Answered**
Chosen Option : **3**

Q.10 The data given in the table shows the number of boys and girls enrolled in three different streams in a school over 5 years. (2012 to 2020)

years	Arts		Science		Commerce	
	Boys	Girls	Boys	Girls	Boys	Girls
2012	48	36	40	35	35	45
2014	42	43	42	32	32	42
2016	45	42	38	30	36	38
2018	39	46	41	23	28	34
2020	36	43	39	30	39	41

What is the difference between the average of the number of boys in the Commerce stream for the 5 years and the average of the number of girls in the Arts stream for the 5 years?

Ans

✗ 1. 40

✗ 2. 12

✗ 3. 10

✓ 4. 8

Question ID : **81616112275**
Status : **Answered**
Chosen Option : **4**

Q.11 Study the following table and answer the question:

Number of students Appeared (A) and Passed (P) in an annual examination from four schools Q, R, S & T in five years (2014 to 2018)

School / Year	Q		R		S		T	
	A	P	A	P	A	P	A	P
2014	320	240	400	340	420	273	250	225
2015	400	320	380	285	350	280	300	228
2016	440	286	360	288	330	264	320	256
2017	350	252	420	294	380	247	350	315
2018	375	320	450	405	400	344	375	300

The total number of students passed from school Q in 2014 and 2018 is what percent less than the total number of students appeared from schools R and S in 2017?

Ans

✗ 1. 35.4%

✓ 2. 30%

✗ 3. 25%

✗ 4. 42.9%

Question ID : **81616114295**
Status : **Answered**
Chosen Option : **2**

Q.12 If $3\sin^2\theta - \cos\theta - 1 = 0,\ 0° < \theta < 90°$, then what is the value of $\cot\theta + \operatorname{cosec}\theta$?

Ans

✗ 1. $2\sqrt{5}$

✗ 2. $2\sqrt{3}$

✗ 3. $\frac{3\sqrt{2}}{2}$

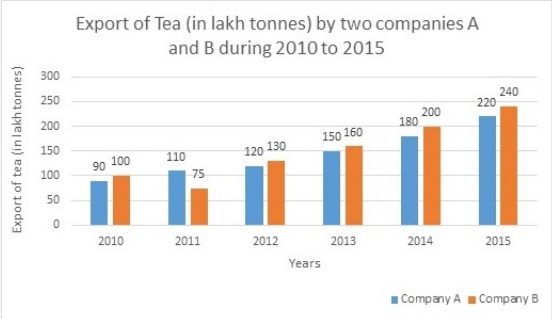
✓ 4. $\sqrt{5}$

Question ID : **81616114189**
Status : **Answered**
Chosen Option : **4**

Q.13 The following Bar Graphs represent the Export of Tea (in lakh tonnes) by two companies A and B during the years 2010 to 2015.

Study the chart and answer the question written below:

(Note: The data shown below is only for mathematical exercise. They do not represent the actual figures).



What is the ratio of the total exports of company B in 2011 and 2014 to the total exports of company A in 2012 and 2015?

Ans

✓ 1. 55 : 68

✗ 2. 29 : 37

✗ 3. 68 : 55

✗ 4. 37 : 29

Question ID : **81616112273**
Status : **Answered**
Chosen Option : **1**

Q.14 If $x + y = 3$ and $\frac{1}{x} + \frac{1}{y} = -\frac{3}{10}$, then the value of $(x^2 + y^2)$ is :

Ans

✗ 1. 28

✗ 2. 34

✓ 3. 29

✗ 4. 26

Question ID : **81616113778**
Status : **Answered**
Chosen Option : **3**

Q.15 Simplify the following expression.

$$\frac{(375+125)^2-(125-375)^2}{375\times375-125\times125}$$

Ans

✗ 1. $\frac{15}{8}$

✗ 2. $\frac{3}{4}$

✓ 3. $\frac{3}{2}$

✗ 4. $\frac{27}{28}$

Question ID : **81616112264**
Status : **Answered**
Chosen Option : **3**

Q.16 A and B together can complete a certain work in 20 days whereas B and C together can complete it in 24 days. If A is twice as good a workman as C, then in what time will B alone do 40% of the same work?

Ans

✓ 1. 12 days

✗ 2. 10 days

✗ 3. 18 days

✗ 4. 15 days

Question ID : **81616114179**
Status : **Answered**
Chosen Option : **1**

Q.17 Point P lies outside a circle with centre O. Tangents PA and PB are drawn to meet the circle at A and B respectively. If $\angle APB = 80°$, then $\angle OAB$ is equal to :

Ans

✗ 1. 140°

✓ 2. 40°

✗ 3. 70°

✗ 4. 35°

Question ID : **81616113276**
Status : **Answered**
Chosen Option : **2**

Q.18 Akhil takes 30 minutes extra to cover a distance of 150 km if he drives 10 km/h slower than his usual speed. How much time will he take to drive 90 km if he drives 15 km per hour slower than his usual speed?

Ans

✗ 1. 2 h 15 m

✓ 2. 2 h

✗ 3. 2 h 45 m

✗ 4. 2 h 30 m

Question ID : **81616112261**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.19 Chord AB of a circle of radius 10 cm is at a distance 8 cm from the centre O. If tangents drawn at A and B intersect at P, then the length of the tangent AP (in cm) is:

Ans

✗ 1. 4

✗ 2. 15

✗ 3. 3.75

✓ 4. 7.5

Question ID : **81616113279**
Status : **Answered**
Chosen Option : **4**

Q.20 The perimeter of a semi-circle is 25.7 cm. What is its diameter (in cm)? ($\pi = 3.14$)

Ans

✗ 1. 8

✗ 2. 12

✓ 3. 10

✗ 4. 9

Question ID : **81616113272**
Status : **Answered**
Chosen Option : **3**

Q.21 Find the value of $sin^4 30° + cos^4 30° - sin 25° cos 65° - sin 65° cos 25°$.

Ans

✗ 1. $\frac{5}{8}$

✓ 2. $-\frac{3}{8}$

✗ 3. $\frac{13}{8}$

✗ 4. 0

Question ID : **81616112776**
Status : **Answered**
Chosen Option : **2**

Q.22 Find the ratio between the fourth proportional of 12, 16, 6 and the third proportional of 4, 6.

Ans

✗ 1. 11 : 5

✗ 2. 3 : 2

✗ 3. 4 : 3

✓ 4. 8 : 9

Question ID : **81616112258**
Status : **Answered**
Chosen Option : **4**

Q.23 If the 8-digit number $888x53y4$ is divisible by 72, then what is the value of $(7x + 2y)$, for the maximum value of y ?

Ans

✗ 1. 19

✗ 2. 15

✓ 3. 23

✗ 4. 27

Question ID : **81616114171**
Status : **Answered**
Chosen Option : **3**

Q.24 $\triangle ABC \sim \triangle DEF$. If the areas of $\triangle ABC$ and $\triangle DEF$ are 100 cm^2 and 81 cm^2, respectively and the altitude of $\triangle DEF$ is 6.3 cm, then the corresponding altitude of $\triangle ABC$ is:

Ans

✗ 1. 5.6 cm

✗ 2. 9 cm

✓ 3. 7 cm

✗ 4. 8.4 cm

Question ID : **81616113783**
Status : **Answered**
Chosen Option : **3**

Q.25 A trader sells an article at 16% below its cost price. Had he sold it for ₹192.20 more, he would have gained 15%. The cost price (in ₹) of the article is:

Ans

✗ 1. 720

✓ 2. 620

✗ 3. 640

✗ 4. 680

Question ID : **81616113772**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number

Candidate Name **Gagan Pratap Maths**

Venue Name

Exam Date 18/08/2021
Exam Time 12:00 PM - 1:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 The cost of tiling the floor of a rectangular room is ₹9100 at ₹65 per m^2. The ratio of the length and breadth of the floor is 7 : 5. The perimeter (in m) of the floor of the room is:

Ans
✔ 1. 48
✘ 2. 24
✘ 3. 36
✘ 4. 28.8

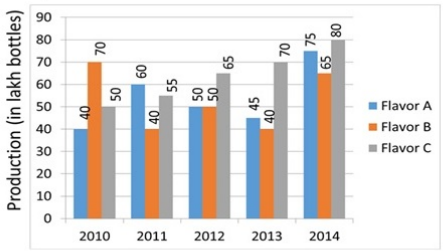
Question ID : **81616114080**
Status : **Answered**
Chosen Option : **1**

Q.2 Simplify the following expression:
$6 \div 4 \text{ of } 3 - 4 \div 6 \times (13 - 10) - 2 \times 15 \div 6 \times 6$

Ans
✘ 1. $-19\frac{1}{2}$
✘ 2. $-27\frac{1}{2}$
✔ 3. $-31\frac{1}{2}$
✘ 4. $-29\frac{14}{17}$

Question ID : **81616112758**
Status : **Answered**
Chosen Option : **2**

Q.3 Medicines of three different flavors - A, B and C (in lakh bottles) manufactured by a pharmaceutical company over a period of five years from 2010 to 2014 is given in the bar graph.



Production of flavor A in 2012 is what percent less than the average production of flavor B in all the years (correct to 2 decimal places)?

Ans

✗ 1. 3.87

✗ 2. 6.98

✓ 3. 5.66

✗ 4. 4.66

Question ID : **81616113185**
Status : **Answered**
Chosen Option : **3**

Q.4 The income of A is 20% less than the income of B and the income of C is 70% of the sum of incomes of A and B. The income of D is 25% more than the income of C. If the difference between the incomes of B and D is ₹23000, then what is the income (in ₹) of A?

Ans

✓ 1. 32000

✗ 2. 25000

✗ 3. 26000

✗ 4. 28000

Question ID : **81616114074**
Status : **Answered**
Chosen Option : **1**

Q.5 △ABC is an equilateral triangle. D is a point on side BC such that BD : BC = 1 : 3. If AD = $5\sqrt{7}$ cm, then the side of the triangle is:

Ans

✗ 1. 18 cm

✗ 2. 12 cm

✗ 3. 20 cm

✓ 4. 15 cm

Question ID : **81616114087**
Status : **Not Answered**
Chosen Option : **--**

Q.6 If $5\sin^2\theta - 4\cos\theta - 4 = 0,\ 0° < \theta < 90°$, then the value of $(\cot\theta + \operatorname{cosec}\theta)$ is:

Ans

✗ 1. $\frac{3}{2}$

✗ 2. $\frac{\sqrt{6}}{3}$

✗ 3. $\frac{2}{3}$

✓ 4. $\frac{\sqrt{6}}{2}$

Question ID : **81616114088**
Status : **Not Answered**
Chosen Option : **--**

Q.7 Bar graph shows the number of students enrolled for a vocational course in institutes A and B during 5 years.

The average number of students enrolled in institute A during 2014, 2016 and 2018 is what percent less than the number of students enrolled in institute B during 2017 (correct to two decimal places)?

Ans

✗ 1. 22.46%

✗ 2. 29.17%

✓ 3. 26.15%

✗ 4. 32.75%

Question ID : **81616113183**
Status : **Answered**
Chosen Option : **3**

Q.8 Study the following table and answer the question:

Number of cars sold by dealers A, B, C, D & E during first six months of 2018.

Month / Dealer	January	February	March	April	May	June
A	620	640	628	635	430	625
B	600	642	635	580	450	620
C	640	635	640	540	625	740
D	520	645	722	740	600	780
E	548	638	720	740	650	800

80 % the total number of cars sold by dealers B and E in April is what percent less than the total number of cars sold by the dealers C and D in February?

Ans

✔ 1. 17.5%

✗ 2. 15%

✗ 3. 12.5%

✗ 4. 16%

Question ID : **81616114195**
Status : **Answered**
Chosen Option : **1**

Q.9 In Δ PQR, $\angle Q = 90°$. If $\tan R = \frac{1}{3}$, then what is the value of $\frac{secP(cosR+sinP)}{cosecR\ (sinR-cosecP)}$?

Ans

✗ 1. $-\frac{2}{7}$

✗ 2. $\frac{18}{7}$

✗ 3. $\frac{2}{7}$

✔ 4. $-\frac{18}{7}$

Question ID : **81616113584**
Status : **Answered**
Chosen Option : **4**

Q.10 The average of ten numbers is 32.5. The average of first four numbers is 25.6 and that of the last three numbers is 38.2. The 5th number is 50% more than the 6th number and 8 less than the 7th number. What is the average of 5th and 7th numbers?

Ans

✗ 1. 41

✗ 2. 42.4

✗ 3. 42

✔ 4. 41.5

Question ID : **81616114072**
Status : **Answered**
Chosen Option : **4**

Q.11 ABCD is a cyclic quadrilateral. AB and DC meet at F, when produced. AD and BC meet at E, when produced. If $\angle BAD = 68°$ and $\angle AEB = 27°$, then what is the measure of $\angle BFC$?

Ans

✗ 1. $27°$

✗ 2. $22°$

✗ 3. $15°$

✓ 4. $17°$

Question ID : **81616114085**
Status : **Not Answered**
Chosen Option : **--**

Q.12 A sum of ₹3125 amounts to ₹3515.20 in 3 years at x % p.a., interest being compounded yearly. What will be the simple interest (in ₹) on the same sum and for the same time at $(x + 2)$ % p.a.?

Ans

✗ 1. 554

✓ 2. 562.50

✗ 3. 565.50

✗ 4. 550

Question ID : **81616114077**
Status : **Not Answered**
Chosen Option : **--**

Q.13 Suman travels from place X to Y and Rekha travels from Y to X, simultaneously. After meeting on the way, Suman and Rekha reach Y and X, in 3 hours 12 minutes and one hour 48 minutes, respectively. If the speed of Rekha is 9 km/h, then the speed (in km/h) of Suman is:

Ans

✗ 1. $7\frac{1}{2}$

✗ 2. 6

✗ 3. 8

✓ 4. $6\frac{3}{4}$

Question ID : **81616114180**
Status : **Not Answered**
Chosen Option : **--**

Q.14 A can complete a work in 60 days. B is 25% more efficient than A. They work together for 15 days. C alone completes the remaining work in 14 days. B and C together will complete $\frac{5}{8}$th part of the original work in:

Ans

✗ 1. 18 days

✗ 2. 16 days

✓ 3. 12 days

✗ 4. 15 days

Question ID : **81616114078**
Status : **Not Answered**
Chosen Option : **--**

Q.15 In a trapezium PQRS, PQ is parallel to RS and diagonals PR and QS intersect at O. If PQ = 4 cm, SR = 10 cm, then what is area(ΔPOQ) : area(ΔSOR) ?

Ans

✔ 1. 4 : 25

✘ 2. 2 : 3

✘ 3. 4 : 9

✘ 4. 2 : 5

Question ID : **81616112773**
Status : **Not Answered**
Chosen Option : **--**

Q.16 If $x^2 - 5\sqrt{2}\,x + 1 = 0$, then what is the value of $\frac{\left(x^3 + \frac{1}{x^3}\right)}{x^2+1}$?

Ans

✘ 1. $\frac{12\sqrt{2}}{5}$

✔ 2. $\frac{24\sqrt{2}}{5}$

✘ 3. $\frac{26\sqrt{2}}{5}$

✘ 4. $\frac{18\sqrt{2}}{5}$

Question ID : **81616114183**
Status : **Not Answered**
Chosen Option : **--**

Q.17 A shopkeeper buys an article at 30% discount on its marked price and sells it at 5% discount on its marked price. If he earns a profit of ₹65, then what is the marked price (in ₹) of the article?

Ans

✔ 1. 260

✘ 2. 227.50

✘ 3. 325

✘ 4. 292.50

Question ID : **81616114174**
Status : **Not Answered**
Chosen Option : **--**

Q.18 A chord AB of circle C_1 of radius 17 cm touches circle C_2 which is concentric to C_1. The radius of C_2 is 8 cm. What is the length (in cm) of AB?

Ans

✔ 1. 30

✘ 2. 25

✘ 3. 20

✘ 4. 24

Question ID : **81616114084**
Status : **Not Answered**
Chosen Option : **--**

Q.19 What is the constant term in the expansion of $\left(5x^2 - \frac{1}{x}\right)^3$?

Ans
1. 5
2. -15
3. 15
4. 75

Question ID : **81616112768**
Status : **Not Answered**
Chosen Option : **--**

Q.20 If the 5-digit number $688xy$ is divisible by 3, 7 and 11, then what is the value of $(5x + 3y)$?

Ans
1. 43
2. 23
3. 36
4. 39

Question ID : **81616114070**
Status : **Not Answered**
Chosen Option : **--**

Q.21 By selling an article for ₹131.25, a trader gains as much percent as the number representing the cost price of the article. In order to earn 40% profit, at what price (in ₹) should he sell the article?

Ans
1. 100
2. 140
3. 105
4. 75

Question ID : **81616112762**
Status : **Not Answered**
Chosen Option : **--**

Q.22 A sum of ₹6342 is divided amongst A, B, C and D in the ratio 3 : 4 : 8 : 6. What is the difference between the shares of B and D?

Ans
1. ₹302
2. ₹906
3. ₹604
4. ₹1510

Question ID : **81616114177**
Status : **Not Answered**
Chosen Option : **--**

Q.23 If $x + y + z = 1,\ xy + yz + zx = xyz = -4$, then what is the value of $(x^3 + y^3 + z^3)$?

Ans

✗ 1. -1

✗ 2. -8

✓ 3. 1

✗ 4. 8

Question ID : **81616114083**
Status : **Not Answered**
Chosen Option : **--**

Q.24 Study the following table and answer the question:

Number of cars sold by dealers A, B, C, D & E during first six months of 2018.

Month / Dealer	January	February	March	April	May	June
A	620	640	628	635	430	625
B	600	642	635	580	450	620
C	640	635	640	540	625	740
D	520	645	722	740	600	780
E	548	638	720	740	650	800

The average number of cars sold by dealer C in February, April and May exceeds the number of cars sold by the dealer E in January by x. The value of x lies between

Ans

✗ 1. 40 and 45

✗ 2. 45 and 50

✓ 3. 50 and 55

✗ 4. 55 and 60

Question ID : **81616114193**
Status : **Not Answered**
Chosen Option : **--**

Q.25 If $tan\theta = \sqrt{5}$, then the value of $\frac{cosec^2\theta + sec^2\theta}{cosec^2\theta - sec^2\theta}$ is:

Ans

✗ 1. $\frac{3}{2}$

✓ 2. $-\frac{3}{2}$

✗ 3. $-\frac{7}{5}$

✗ 4. $\frac{7}{5}$

Question ID : **81616113180**
Status : **Not Answered**
Chosen Option : **--**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 18/08/2021
Exam Time 3:00 PM - 4:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 In a right angled triangle ABC, the lengths of the sides containing the right angle are 5 cm and 12 cm respectively. A circle is inscribed in the triangle ABC. What is the radius of the circle (in cm)?

Ans
✗ 1. 2.8
✗ 2. 3
✓ 3. 2
✗ 4. 2.5

Question ID : **81616112673**
Status : **Answered**
Chosen Option : **3**

Q.2 The average daily production of toys in a factory in the month of December is 512. If the average production during first 20 days is 515 and that of the last 13 days is 510, then what is the average of production on 19 and 20 December?

Ans

✗ 1. 1058

✓ 2. 529

✗ 3. 513

✗ 4. 512

Question ID : **81616112658**
Status : **Marked For Review**
Chosen Option : **2**

Q.3 A T.V. is sold at 8% gain. Had it been sold for ₹2553 less; there would have been loss of 15%. To gain 18%, the selling price (in ₹) of T.V. would be:

Ans

✗ 1. 11100

✓ 2. 13098

✗ 3. 15000

✗ 4. 9102

Question ID : **81616113368**
Status : **Answered**
Chosen Option : **2**

Q.4 A shopkeeper bought a machine for ₹4600 and spent ₹500 on its repairs and transport. He marked the machine at 8% above the overall cost price. If he sold the machine for ₹4681.80 after giving $x\%$ discount, then the value of x is:

Ans

✗ 1. 18

✓ 2. 15

✗ 3. 20

✗ 4. 12

Question ID : **81616113164**
Status : **Answered**
Chosen Option : **2**

Q.5 Study the table and answer the question.

The table shows the daily income of 50 persons.

Income (Rs)	No. of persons
less than 200	12
less than 250	26
less than 300	34
less than 350	40
less than 400	50

How many persons earn ₹250 or more but less than ₹350 daily?

Ans
✗ 1. 28
✗ 2. 24
✓ 3. 14
✗ 4. 18

Question ID : **81616112678**
Status : **Answered**
Chosen Option : **3**

Q.6 If $a^3 - b^3 = 2349$ and $(a - b) = 9$, then $(a + b)^2 - ab$ is equal to:

Ans
✓ 1. 261
✗ 2. 280
✗ 3. 229
✗ 4. 244

Question ID : **81616113374**
Status : **Answered**
Chosen Option : **1**

Q.7 If $\sin(A + B) = 1$ and $\cos(A - B) = \frac{\sqrt{3}}{2}$, $A + B \leq 90°$ and $A > B$, then the value of $\frac{5\sin^2 B + 4\tan^2 A}{2\sin B \cos A}$ is :

Ans
✗ 1. 20
✓ 2. $26\frac{1}{2}$
✗ 3. 18
✗ 4. $16\frac{1}{2}$

Question ID : **81616113887**
Status : **Answered**
Chosen Option : **2**

Q.8 A sum of money was lent in two parts in the ratio 4 : 5 for 4 years and 5 years respectively, both at the rate of 8% per annum simple interest. If the difference between the interests earned from the two parts is ₹ 4680, then what was the total sum lent (in ₹)?

Ans
✔ 1. 58500
✘ 2. 46800
✘ 3. 65000
✘ 4. 42120

Question ID : **81616112966**
Status : **Answered**
Chosen Option : **1**

Q.9 If a train runs with the speed of 72 km/h, it reaches its destination late by 15 minutes. However, if its speed is 90 km/h, it is late by only 5 minutes. The correct time to cover its journey in minutes is:

Ans
✘ 1. 32
✘ 2. 40
✘ 3. 45
✔ 4. 35

Question ID : **81616113170**
Status : **Answered**
Chosen Option : **4**

Q.10 If $x - \frac{1}{x} = \sqrt{77}$, then one of the values of $x^3 + \frac{1}{x^3}$ is :

Ans
✔ 1. -702
✘ 2. $77\sqrt{77}$
✘ 3. $3\sqrt{77}$
✘ 4. $80\sqrt{77}$

Question ID : **81616112972**
Status : **Marked For Review**
Chosen Option : **1**

Q.11 Points A and B are on a circle with centre O. Point C is on the major arc AB. If $\angle OAC = 35°$ and $\angle OBC = 45°$, then what is the measure (in degrees) of the angle subtended by the minor arc AB at the centre?

Ans
✘ 1. 80
✘ 2. 70
✘ 3. 100
✔ 4. 160

Question ID : **81616112670**
Status : **Answered**
Chosen Option : **1**

Q.12 If a number P is divisible by 2 and another number Q is divisible by 3, then which of the following is true?

Ans

✔ 1. PxQ is divisible by 6

✘ 2. P+Q is divisible by 6

✘ 3. P+Q is divisible by 5

✘ 4. PxQ is divisible by 5

Question ID : **81616112959**
Status : **Answered**
Chosen Option : **1**

Q.13 In a circle with centre O, AB and CD are parallel chords on the opposite sides of a diameter. If AB = 12 cm, CD = 18 cm and the distance between the chords AB and CD is 15 cm, then find the radius of the circle (in cm).

Ans

✔ 1. $3\sqrt{13}$

✘ 2. 9

✘ 3. $9\sqrt{13}$

✘ 4. 12

Question ID : **81616112974**
Status : **Answered**
Chosen Option : **1**

Q.14 If $a + b + c = 0$, then what is the value of $\frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} + \frac{(a+b)^2}{ab}$?

Ans

✘ 1. 1

✘ 2. -3

✘ 3. -1

✔ 4. 3

Question ID : **81616113173**
Status : **Answered**
Chosen Option : **4**

Q.15 The following table shows the daily seats occupancy in different classes of a train. Numbers in bracket represent the total seats available for a particular class.

Day	2nd Class Non-AC (900)	1st Class Non-AC (500)	AC III Tier (500)	AC II Tier (250)	AC 1st Class (150)
Monday	850	460	480	240	145
Tuesday	840	400	450	230	120
Wednesday	830	390	480	220	130
Thursday	790	480	490	250	125
Friday	840	470	500	210	130

What is the ratio of number of seats that remained vacant in all the Non-AC classes on Wednesday and Thursday taken together to number of seats remained vacant in AC classes on Monday, Tuesday and Friday?

Ans

✘ 1. 35 : 62

✘ 2. 62 : 35

✘ 3. 39 : 62

✔ 4. 62 : 39

Question ID : **81616113689**
Status : **Answered**
Chosen Option : **4**

Q.16 $(\sec\theta+\tan\theta)^2+\frac{1+\operatorname{cosec}\theta}{1-\operatorname{cosec}\theta}$, $0^\circ<\theta<90^\circ$ is:

Ans

✔ 1. 0

✗ 2. -2

✗ 3. 1

✗ 4. 2

Question ID : **81616112473**
Status : **Answered**
Chosen Option : **1**

Q.17 Keshav, Surjeet and Thomas started a business with investments in the ratio 2 : 3 : 4. The ratio of their period of investments is 5 : 6 : 9. Twenty percent of the profit was spent on rent and maintenance of the office. Remaining profit was distributed among themselves. If the difference in the shares of profit of Keshav and Surjeet is ₹7264, then how much is the total profit (in ₹)?

Ans

✗ 1. 51060

✗ 2. 58112

✗ 3. 46490

✔ 4. 72640

Question ID : **81616112963**
Status : **Answered**
Chosen Option : **4**

Q.18 If $sin^6\theta+cos^6\theta=\frac{1}{3}, 0^\circ<\theta<90^\circ$, then what is the value of $\sin\theta\cos\theta$?

Ans

✗ 1. $\frac{\sqrt{6}}{6}$

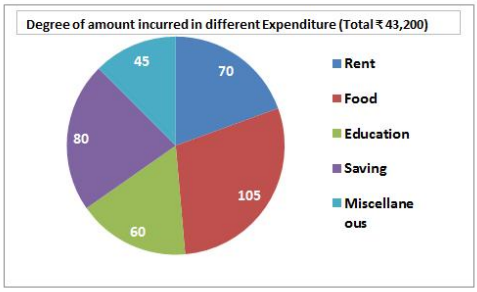
✔ 2. $\frac{\sqrt{2}}{3}$

✗ 3. $\frac{\sqrt{2}}{\sqrt{3}}$

✗ 4. $\frac{2}{9}$

Question ID : **81616112977**
Status : **Answered**
Chosen Option : **2**

Q.19 The given Pie-Chart shows the degree wise breakup of expenditure of a family in a month. Total income of a family is ₹43,200.



Expenditure on food is what percent more than expenditure on rent?

Ans

✗ 1. $\frac{200}{3}\%$

✓ 2. 50%

✗ 3. $\frac{50}{3}\%$

✗ 4. $\frac{100}{3}\%$

Question ID : **81616113687**
Status : **Answered**
Chosen Option : **2**

Q.20 Five men can complete a work in 20 days. Ten women can complete the same work in 15 days. Two men and six women started working together. After 5 days, three women left the work and a new man joined the work. The group continued working together till the end of the work. In how many days will they be able to do the remaining work?

Ans

✓ 1. 14

✗ 2. 19

✗ 3. $18\frac{1}{3}$

✗ 4. $16\frac{2}{3}$

Question ID : **81616112967**
Status : **Answered**
Chosen Option : **1**

Q.21 Alloy A contains metals x and y in the ratio 5 : 2 and alloy B contains these metals in the ratio 3 : 4. Alloy C is prepared by mixing A and B in the ratio 4 : 5. The percentage of y in alloy C is:

Ans

✓ 1. $44\frac{4}{9}\%$

✗ 2. $33\frac{4}{9}\%$

✗ 3. $66\frac{4}{9}\%$

✗ 4. $55\frac{5}{9}\%$

Question ID : **81616113167**
Status : **Answered**
Chosen Option : **1**

Q.22 Simplify the expression $441 \div \left[270 \div \frac{3}{7} + \left(17 \div \frac{1}{3}\right) - \left(8\frac{1}{2} - \frac{5}{2}\right)\right]$

Ans

✔ 1. $\frac{49}{75}$

✗ 2. $\frac{39}{75}$

✗ 3. $\frac{19}{75}$

✗ 4. $\frac{29}{75}$

Question ID : **81616113364**
Status : **Answered**
Chosen Option : **1**

Q.23 In ΔABC, AB and AC are produced to points D and E respectively. If the bisectors of angle CBD and angle BCE meet at point O, such that $\angle BOC = 63°$, then $\angle A = ?$

Ans

✔ 1. $54°$

✗ 2. $27°$

✗ 3. $63°$

✗ 4. $36°$

Question ID : **81616113379**
Status : **Answered**
Chosen Option : **1**

Q.24 What is the length (in cm) of the smallest altitude of the triangle whose sides are 5 cm, 12 cm and 13 cm? (correct to one decimal place)

Ans

✗ 1. 5.1

✗ 2. 12.0

✔ 3. 4.6

✗ 4. 2.6

Question ID : **81616112666**
Status : **Answered**
Chosen Option : **3**

Q.25 Study the table and answer the question.

The data given in the table shows the number of students studying in four different disciplines in 5 institutes.

Institutes	Arts	Science	Commerce	Computer Science
A	36	48	59	57
B	45	54	55	48
C	55	36	56	51
D	45	48	55	53
E	48	44	52	55

Number of students studying commerce in institute D is what percent of the total number of students of the 5 institutes?

Ans

✗ 1. 5.3

✔ 2. 5.5

✗ 3. 20.1

✗ 4. 27.7

Question ID : **81616112680**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 20/08/2021
Exam Time 9:00 AM - 10:00 AM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 A takes 2 hours more than B to cover a distance of 40 km. If A doubles his speed, he takes $1\frac{1}{2}$ hour more than B to cover 80 km. To cover a distance of 120 km, how much time (in hours) will B take travelling at his same speed?

Ans

✗ 1. $1\frac{1}{3}$

✗ 2. $1\frac{2}{3}$

✗ 3. $1\frac{1}{4}$

✓ 4. $1\frac{1}{2}$

Question ID : **81616113372**
Status : **Not Answered**
Chosen Option : **--**

Q.2 An article is marked 27% above its cost price. If x % discount is allowed on the marked price and still there is a profit of 6.68%, then what is the value of x ?

Ans

✗ 1. 20

✗ 2. 12.5

✓ 3. 16

✗ 4. 15

Question ID : **81616113366**
Status : **Not Answered**
Chosen Option : **--**

Q.3 The table shows the daily income of 50 persons.
Study the table and answer the question.

Income (₹)	No. of persons
less than 200	12
less than 250	26
less than 300	34
less than 350	40
less than 400	50

What is the ratio of the number of persons earning less than ₹200 to the number of persons earning ₹300 or more?

Ans

✗ 1. 6 : 17

✓ 2. 3 : 4

✗ 3. 3 : 10

✗ 4. 6 : 5

Question ID : **81616112779**
Status : **Not Answered**
Chosen Option : **--**

Q.4 The data given in the table shows the number of students studying in four different disciplines in 5 institutes.
Study the table and answer the question.

Institutes	Arts	Science	Commerce	Computer Science
A	36	48	59	57
B	45	54	55	48
C	55	36	56	51
D	45	48	55	53
E	48	44	52	55

Number of students studying Computer Science in the institutes A and C taken together is what percent of the number of students studying Arts in the institutes B and D taken together?

Ans

✗ 1. 200

✗ 2. 83.3

✗ 3. 108

✓ 4. 120

Question ID : **81616112781**
Status : **Not Answered**
Chosen Option : **--**

Q.5 Simplify $(x-y+z)^2-(x-y-z)^2$.

Ans

✗ 1. $2xz+2yz$

✗ 2. $4yz-4xz$

✗ 3. $4xz+4yz$

✓ 4. $4xz-4yz$

Question ID : **81616112465**
Status : **Answered**
Chosen Option : **4**

Q.6 In a circle with centre O and radius 13 cm, a chord AB is drawn. Tangents at A and B intersect at P such that $\angle APB = 60^\circ$. If distance of AB from the centre O is 5 cm, then what is the length (in cm) of AP?

Ans

✗ 1. 22

✓ 2. 24

✗ 3. 11

✗ 4. 12

Question ID : **81616112368**
Status : **Marked For Review**
Chosen Option : **2**

Q.7 A certain sum amounts to ₹81840 in 3 years and to ₹92400 in 5 years at $x\%$ p.a under simple interest. If the rate of interest is becomes $(x+2)\%$, then in how many years will the same sum double itself?

Ans

✗ 1. $12\frac{1}{2}$

✗ 2. 8

✓ 3. 10

✗ 4. 20

Question ID : **81616112360**
Status : **Not Answered**
Chosen Option : **--**

Q.8 Find the value of $tan\,35°\,cot\,40°\,tan\,45°\,cot\,50°\,tan\,55°$.

Ans

✗ 1. $\frac{1}{2}$

✓ 2. 1

✗ 3. -1

✗ 4. $\frac{1}{\sqrt{2}}$

Question ID : **81616112877**
Status : **Answered**
Chosen Option : **2**

Q.9 What is the value of k such that number 72k460k is divisible by 6?

Ans

✔ 1. 4

✘ 2. 9

✘ 3. 7

✘ 4. 8

Question ID : **81616112353**
Status : **Answered**
Chosen Option : **1**

Q.10 Triangle ABC is an equilateral triangle. D and E are points on AB and AC respectively such that DE is parallel to BC and is equal to half the length of BC. If AD+CE+BC = 30 cm, then find the perimeter (in cm) of the quadrilateral BCED.

Ans

✘ 1. 45

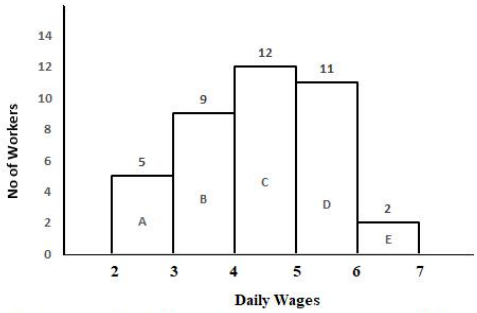
✘ 2. 25

✔ 3. 37.5

✘ 4. 35

Question ID : **81616112470**
Status : **Answered**
Chosen Option : **3**

Q.11 In a factory there are 39 workers who have been categorized into five groups (A, B, C, D, E) on the basis of the range of their daily wages (in multiples of ₹100). The distribution is presented through a Histogram shown below:



What is the ratio of the number of employees whose daily wages are ₹200 or more but less than ₹400 to that of the number of employees whose daily wages are ₹400 or more but less than ₹600?

Ans

✘ 1. 23 : 41

✘ 2. 23 : 14

✘ 3. 41 : 23

✔ 4. 14 : 23

Question ID : **81616113386**
Status : **Not Answered**
Chosen Option : **--**

Q.12 In Δ ABC, D is a point on side AB such that BD = 3 cm and DA = 4 cm. E is a point on BC such that DE ∥ AC,. Then Area of Δ BDE : Area of trapezium ACED =

Ans

✗ 1. 16 : 33

✗ 2. 40 : 9

✗ 3. 33 : 16

✓ 4. 9 : 40

Question ID : **81616113481**
Status : **Answered**
Chosen Option : **1**

Q.13 Weight of A is 20% more than weight of B, whose weight is 30% more than weight of C. By how much percent weight of A is more than weight of C?

Ans

✗ 1. 69

✓ 2. 56

✗ 3. 44

✗ 4. 35.89

Question ID : **81616112357**
Status : **Answered**
Chosen Option : **2**

Q.14 Fourteen persons can do a work in 18 days. After 5 days of work, 6 workers left the work, and joined back on the last day of the work. In how many days the work got completed?

Ans

✗ 1. 24

✗ 2. 12

✗ 3. 21

✓ 4. 27

Question ID : **81616112361**
Status : **Answered**
Chosen Option : **4**

Q.15 Simplify the following expression:

$3 \times 8 \div 9 \text{ of } 6 - 2 \div 3 \times (5 - 2) \times 2 + 18 \div 3 \text{ of } 3$

Ans

✗ 1. -4

✗ 2. $2\frac{12}{13}$

✓ 3. $-1\frac{5}{9}$

✗ 4. $2\frac{1}{3}$

Question ID : **81616112455**
Status : **Not Answered**
Chosen Option : **--**

Q.16 In a circle, chords AB and CD intersect internally, at E. If CD = 16 cm, DE = 6 cm, AE = 12 cm, and BE = x cm then the value of x is:

Ans

✗ 1. 17

✓ 2. 5

✗ 3. 9

✗ 4. 6

Question ID : **81616113478**
Status : **Answered**
Chosen Option : **2**

Q.17 The average of squares of five consecutive odd natural numbers is 233. What is the average of the largest number and the smallest number?

Ans

✗ 1. 11

✗ 2. 17

✗ 3. 13

✓ 4. 15

Question ID : **81616113466**
Status : **Not Answered**
Chosen Option : **--**

Q.18 A sold an article to B at a profit of 25%. B sold it to C at a profit of 15%. The profit made by B is ₹40 less than the profit made by A. What is the cost price (in ₹) of the article for A?

Ans

✗ 1. 546

✗ 2. 400

✓ 3. 640

✗ 4. 240

Question ID : **81616112459**
Status : **Answered**
Chosen Option : **2**

Q.19 If $\sin(20+x)^\circ = \cos 60^\circ, 0 \le (20+x) \le 90$, then find the value of $2\sin^2(3x+15)^\circ - \operatorname{cosec}^2(2x+10)^\circ$.

Ans

✗ 1. 3

✓ 2. -3

✗ 3. -2

✗ 4. $-\frac{1}{3}$

Question ID : **81616112371**
Status : **Answered**
Chosen Option : **2**

Q.20 The ratio of two numbers A and B is 5 : 8. If 5 is added to each of A and B, then the ratio becomes 2 : 3. The difference in A and B is:

Ans

✔ 1. 15

✘ 2. 12

✘ 3. 10

✘ 4. 20

Question ID : **81616113369**
Status : **Answered**
Chosen Option : **1**

Q.21 If $a^2 + b^2 + c^2 + 216 = 12(a + b - 2c)$, then $\sqrt{ab - bc - ca}$ is:

Ans

✔ 1. $6\sqrt{5}$

✘ 2. $4\sqrt{5}$

✘ 3. $3\sqrt{5}$

✘ 4. $8\sqrt{5}$

Question ID : **81616113375**
Status : **Not Answered**
Chosen Option : **--**

Q.22 If $\left(2a + \frac{3}{a} - 1\right) = 11$, what is the value of $\left(4a^2 + \frac{9}{a^2}\right)$?

Ans

✘ 1. 110

✘ 2. 148

✔ 3. 132

✘ 4. 121

Question ID : **81616112366**
Status : **Answered**
Chosen Option : **3**

Q.23 If $sec(5\alpha - 15°) = cosec(15° - 2\alpha)$, then the value of $cos\alpha + sin2\alpha + \tan(1.5\alpha)$ is:

Ans

✘ 1. $\sqrt{2} + 1$

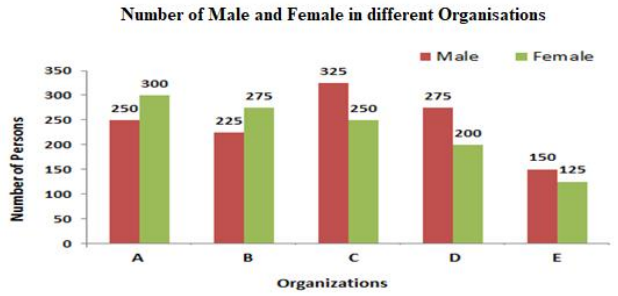
✘ 2. $\sqrt{2} - 1$

✘ 3. $\sqrt{3} - 1$

✔ 4. $\sqrt{3} + 1$

Question ID : **81616113383**
Status : **Answered**
Chosen Option : **4**

Q.24 Bar graph shows the number of males and females in five organizations A, B, C, D and E.



For which organisation, difference between the number of males and the average number of females of all the organisations is minimum?

Ans

✗ 1. C

✓ 2. B

✗ 3. D

✗ 4. A

Question ID : **81616113384**
Status : **Not Answered**
Chosen Option : **--**

Q.25 The area of a quadrant of a circle is $\frac{\pi}{9}\ m^2$. Its radius (in metres) is equal to:

Ans

✗ 1. $\frac{3}{2}$

✗ 2. $\frac{1}{3}$

✗ 3. $\frac{1}{2}$

✓ 4. $\frac{2}{3}$

Question ID : **81616113474**
Status : **Answered**
Chosen Option : **4**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 20/08/2021
Exam Time 12:00 PM - 1:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Q.1 What price (in ₹) should Radha mark on a bag which costs ₹1680 so as to earn a profit of 25% after allowing a discount of 16% on the marked price?

Ans

✗ 1. 2100

✓ 2. 2500

✗ 3. 2000

✗ 4. 2800

Question ID : **81616113568**
Status : **Answered**
Chosen Option : **2**

Q.2 If $2cos^2\theta - 5\cos\theta + 2 = 0, 0° < \theta < 90°$, then the value of $(\sec\theta + \tan\theta)$ is:

Ans

✗ 1. $1 - \sqrt{3}$

✗ 2. $2 - \sqrt{3}$

✗ 3. $1 + \sqrt{3}$

✓ 4. $2 + \sqrt{3}$

Question ID : **81616113282**
Status : **Answered**
Chosen Option : **4**

Q.3 Simplify the following expression:

$15 \div 3\ of\ 2 \times 4 + 9 \div 18\ of\ 2 \times 3 - 4 \div 8 \times 2$

Ans

✓ 1. $9\frac{3}{4}$

✗ 2. $12\frac{3}{4}$

✗ 3. $39\frac{3}{4}$

✗ 4. $42\frac{3}{4}$

Question ID : **81616112253**
Status : **Answered**
Chosen Option : **1**

Q.4 Points A, D, C, B and E are concyclic. If $\angle AEC = 50°$ and $\angle ABD = 30°$, then what is the measure (in degrees) of $\angle CBD$?

Ans

✗ 1. 15

✗ 2. 30

✓ 3. 20

✗ 4. 10

Question ID : **81616112771**
Status : **Not Answered**
Chosen Option : **--**

Q.5 If $\frac{x}{y} + \frac{y}{x} = 2, (x, y \neq o)$, then the value of $(x - y)$ is :

Ans

✗ 1. -2

✗ 2. 1

✗ 3. 2

✓ 4. 0

Question ID : **81616112263**
Status : **Answered**
Chosen Option : **4**

Q.6 Two pipes A and B can fill an empty tank in 10 hours and 16 hours respectively. They are opened alternately for 1 hour each, opening pipe B first. In how many hours, will the empty tank be filled?

Ans

✔ 1. $12\frac{2}{5}$

✘ 2. $14\frac{2}{5}$

✘ 3. $10\frac{2}{5}$

✘ 4. $16\frac{2}{5}$

Question ID : **81616113472**
Status : **Answered**
Chosen Option : **1**

Q.7 A shopkeeper sold two items. The selling price of the first item equals the cost price of the second item. He sold the first item at a profit of 20% and the second item at a loss of 10%. What is his overall profit/ loss percent?

Ans

✘ 1. Loss, $4\frac{6}{11}\%$

✔ 2. Profit, $3\frac{7}{11}\%$

✘ 3. Profit, $4\frac{7}{11}\%$

✘ 4. Loss, $8\frac{1}{3}\%$

Question ID : **81616112257**
Status : **Answered**
Chosen Option : **2**

Q.8 What is the sum of the digits of the largest five digit number which is divisible by 5, 35, 39 and 65?

Ans

✔ 1. 33

✘ 2. 30

✘ 3. 35

✘ 4. 27

Question ID : **81616113464**
Status : **Answered**
Chosen Option : **1**

Q.9 The angles of a triangle are in AP (arithmetic progression). If measure of the smallest angle is $50°$ less than that of the largest angle, then find the largest angle (in degrees).

Ans

✘ 1. 80

✔ 2. 85

✘ 3. 90

✘ 4. 75

Question ID : **81616112268**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.10 If $\left(56\sqrt{7}x^3 - 2\sqrt{2}y^3\right) \div \left(2\sqrt{7}x - \sqrt{2}y\right) = Ax^2 + By^2 - Cxy$, then find the value of $A + B - \sqrt{14}C$.

Ans

✘ 1. 19

✘ 2. 10

✔ 3. 58

✘ 4. 38

Question ID : **81616113477**
Status : **Answered**
Chosen Option : **3**

Q.11 The present population of a village is 15280. If the number of males increases by 25% and the number of females increases by 15%, then the population will become 18428. The difference between present population of males and females in the village is:

Ans

✔ 1. 1840

✘ 2. 1380

✘ 3. 920

✘ 4. 2760

Question ID : **81616113468**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.12 The ratio of monthly incomes of A and B is 4 : 5 and that of their monthly expenditures is 3 : 8. If the income of A is equal to the expenditure of B, then what is the ratio of savings of A and B?

Ans

✘ 1. 8 : 3

✘ 2. 2 : 5

✔ 3. 5 : 2

✘ 4. 3 : 8

Question ID : **81616113571**
Status : **Answered**
Chosen Option : **3**

Q.13 Study the following table and answer the question:
Percentage of marks obtained by six students in five subjects A, B, C, D & E.

Subjects / Students	A (Out of 75)	B (Out of 80)	C (Out of 100)	D (Out of 50)	E (Out of 150)
Manju	68	85	86	72	92
Amit	64	65	80	96	80
Rekha	88	75	65	74	90
Anuj	80	55	68	66	84
Abhi	72	65	72	54	74
Vikram	60	70	73	84	86

The total marks obtained by Anuj in all the five subjects are ?

Ans

✘ 1. 328

✘ 2. 303

✘ 3. 324

✔ 4. 331

Question ID : **81616113890**
Status : **Answered**
Chosen Option : **4**

Q.14 Two circles of radii 18 cm and 16 cm intersect each other and the length of their common chord is 20 cm. What is the distance (in cm) between their centres?

Ans

✔ 1. $4\sqrt{14}+2\sqrt{39}$

✘ 2. $4\sqrt{10}+2\sqrt{39}$

✘ 3. $4\sqrt{14}-2\sqrt{39}$

✘ 4. $4\sqrt{10}-2\sqrt{39}$

Question ID : **81616113479**
Status : **Not Answered**
Chosen Option : **--**

Q.15 If $\cot\theta = \frac{15}{8}$, θ is an acute angle, then find the value of $\frac{(1-\cos\theta)(2+2\cos\theta)}{(2-2\sin\theta)(1+\sin\theta)}$.

Ans

✗ 1. $\frac{16}{15}$

✓ 2. $\frac{64}{225}$

✗ 3. $\frac{225}{64}$

✗ 4. $\frac{8}{15}$

Question ID : **81616112474**
Status : **Answered**
Chosen Option : **2**

Q.16 The volume of a wall whose height is 10 times its width and whose length is 8 times its height is 51.2 m^3. What is the cost (in ₹) of painting the wall on one side at the rate of ₹100/ m^2 ?

Ans

✗ 1. 12750

✗ 2. 12500

✓ 3. 12800

✗ 4. 12250

Question ID : **81616112767**
Status : **Not Answered**
Chosen Option : **--**

Q.17 The data given in the table shows the number of students studying in 4 different disciplines in 5 institutes. Study the table and answer the question:

Institutes	Arts	Science	Commerce	Computer Science
A	36	48	59	57
B	45	54	55	48
C	55	36	56	51
D	45	48	55	53
E	48	44	52	55

What is the ratio of number of students studying Science in institutes C and D taken together to the number of students studying Computer Science in institutes A and E taken together?

Ans

✗ 1. 43 : 56

✗ 2. 42 : 55

✗ 3. 41 : 56

✓ 4. 3 : 4

Question ID : **81616112882**
Status : **Answered**
Chosen Option : **4**

Q.18 The table shows the daily income (in ₹) of 50 persons.
Study the table and answer the question:

Income (₹)	No. of persons
less than 200	12
less than 250	26
less than 300	34
less than 350	40
less than 400	50

What is the percentage of persons earning ₹250 or more?

Ans
✗ 1. 32
✗ 2. 68
✗ 3. 52
✓ 4. 48

Question ID : **81616112880**
Status : **Not Answered**
Chosen Option : **--**

Q.19 A boat can go 5 km upstream and $7\frac{1}{2}$ km downstream in 45 minutes. It can also go 5 km downstream and 2.5 km upstream in 25 minutes. How much time (in minutes) will it take to go 6 km downstream?

Ans
✗ 1. 20
✗ 2. 10
✗ 3. 15
✓ 4. 12

Question ID : **81616113574**
Status : **Answered**
Chosen Option : **4**

Q.20 If $cos(2\theta + 54°) = sin\theta$, $0° < (2\theta + 54°) < 90°$, then what is the value of $\frac{1}{cot5\theta + sec\frac{5\theta}{2}}$?

Ans
✗ 1. $\frac{\sqrt{3}}{2}$
✗ 2. $\frac{1}{3}$
✓ 3. $\frac{\sqrt{3}}{3}$
✗ 4. $\frac{2\sqrt{3}}{3}$

Question ID : **81616113482**
Status : **Answered**
Chosen Option : **3**

Q.21 If $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{7}$, then the value of $x^2 + \frac{1}{x^2}$ is:

Ans
✗ 1. 60
✗ 2. 75
✗ 3. 81
✓ 4. 79

Question ID : **81616113577**
Status : **Answered**
Chosen Option : **4**

Q.22 Study the following table and answer the question:
Percentage of marks obtained by six students in five subjects A, B, C, D & E.

Subjects / Students	A (Out of 75)	B (Out of 80)	C (Out of 100)	D (Out of 50)	E (Out of 150)
Manju	68	85	86	72	92
Amit	64	65	80	96	80
Rekha	88	75	65	74	90
Anuj	80	55	68	66	84
Abhi	72	65	72	54	74
Vikram	60	70	73	84	86

The total marks obtained by Amit in subjects A, B and C is what percent less than the total marks obtained by Vikram in subjects B, C, D and E?

Ans
✗ 1. 42
✗ 2. 35
✗ 3. 38
✓ 4. 40

Question ID : **81616113892**
Status : **Answered**
Chosen Option : **4**

Q.23 The interest (in ₹) to be paid on a sum of ₹30000 at 15% p.a. after $2\frac{2}{3}$ years, if interest compounded yearly, is:

Ans
✗ 1. 12364.50
✓ 2. 13642.50
✗ 3. 16342.50
✗ 4. 14362.50

Question ID : **81616113471**
Status : **Answered**
Chosen Option : **2**

Q.24 The average monthly salary of 60 employees of a factory is ₹29900. If two officers are getting ₹90000 each and the average salary of 8 supervisors is ₹65000, then what is the average salary (in ₹) of the remaining employees?

Ans
✗ 1. 21080
✗ 2. 22680
✗ 3. 29080
✓ 4. 21880

Question ID : **81616112759**
Status : **Answered**
Chosen Option : **4**

Q.25 Points P and Q are on the sides AB and BC respectively of a triangle ABC, right angled at B. If AQ = 11 cm, PC = 8 cm, and AC = 13 cm, then find the length (in cm) of PQ.

Ans
✗ 1. $4\sqrt{7}$
✗ 2. $\sqrt{15}$
✗ 3. 4.5
✓ 4. 4

Question ID : **81616112774**
Status : **Not Answered**
Chosen Option : **--**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	
Venue Name	**Gagan Pratap Maths**
Exam Date	20/08/2021
Exam Time	3:00 PM - 4:00 PM
Subject	Combined Graduate Level Examination 2020 Tier 1

Q.1 A can do a piece of work in 2 days, and B can do five times the same work in 15 days when they work for ten hours a day. If they work together, then how many hours in addition to a days' work will they require to complete the work?

Ans

✔ 1. 2

✘ 2. 1

✘ 3. 0

✘ 4. 3

Question ID : **81616113169**
Status : **Answered**
Chosen Option : **1**

Q.2 The average weight of a certain number of students in a class is 55.5 kg. If 4 students with average weight 60 kg join the class, then the average weight of all students in the class increases by 360 g. The number of students in the class, initially, is:

Ans

✘ 1. 41

✘ 2. 31

✘ 3. 36

✔ 4. 46

Question ID : **81616113971**
Status : **Answered**
Chosen Option : **4**

Q.3 A boat goes 30 km upstream in 3 hours and downstream in 1 hour. How much time (in hours) will this boat take to cover 60 km in still water?

Ans

✘ 1. 6

✔ 2. 3

✘ 3. 5

✘ 4. 2

Question ID : **81616113271**
Status : **Answered**
Chosen Option : **2**

Q.4 The side of an equilateral $\triangle ABC$ is $3\sqrt{7}$ cm. P is a point on side BC such that BP : PC = 1 : 2. The length (in cm) of AP is:

Ans

✘ 1. $6\sqrt{3}$

✘ 2. $7\sqrt{3}$

✘ 3. 6

✔ 4. 7

Question ID : **81616113986**
Status : **Marked For Review**
Chosen Option : **1**

Q.5 Two numbers are in the ratio 2 : 3. If 5 is subtracted from the first number and six is added to the second number, then the ratio becomes 5 : 12. What would the ratio become when eight is added to each number?

Ans

✗ 1. 14 : 11

✓ 2. 14 : 19

✗ 3. 11 : 14

✗ 4. 19 : 14

Question ID : **81616113268**
Status : **Answered**
Chosen Option : **2**

Q.6 The value of $\frac{\tan 13^\circ \tan 36^\circ \tan 45^\circ \tan 54^\circ \tan 77^\circ}{2\sec^2 60^\circ (\sin^2 60^\circ - 3\cos 60^\circ + 2)}$ is:

Ans

✗ 1. $-\frac{1}{4}$

✗ 2. $-\frac{1}{10}$

✓ 3. $\frac{1}{10}$

✗ 4. $\frac{1}{4}$

Question ID : **81616113080**
Status : **Answered**
Chosen Option : **3**

Q.7 A loan is to be returned in two equal yearly instalments. If the rate of interest is 10% p.a., compounded annually and each instalment is ₹6534, then the total interest charged (in ₹) is:

Ans

✓ 1. 1728

✗ 2. 1867

✗ 3. 1642

✗ 4. 1579

Question ID : **81616113168**
Status : **Answered**
Chosen Option : **1**

Q.8 If $x + y + z = 3, xy + yz + zx = -12$ and $xyz = -16$, then the value of $\sqrt{x^3 + y^3 + z^3 + 13}$ is:

Ans

✗ 1. 11

✗ 2. 9

✓ 3. 10

✗ 4. 8

Question ID : **81616113174**
Status : **Answered**
Chosen Option : **3**

Q.9 Simplify the following expression:

$8 \div 4$ of $2 - 15 \div 2$ of $5 - 6 \div 5 \times (-7 + 5)$ of 2

Ans

✗ 1. $31\frac{7}{10}$

✗ 2. $7\frac{3}{10}$

✓ 3. $4\frac{3}{10}$

✗ 4. $-\frac{1}{5}$

Question ID : **81616112556**
Status : **Marked For Review**
Chosen Option : **4**

Q.10 The value of $\sin^2 60^\circ \cos^2 45^\circ + 2\tan^2 60^\circ - \text{cosec}^2 30^\circ$ is equal to:

Ans

✗ 1. $-\frac{17}{24}$

✗ 2. $-\frac{19}{8}$

✗ 3. $\frac{17}{24}$

✓ 4. $\frac{19}{8}$

Question ID : **81616113483**
Status : **Answered**
Chosen Option : **4**

Q.11 The area of a triangular plot having sides 12 m, 35 m and 37 m is equal to the area of a rectangular field whose sides are in the ratio 7 : 3. The perimeter (in m) of the field is:

Ans

✗ 1. $24\sqrt{10}$

✓ 2. $20\sqrt{10}$

✗ 3. $20\sqrt{5}$

✗ 4. $24\sqrt{5}$

Question ID : **81616113979**
Status : **Answered**
Chosen Option : **2**

Q.12 AB is a chord of a circle with centre O and P is any point on the circle. If ∠APB = 122°, then what is the measure of ∠OAB?

Ans

✗ 1. 15°

✗ 2. 28°

✓ 3. 32°

✗ 4. 22°

Question ID : **81616113176**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.13 The marked price of an article is ₹5320. It is subject to two successive discounts, the first being 15%, and the second at a rate of 20% of the first. What is the selling price (to nearest ₹) of the article?

Ans

✓ 1. ₹4386

✗ 2. ₹4127

✗ 3. ₹4522

✗ 4. ₹4000

Question ID : **81616113265**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.14 The value of $sec^4\theta(1 - sin^4\theta) - 2tan^2\theta$ is:

Ans

✓ 1. 1

✗ 2. 0

✗ 3. -1

✗ 4. $\frac{1}{2}$

Question ID : **81616113179**
Status : **Answered**
Chosen Option : **1**

Q.15 Price of a one gram gold coin decreased by 10% on its initial price on Monday and increased by 20% on Tuesday and again increased by 8% on Wednesday, and 5% increase on Thursday. If the final price on Thursday is ₹5511.24, then the initial price (in ₹) of one gram gold coin on Monday was?

Ans

✓ 1. 4500

✗ 2. 4250

✗ 3. 4000

✗ 4. 5000

Question ID : **81616113165**
Status : **Not Answered**
Chosen Option : **--**

Q.16

What is the coefficient of x in the expansion of $(3x-4)^3$?

Ans

✗ 1. -144

✗ 2. -108

✗ 3. 108

✓ 4. 144

Question ID : **81616112566**
Status : **Answered**
Chosen Option : **4**

Q.17 In the table, production and sale (in 1000 tonnes) of a certain product of a company over 5 years is given.
Study the table and answer the question.

years	Production (in 1000 tonnes)	Sale (in 1000 tonnes)
2015	1250	1000
2016	1400	1290
2017	1450	1100
2018	1500	1450
2019	1600	1390

In which year(s) sale is 80% or more but less than 90% of the production?

Ans

✗ 1. 2015, 2016

✗ 2. 2019

✓ 3. 2015, 2019

✗ 4. 2016, 2018

Question ID : **81616112780**
Status : **Answered**
Chosen Option : **1**

Q.18 In a triangle PQR, points E and F are on sides PQ and PR respectively such that EF is parallel to QR. If PE = 2 cm and EQ = 3 cm, then area(ΔPQR) : area(ΔPEF) is equal to:

Ans

✗ 1. 3 : 2

✗ 2. 9 : 4

✗ 3. 5 : 2

✓ 4. 25 : 4

Question ID : **81616112571**
Status : **Answered**
Chosen Option : **4**

Q.19 Two circles of radius 15 cm and 37 cm intersect each other at the points A and B. If the length of common chord is 24 cm, what is the distance (in cm) between the centres of the circles?

Ans

✗ 1. 45

✗ 2. 42

✓ 3. 44

✗ 4. 40

Question ID : **81616113983**
Status : **Answered**
Chosen Option : **3**

Q.20 Study the following table and answer the question:

Percentage of marks obtained by six students A, B, C, D, E and F in five subjects.

Subjects / Students	English (Out of 50)	Math (Out of 150)	Science (Out of 80)	Hindi (Out of 75)	Social Studies (Out of 100)
A	70	90	65	64	88
B	84	92	75	68	49
C	66	80	85	80	84
D	62	74	75	88	60
E	54	64	55	72	85
F	72	84	65	60	65

What are the average marks of students B, C, D and F in Math?

Ans

✗ 1. 120.75

✗ 2. 125.5

✗ 3. 82.5

✓ 4. 123.75

Question ID : **81616113788**
Status : **Answered**
Chosen Option : **3**

Q.21 The number $823p2q$ is exactly divisible by 7, 11 and 13. What is the value of $(p - q)$?

Ans

✗ 1. 8

✗ 2. 3

✓ 3. 5

✗ 4. 11

Question ID : **81616113161**
Status : **Answered**
Chosen Option : **3**

Q.22 Table shows District-wise data of number of primary school teachers posted in schools of a city.
Study the table and answer the question.

District	Male teachers	Female teachers
East	1650	2375
North	1075	2651
West	1280	1520
South	1170	1085
Central	690	859

In which district(s) is the number of female teachers Exceed the number of male teachers by more than 500?

Ans

✗ 1. East and West

✓ 2. East and North

✗ 3. West and South

✗ 4. North and South

Question ID : **81616112778**
Status : **Answered**
Chosen Option : **2**

Q.23 Study the following table and answer the question:
Percentage of marks obtained by six students A, B, C, D, E and F in five subjects.

Subjects / Students	English (Out of 50)	Math (Out of 150)	Science (Out of 80)	Hindi (Out of 75)	Social Studies (Out of 100)
A	70	90	65	64	88
B	84	92	75	68	49
C	66	80	85	80	84
D	62	74	75	88	60
E	54	64	55	72	85
F	72	84	65	60	65

The total marks obtained by student F in English, Science and Hindi is approximately what percent of the total marks obtained by student A in English, Mathematics, Science and Hindi?
(Correct to one decimal place)

Ans

✓ 1. 49.3

✗ 2. 45.5

✗ 3. 50.2

✗ 4. 48.4

Question ID : **81616113790**
Status : **Not Answered**
Chosen Option : **--**

Q.24 Hari suffered a loss of 8% by selling an article. If he had sold it for ₹300 more, he would have made a profit of 4%. Find his CP (in ₹).

Ans

✗ 1. 2250

✓ 2. 2500

✗ 3. 2575

✗ 4. 2400

Question ID : **81616112560**
Status : **Answered**
Chosen Option : **2**

Q.25 If $x - y = 4$ and $x^3 - y^3 = 316$, $y > 0$ then the value of $x^4 - y^4$ is:

Ans

✗ 1. 2482

✓ 2. 2320

✗ 3. 2500

✗ 4. 2401

Question ID : **81616113274**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number	
Candidate Name	Gagan Pratap Maths
Venue Name	
Exam Date	23/08/2021
Exam Time	9:00 AM - 10:00 AM
Subject	Combined Graduate Level Examination 2020 Tier 1

Section : **General Intelligence and Reasoning**

Q.1 **Two numbers A and B are such that the sum of 3% of A and 6% of B is four-fifths of the sum of 4% of A and 6% of B. Find the ratio of A + B and A − B.**

Ans
✗ 1. 6 : 5
✓ 2. 7 : 5
✗ 3. 5 : 6
✗ 4. 4 : 5

Question ID : **81616113633**
Status : **Answered**
Chosen Option : **2**

Q.2 **Select the option that is related to the third word in the same way as the second word is related to the first word.**

Toothpaste : Teeth :: Broom : ?

Ans
✗ 1. Wash
✗ 2. Garbage
✓ 3. Floor
✗ 4. Clean

Question ID : **81616112913**
Status : **Answered**
Chosen Option : **3**

Q.1 A sum of ₹25600 is invested on simple interest partly at 7% per annum and the remaining at 9% per annum. The total interest at the end of 3 years is ₹5832. How much money (in ₹) was invested at 9% per annum?

Ans
1. 18000 ✗
2. 7600 ✓
3. 9600 ✗
4. 16000 ✗

Question ID : **81616113370**
Status : **Answered**
Chosen Option : **2**

Q.2 Study the following table and answer the question:
Percentage of marks obtained by six students in five subjects A, B, C, D & E.

Subjects / Students	A (Out of 75)	B (Out of 80)	C (Out of 100)	D (Out of 50)	E (Out of 150)
Manju	68	85	86	72	92
Amit	64	65	80	96	80
Rekha	88	75	65	74	90
Anuj	80	55	68	66	84
Abhi	72	65	72	54	74
Vikram	60	70	73	84	86

The average marks of Manju, Rekha and Abhi in subject B are?

Ans
1. 54 ✗
2. 60 ✓
3. 56 ✗
4. 62 ✗

Question ID : **81616113889**
Status : **Answered**
Chosen Option : **2**

Q.3 Radha saves x % of her income. If her income increases by 28% and the expenditure increases by 20%, then her savings increase by 40%. What is the value of x ?

Ans
1. 35 ✗
2. 40 ✓
3. 50 ✗
4. 25 ✗

Question ID : **81616113367**
Status : **Not Answered**
Chosen Option : **--**

Q.4 Study the following table and answer the question:
Percentage of marks obtained by six students in five subjects A, B, C, D & E.

Subjects / Students	A (Out of 75)	B (Out of 80)	C (Out of 100)	D (Out of 50)	E (Out of 150)
Manju	68	85	86	72	92
Amit	64	65	80	96	80
Rekha	88	75	65	74	90
Anuj	80	55	68	66	84
Abhi	72	65	72	54	74
Vikram	60	70	73	84	86

Total marks obtained by Amit, Abhi and Anuj in subject E is what percent more than the total marks obtained by all the six students in subject B? (correct to one decimal place)

Ans
✗ 1. 8.4
✗ 2. 7.2
✓ 3. 7.5
✗ 4. 8.5

Question ID : **81616113891**
Status : **Answered**
Chosen Option : **2**

Q.5 If $8 + 2px^2 - 36x - 27x^3 = (2 - 3x)^3$, then what is the value of p?

Ans
✓ 1. 27
✗ 2. 54
✗ 3. 9
✗ 4. -27

Question ID : **81616112365**
Status : **Answered**
Chosen Option : **1**

Q.6 Pipes A and B can fill a tank in 12 hours and 16 hours respectively and pipe C can empty the full tank in 24 hours. All three pipes are opened together, but after 4 hours pipe B is closed. In how many hours, the empty tank will be completely filled?

Ans
✓ 1. 18
✗ 2. 32
✗ 3. 28
✗ 4. 14

Question ID : **81616113371**
Status : **Answered**
Chosen Option : **4**

Q.7 Fourth proportion to 12, 18, 6 is equal to the third proportion to 4, k. What is the value of k?

Ans
✓ 1. 6
✗ 2. $4\sqrt{3}$
✗ 3. 6.5
✗ 4. 4

Question ID : **81616112359**
Status : **Answered**
Chosen Option : **1**

Q.8 If $sin^2\theta - cos^2\theta - 3sin\theta + 2 = 0$, $0° < \theta < 90°$, then what is the value of $\frac{1}{\sqrt{sec\theta - tan\theta}}$ is:

Ans

✔ 1. $\sqrt[4]{3}$

✗ 2. $\sqrt[2]{2}$

✗ 3. $\sqrt[2]{3}$

✗ 4. $\sqrt[4]{2}$

Question ID : **81616113381**
Status : **Answered**
Chosen Option : **1**

Q.9 Table shows the number of trees planted in 4 cities from 2016 to 2020.

Years	Chandigarh	Ahmadabad	Pune	Kolkata
2016	1800	2500	1800	2000
2017	2500	2300	1850	1800
2018	2300	2400	1840	1760
2019	2440	1950	1900	1600
2020	2250	2100	2000	1750

In which city were maximum trees planted in 2016 and 2019 taken together?

Ans

✗ 1. Chandigarh

✔ 2. Ahmedabad

✗ 3. Pune

✗ 4. Kolkata

Question ID : **81616112274**
Status : **Answered**
Chosen Option : **2**

Q.10 In festival season, a shopkeeper allows a discount of 10% on every item. Even after giving the discount, he makes a profit of 20%. If he does not give any discount, then what will be his profit percent? (correct to 2 decimal places)

Ans

✗ 1. 33

✗ 2. 25

✔ 3. 33.33

✗ 4. 33.43

Question ID : **81616112356**
Status : **Answered**
Chosen Option : **3**

Q.11 If the 5 - digit number $593ab$ is divisible by 3, 7 and 11, then what is the value of $(a^2 - b^2 + ab)$?

Ans

✗ 1. 35

✗ 2. 31

✗ 3. 25

✓ 4. 29

Question ID : **81616113363**
Status : **Answered**
Chosen Option : **4**

Q.12 In $\triangle ABC$, $\angle A = 50°$. If the bisectors of the angle B and angle C, meet at a point O, then $\angle BOC$ is equal to:

Ans

✗ 1. $130°$

✗ 2. $65°$

✗ 3. $50°$

✓ 4. $115°$

Question ID : **81616113683**
Status : **Answered**
Chosen Option : **4**

Q.13 Find the value of $\frac{\tan^2 30°}{\sec^2 30°} + \frac{\operatorname{cosec}^2 45°}{\cot^2 45°} - \frac{\sec^2 60°}{\operatorname{cosec}^2 60°}$.

Ans

✓ 1. $-\frac{3}{4}$

✗ 2. $\frac{5}{4}$

✗ 3. $\frac{13}{4}$

✗ 4. $\frac{23}{12}$

Question ID : **81616112978**
Status : **Answered**
Chosen Option : **1**

Q.14 In an examination, the average score of a student was 67.6. If he would have got 27 more marks in Mathematics, 10 more marks in Computer Science, 18 more marks in History and retained the same marks in other subjects, then his average score would have been 72.6. How may papers were there in the examination?

Ans

✓ 1. 11

✗ 2. 10

✗ 3. 12

✗ 4. 9

Question ID : **81616113668**
Status : **Not Answered**
Chosen Option : **--**

Q.15 If $2x^2 - 7x + 5 = 0$, then what is the value of $x^3 + \frac{125}{8x^3}$?

Ans

✗ 1. $12\frac{5}{8}$

✓ 2. $16\frac{5}{8}$

✗ 3. $10\frac{5}{8}$

✗ 4. $18\frac{5}{8}$

Question ID : **81616113376**
Status : **Answered**
Chosen Option : **2**

Q.16 Simplify the following expression:

$7 \times 4 \div 21 \text{ of } 4 - 5 \div 4 \times (9 - 13) + 2 - 2 \div 8$

Ans

✓ 1. $7\frac{1}{12}$

✗ 2. $5\frac{1}{3}$

✗ 3. $12\frac{1}{2}$

✗ 4. $5\frac{1}{16}$

Question ID : **81616112960**
Status : **Answered**
Chosen Option : **1**

Q.17 In triangle ABC, AD is the bisector of $\angle A$. If AB = 5 cm, AC = 7.5 cm and BC = 10 cm, then what is the distance of D from the mid-point of BC (in cm)?

Ans

✗ 1. 2

✗ 2. 1.5

✗ 3. 2.2

✓ 4. 1

Question ID : **81616112975**
Status : **Answered**
Chosen Option : **4**

Q.18 A fruit merchant bought some bananas. One fifth of them got rotten and were thrown away. He sold two fifth of the bananas with him at 15% profit and the remaining bananas at 10% profit. Find his overall loss or profit percent?

Ans

✗ 1. Profit, 9.6%

✓ 2. Loss, 10.4%

✗ 3. Loss, 9.6%

✗ 4. Profit, 10.4%

Question ID : **81616112964**
Status : **Answered**
Chosen Option : **2**

Q.19 Vertices A, B, C and D of a quadrilateral $ABCD$ lie on a circle. $\angle A$ is three times $\angle C$ and $\angle D$ is two times $\angle B$. What is the difference between the measures of $\angle D$ and $\angle C$?

Ans

✗ 1. $55°$

✗ 2. $65°$

✓ 3. $75°$

✗ 4. $45°$

Question ID : **81616113680**
Status : **Not Answered**
Chosen Option : **--**

Q.20 Table shows income (in Rs) received by 4 employees of a company during the month of December 2020 and the income sources.

Source	Amit	Suresh	Nitin	Varun
Salary	35000	38500	29000	42000
Arrears	6000	6300	5000	7500
Bonus	1000	1100	1000	1240
Overtime	1800	1950	1400	1500

Whose income from all sources except salary is more than 25% of his salary?

Ans

✓ 1. Amit and Nitin

✗ 2. Varun

✗ 3. Amit

✗ 4. None

Question ID : **81616112276**
Status : **Not Answered**
Chosen Option : **--**

Q.21 The area of a square shaped field is 1764 m^2. The breadth of a rectangular park is $\frac{1}{6}th$ of the side of the square field and the length is four times its breadth. What is the cost (in ₹) of levelling the park at ₹30 per m^2?

Ans

✓ 1. 5880

✗ 2. 4768

✗ 3. 2940

✗ 4. 6342

Question ID : **81616113676**
Status : **Not Answered**
Chosen Option : **--**

Q.22 A circle is inscribed in a quadrilateral ABCD, touching sides AB, BC CD and DA at P, Q, R and S, respectively. If AS = 6 cm, BC = 12 cm, and CR = 5 cm, then the length of AB (in cm) is:

Ans

✓ 1. 13

✗ 2. 11

✗ 3. 15

✗ 4. 12

Question ID : **81616113378**
Status : **Answered**
Chosen Option : **1**

Q.23 If x is a real quantity, what is the minimum value of $(25\ cos^2 x\ +\ 9\ sec^2 x)$?

Ans

✔ 1. 30

✗ 2. 20

✗ 3. 15

✗ 4. 40

Question ID : **81616113685**
Status : **Answered**
Chosen Option : **1**

Q.24 If $x + \frac{1}{x} = \frac{17}{4}, x > 1$, then what is the value of $x - \frac{1}{x}$?

Ans

✗ 1. $\frac{9}{4}$

✗ 2. $\frac{3}{2}$

✗ 3. $\frac{8}{3}$

✔ 4. $\frac{15}{4}$

Question ID : **81616112970**
Status : **Answered**
Chosen Option : **4**

Q.25 A boat covers a round trip journey between two points A and B in a river in T hours. If its speed in still water becomes 2 times, it would take $\frac{80}{161}T$ hours for the same journey. Find the ratio of its speed in still water to the speed of the river.

Ans

✔ 1. 11 : 1

✗ 2. 161 : 40

✗ 3. 1 : 11

✗ 4. 2 : 1

Question ID : **81616112362**
Status : **Not Answered**
Chosen Option : **--**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name
Venue Name
Exam Date
Exam Time
Subject

Gagan Pratap Maths

23/08/2021
12:00 PM - 1:00 PM
Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 A car can cover a distance of 144 km in 1.8 hours. In what time (in hours) will it cover double the distance when its speed is increased by 20%?

Ans
✗ 1. 2.5
✗ 2. 3.2
✓ 3. 3
✗ 4. 2

Question ID : **81616114079**
Status : **Answered**
Chosen Option : **3**

Q.2 In ΔABC, D is a point on BC such that $\angle BAD = \frac{1}{2}\angle ADC$ and $\angle BAC = 77°$ and $\angle C = 45°$. What is the measure of $\angle ADB$?

Ans
✓ 1. $64°$
✗ 2. $77°$
✗ 3. $45°$
✗ 4. $58°$

Question ID : **81616113480**
Status : **Answered**
Chosen Option : **1**

Q.3 Radha bought a fridge and a washing machine together for ₹57300. She sold the fridge at a profit of 15% and washing machine at a loss of 24% and both are sold at the same price. The cost price of washing machine (in ₹) is:

Ans

✔ 1. 34500

✗ 2. 28650

✗ 3. 22800

✗ 4. 24500

Question ID : **81616113469**
Status : **Answered**
Chosen Option : **1**

Q.4 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in institutes A, B, C, D, E & F.

Years / Institutes	2014	2015	2016	2017	2018
A	110	150	165	180	205
B	120	180	176	200	220
C	140	220	180	175	225
D	125	210	175	180	230
E	150	200	160	200	240
F	165	230	200	220	210

The difference between the average number of students enrolled for VC in institute F in 2015, 2017 and 2018 and the average number of students enrolled in all the six institutes in 2014, is:

Ans

✗ 1. 82

✗ 2. 88

✗ 3. 89

✔ 4. 85

Question ID : **81616113991**
Status : **Answered**
Chosen Option : **4**

Q.5 The cost price of an article is ₹250. A shopkeeper gains 20% by selling it at a discount of 36% on its marked price. What is the marked price (in ₹) of the article?

Ans

✔ 1. 468.75

✗ 2. 475

✗ 3. 380.50

✗ 4. 450

Question ID : **81616114073**
Status : **Answered**
Chosen Option : **1**

Q.6

If $0° < \theta < 90°$, $\sqrt{\frac{\sec^2\theta + \operatorname{cosec}^2\theta}{\tan^2\theta - \sin^2\theta}}$ is equal to:

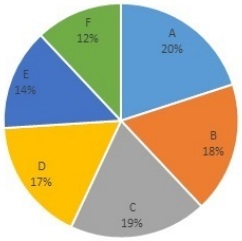
Ans

1. $\sec^3\theta$ ✗
2. $\sin^2\theta$ ✗
3. $\operatorname{cosec}^3\theta$ ✓
4. $\sec^2\theta$ ✗

Question ID : **81616113888**
Status : **Marked For Review**
Chosen Option : **3**

Q.7

The following Pie chart represents the percentage-wise distribution of 800 students of class XII in a school in six different sections A, B, C, D, E and F.



The table given below shows the number of girls of class XII in six different sections A, B, C, D, E and F.

Section	A	B	C	D	E	F
No. of girls	102	80	104	98	0	60

The total number of girls in sections B, C and D together is what percent more than the total number of boys in sections A, B and D together?

Ans

1. 76.25 ✓
2. 50 ✗
3. 80 ✗
4. 65.75 ✗

Question ID : **81616113184**
Status : **Answered**
Chosen Option : **4**

Q.8

If $x^4 + x^2y^2 + y^4 = 21$ and $x^2 + xy + y^2 = 3$, then what is the value of $(-xy)$?

Ans

1. 2 ✓
2. 1 ✗
3. -1 ✗
4. -2 ✗

Question ID : **81616113679**
Status : **Answered**
Chosen Option : **4**

Q.9 A square has the perimeter equal to the circumference of a circle having radius 7 cm. What is the ratio of the area of the circle to area of the square?

$\left(\text{Use } \pi = \frac{22}{7}\right)$

Ans

1. ✗ $7 : 2$
2. ✓ $14 : 11$
3. ✗ $7 : 11$
4. ✗ $121 : 44$

Question ID : **81616112363**
Status : **Answered**
Chosen Option : **2**

Q.10 If x is subtracted from each of 24, 40, 33 and 57, the numbers, so obtained are in proportion. The ratio of $(5x + 12)$ to $(4x + 15)$ is:

Ans

1. ✗ $4 : 3$
2. ✓ $14 : 13$
3. ✗ $7 : 4$
4. ✗ $7 : 5$

Question ID : **81616114076**
Status : **Not Answered**
Chosen Option : **--**

Q.11 $(\text{cosecA} - \text{cotA})\,(1+\text{cosA}) = ?$

Ans

1. ✗ cosecA
2. ✗ cosA
3. ✓ sinA
4. ✗ cotA

Question ID : **81616112272**
Status : **Answered**
Chosen Option : **3**

Q.12 Three persons A, B and C donate 10%, 7% and 9% respectively of their monthly salaries to a charitable trust. Monthly salaries of A and B are equal and the difference between the donations of A and B is ₹900. If the total donation by A and B is ₹600 more than that of C, then what is the monthly salary (in ₹) of C?

Ans

1. ✗ 60000
2. ✓ 50000
3. ✗ 45000
4. ✗ 55000

Question ID : **81616113670**
Status : **Answered**
Chosen Option : **2**

Q.13 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in institutes A, B, C, D, E & F.

Years / Institutes	2014	2015	2016	2017	2018
A	110	150	165	180	205
B	120	180	176	200	220
C	140	220	180	175	225
D	125	210	175	180	230
E	150	200	160	200	240
F	165	230	200	220	210

The total number of students enrolled for VC in institutes D and F in 2014 is what percent of the total number of students enrolled in institutes A, B and C in 2018? (correct to one decimal point)

Ans

✔ 1. 44.6

✘ 2. 42.8

✘ 3. 43.8

✘ 4. 43.2

Question ID : **81616113993**
Status : **Answered**
Chosen Option : **1**

Q.14 To do a certain work, efficiencies of A and B are in the ratio 7 : 5. Working together, they can complete the work in $17\frac{1}{2}$ days. In how many days, will B alone complete 50% of the same work?

Ans

✘ 1. 15

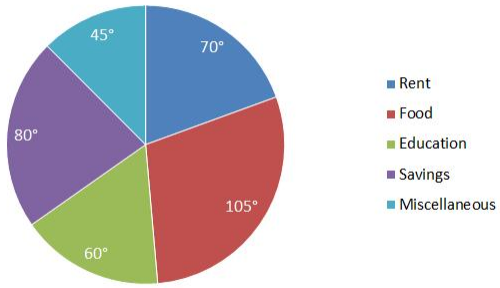
✘ 2. 30

✘ 3. 42

✔ 4. 21

Question ID : **81616113674**
Status : **Answered**
Chosen Option : **4**

Q.15 Pie-Chart shows the degree wise breakup of expenditure of a family in a month. Total income of the family is ₹144000.



What is the expenditure (in ₹) on education?

Ans

✔ 1. 24000

✗ 2. 20000

✗ 3. 12000

✗ 4. 36000

Question ID : **81616113182**
Status : **Answered**
Chosen Option : **1**

Q.16 If $\frac{sin^2\theta}{tan^2\theta - sin^2\theta} = 5$, θ is an acute angle, then the value of $\frac{24\,sin^2\theta - 15\,sec^2\theta}{6\,cosec^2\theta - 7\,cot^2\theta}$ is:

Ans

✗ 1. 2

✔ 2. -14

✗ 3. 14

✗ 4. -2

Question ID : **81616113684**
Status : **Answered**
Chosen Option : **2**

Q.17 If the six-digit number $5z3x4y$ is divisible by 7, 11 and 13, then what is the value of $(x + y - z)$?

Ans

✗ 1. 5

✔ 2. 4

✗ 3. 6

✗ 4. 3

Question ID : **81616113666**
Status : **Answered**
Chosen Option : **2**

Q.18 At what rate percent per annum will ₹7200 amount to ₹7938 in one year, if interest is compounded half yearly?

Ans

✗ 1. 5

✗ 2. 12

✗ 3. 8

✓ 4. 10

Question ID : **81616113673**
Status : **Answered**
Chosen Option : **4**

Q.19 A tangent is drawn from a point P to a circle, which meets the circle at T such that PT = 8 cm. A secant PAB intersects the circle in points A and B. If PA = 5 cm, what is the length (in cm) of the chord AB?

Ans

✗ 1. 6.4

✗ 2. 8.4

✓ 3. 7.8

✗ 4. 8.0

Question ID : **81616112367**
Status : **Answered**
Chosen Option : **3**

Q.20 In triangle ABC, D and E are the mid points of AB and BC respectively. If area$(\Delta CED) = 8\ cm^2$, then what is the area$(ADEC)$ in cm^2 ?

Ans

✗ 1. 21

✗ 2. 32

✓ 3. 24

✗ 4. 16

Question ID : **81616112370**
Status : **Answered**
Chosen Option : **3**

Q.21 The value of $423 \div \left[270 \div \frac{3}{7} \times 35 + \left(17 \div \frac{1}{3}\right) - \left(8\frac{1}{2} - \frac{5}{2}\right)\right]$ is:

Ans

✗ 1. $\frac{41}{2455}$

✓ 2. $\frac{47}{2455}$

✗ 3. $\frac{51}{2455}$

✗ 4. $\frac{43}{2455}$

Question ID : **81616113465**
Status : **Answered**
Chosen Option : **2**

Q.22 The average weight of students of section A and B having 40 students each is 45.5 kg and 44.2 kg respectively. Two students of section A having average weight 48.75 kg were shifted to section B and 2 students of section B were shifted to section A, making the average weight of both the sections equal. What is the average weight (in kg) of the students who were shifted from section B to section A?

Ans

✗ 1. 34.5

✗ 2. 35

✓ 3. 35.75

✗ 4. 34.25

Question ID : **81616112355**
Status : **Answered**
Chosen Option : **3**

Q.23 If $x + \frac{1}{x} = 2\sqrt{5}$, then what is the value of $\frac{\left(x^4 + \frac{1}{x^2}\right)}{x^2 + 1}$?

Ans

✗ 1. 20

✗ 2. 23

✗ 3. 14

✓ 4. 17

Question ID : **81616114082**
Status : **Answered**
Chosen Option : **4**

Q.24 If $(x + 6)^3 + (2x + 3)^3 + (3x + 5)^3 = (3x + 18)(2x + 3)(3x + 5)$, then what is the value of x ?

Ans

✗ 1. $\frac{7}{3}$

✗ 2. $-\frac{5}{3}$

✗ 3. $\frac{5}{3}$

✓ 4. $-\frac{7}{3}$

Question ID : **81616113475**
Status : **Answered**
Chosen Option : **4**

Q.25 The area of a circular path enclosed by two concentric circles is 3080 m^2 . If the difference between the radius of the outer edge and that of inner edge of the circular path is 10 m, what is the sum (in m) of the two radii? (Take $\pi = \frac{22}{7}$)

Ans

✗ 1. 70

✗ 2. 112

✓ 3. 98

✗ 4. 84

Question ID : **81616113681**
Status : **Answered**
Chosen Option : **3**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 23/08/2021
Exam Time 3:00 PM - 4:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 If $x + y + z = 2, x^3 + y^3 + z^3 - 3xyz = 74$, then $(x^2 + y^2 + z^2)$ is equal to :

Ans
✗ 1. 22
✗ 2. 29
✓ 3. 26
✗ 4. 24

Question ID : **81616113881**
Status : **Answered**
Chosen Option : **3**

Q.2 The perimeter of a circular lawn is 1232 m. There is 7 m wide path around the lawn. The area (in m^2) of the path is:

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

Ans

✗ 1. 8800

✗ 2. 8756

✗ 3. 8558

✓ 4. 8778

Question ID : **81616113777**
Status : **Not Answered**
Chosen Option : **--**

Q.3 If $\sin\alpha + \sin\beta = \cos\alpha + \cos\beta = 1$, then $\sin\alpha + \cos\alpha = ?$

Ans

✗ 1. 2

✗ 2. 0

✓ 3. 1

✗ 4. -1

Question ID : **81616114291**
Status : **Answered**
Chosen Option : **2**

Q.4 $\triangle ABC$ is an equilateral triangle with side 18 cm. D is a point on BC such that $BD = \frac{1}{3}BC$. Then length (in cm) of AD is:

Ans

✗ 1. $6\sqrt{3}$

✓ 2. $6\sqrt{7}$

✗ 3. $7\sqrt{6}$

✗ 4. $8\sqrt{3}$

Question ID : **81616113784**
Status : **Not Answered**
Chosen Option : **--**

Q.5 Triangles ABC and DBC are right angled triangles with common hypotenuse BC. BD and AC intersect at P when produced. If PA = 8 cm, PC = 4 cm and PD = 3.2 cm, then the length of BD, in cm, is :

Ans

✗ 1. 5.6

✗ 2. 7.2

✗ 3. 6.4

✓ 4. 6.8

Question ID : **81616113883**
Status : **Not Answered**
Chosen Option : **--**

Q.6 A person borrowed a sum of ₹30800 at 10% p.a. for 3 years, interest compounded annually. At the end of two years, he paid a sum of ₹13268. At the end of 3rd year, he paid ₹ x to clear of the debt. What is the value of x ?

Ans

✗ 1. 26200

✗ 2. 26620

✓ 3. 26400

✗ 4. 26510

Question ID : **81616113875**
Status : **Not Answered**
Chosen Option : **--**

Q.7 A train running at 48 km/h crosses a man going with the speed of 12 km/h, in the same direction, in 18 seconds and passes a woman coming from the opposite direction in 12 seconds. The speed (in km/h) of the woman is :

Ans

✗ 1. 8

✗ 2. 9

✓ 3. 6

✗ 4. 10

Question ID : **81616113877**
Status : **Answered**
Chosen Option : **3**

Q.8 The value of $54 \div 16$ *of* $3 \times [12 \div 4$ *of* $\{6 \times 3 \div (11 - 2)\}] \div (12 \div 8 \times 2)$ is:

Ans

✗ 1. $\frac{3}{4}$

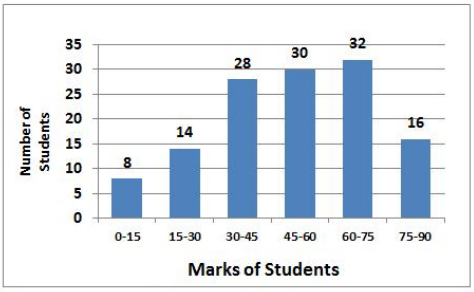
✓ 2. $\frac{9}{16}$

✗ 3. $\frac{3}{8}$

✗ 4. $\frac{9}{8}$

Question ID : **81616114172**
Status : **Answered**
Chosen Option : **2**

Q.9 The given histogram represents the marks obtained by 128 students. Read the graph and answer the question that follows.



What percent of students got marks less than 60?

Ans

✗ 1. 67.5%

✓ 2. 62.5%

✗ 3. 75%

✗ 4. 72.5%

Question ID : **81616113081**
Status : **Answered**
Chosen Option : **2**

Q.10 If $9(a^2 + b^2) + c^2 + 20 = 12(a + 2b)$, then the value of $\sqrt{6a + 9b + 2c}$ is :

Ans

✗ 1. 3

✓ 2. 4

✗ 3. 2

✗ 4. 6

Question ID : **81616113880**
Status : **Answered**
Chosen Option : **2**

Q.11 To do a certain work, the ratio of efficiencies of X and Y is 5 : 7. Working together, X and Y can complete the same work in 70 days. X alone started the work and left after 42 days. Y alone will complete the remaining work in :

Ans

✓ 1. 90 days

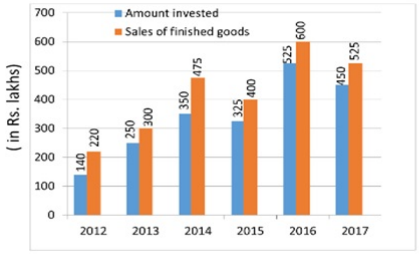
✗ 2. 96 days

✗ 3. 80 days

✗ 4. 72 days

Question ID : **81616113876**
Status : **Answered**
Chosen Option : **1**

Q.12 The following bar graph shows the amount (in Lakh Rs.) invested by a Company in purchasing raw material over the years and the values (in Lakh Rs.) of finished goods sold by the Company over the years.



The ratio of total amount invested for purchasing raw material from 2013 to 2015 to the total sales of finished goods in 2014, 2016 and 2017 is :

Ans

✗ 1. 56 : 27

✗ 2. 64 : 37

✓ 3. 37 : 64

✗ 4. 27 : 56

Question ID : **81616113083**
Status : **Answered**
Chosen Option : **3**

Q.13 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in five institutes - A, B, C, D & E.

Year / Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
B	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

The total number of students enrolled for VC in institutes A, B and D in 2015 is what percent more than the total number of students enrolled in institutes C and E in 2018? (correct to one decimal point)

Ans

✗ 1. 35.7

✗ 2. 36.8

✓ 3. 39.3

✗ 4. 28.2

Question ID : **81616114094**
Status : **Answered**
Chosen Option : **3**

Q.14 Study the following table and answer the question:

Number of students enrolled for Vocational Courses (VC) in five institutes - A, B, C, D & E.

Year / Institute	2013	2014	2015	2016	2017	2018
A	120	135	130	135	128	140
B	125	132	138	132	135	142
C	125	120	125	138	140	135
D	100	125	122	140	128	138
E	105	110	115	147	130	145

What is the sum of the average number of students enrolled for VC in institute B in 2014, 2015 and 2017 and the average number of students enrolled in institute E in 2013 and 2018?

Ans

✗ 1. 255

✗ 2. 250

✓ 3. 260

✗ 4. 265

Question ID : **81616114092**
Status : **Answered**
Chosen Option : **3**

Q.15 If $\frac{1}{1-\sin\theta}+\frac{1}{1+\sin\theta}=4\sec\theta,\ 0°<\theta<90°$, then the value of $\cot\theta+\operatorname{cosec}\theta$ is :

Ans

✗ 1. $\frac{5\sqrt{3}}{3}$

✗ 2. $3\sqrt{3}$

✓ 3. $\sqrt{3}$

✗ 4. $\frac{4\sqrt{3}}{3}$

Question ID : **81616113886**
Status : **Answered**
Chosen Option : **3**

Q.16 The marked price of an article is ₹180. Renu sells it after 20% discount on its marked price and still gains 25%. The cost price (in ₹) of the article is :

Ans

✗ 1. 120.80

✗ 2. 125.50

✗ 3. 110.80

✓ 4. 115.20

Question ID : **81616113871**
Status : **Answered**
Chosen Option : **4**

Q.17 When x is subtracted from each of the numbers 54, 49, 22 and 21, the numbers so obtained are in proportion. The ratio of $(8x - 25)$ to $(7x - 26)$ is:

Ans

✔ 1. $29 : 24$

✘ 2. $15 : 13$

✘ 3. $27 : 26$

✘ 4. $5 : 4$

Question ID : **81616113874**
Status : **Answered**
Chosen Option : **1**

Q.18 If $(2x + y)^3 - (x - 2y)^3 = (x + 3y)[Ax^2 + By^2 + Cxy]$, then what is the value of $(A + 2B + C)$?

Ans

✘ 1. 13

✘ 2. 7

✘ 3. 14

✔ 4. 10

Question ID : **81616114182**
Status : **Answered**
Chosen Option : **4**

Q.19 A dealer bought some toys for ₹1800. He sold 40% of these at a loss of 15% and $33\frac{1}{3}$% of the remaining toys at 20% profit. At what percent profit should he sell the remaining toys to earn an overall profit of 10%?

Ans

✔ 1. 30%

✘ 2. 24%

✘ 3. 25%

✘ 4. 20%

Question ID : **81616114176**
Status : **Not Answered**
Chosen Option : **--**

Q.20 The bisector of ∠A in △ABC meets side BC at D. If AB = 12 cm, AC = 15 cm and BC = 18 cm, then the length of DC is:

Ans

✘ 1. 9 cm

✘ 2. 6 cm

✔ 3. 10 cm

✘ 4. 8 cm

Question ID : **81616114187**
Status : **Answered**
Chosen Option : **3**

Q.21 If the 9-digit number $89x64287y$ is divisible by 72, then what is the value of $(3x + 2y)$?

Ans

✗ 1. 30

✗ 2. 25

✓ 3. 28

✗ 4. 31

Question ID : **81616113868**
Status : **Answered**
Chosen Option : **3**

Q.22 Lucky spends 85% of her income. If her expenditure increases by x %, savings increase by 60% and income increases by 26%, then what is the value of x ?

Ans

✗ 1. 30

✗ 2. 34

✗ 3. 26

✓ 4. 20

Question ID : **81616113872**
Status : **Answered**
Chosen Option : **4**

Q.23 There are some children in a camp and their average weight is 40 kg. If 5 children with average weight 36 kg join the camp or if 5 children with average weight 43.2 kg leave the camp, the average weight of children in both cases is equal. How many children are there in the camp, initially?

Ans

✗ 1. 35

✓ 2. 45

✗ 3. 40

✗ 4. 50

Question ID : **81616113769**
Status : **Answered**
Chosen Option : **3**

Q.24 Find the value of $\text{cosec}(60° + A) - \sec(30° - A) + \frac{\text{cosec } 49°}{\sec 41°}$.

Ans

✗ 1. 2

✗ 2. -1

✗ 3. 0

✓ 4. 1

Question ID : **81616112979**
Status : **Answered**
Chosen Option : **4**

Q.25 $ABCD$ is a cyclic quadrilateral in which $\angle A = x°, \angle B = 5y°, \angle C = 2x°$ and $\angle D = y°$. What is the value of $(3x - y)$?

Ans

✗ 1. 120

✗ 2. 60

✗ 3. 90

✓ 4. 150

Question ID : **81616113781**
Status : **Answered**
Chosen Option : **4**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 24/08/2021
Exam Time 9:00 AM - 10:00 AM
Subject Combined Graduate Level Examination 2020 Tier 1

Q.1 If p is the third proportional to 3, 9, then what is the fourth proportional to 6, p, 4?

Ans

✗ 1. $\frac{3}{2}$

✗ 2. $2\sqrt{3}$

✗ 3. 10

✓ 4. 18

Question ID : **81616112561**
Status : **Answered**
Chosen Option : **4**

Q.2 A train covers 450 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less to cover the same distance. How much time will it take to cover 315 km at its usual speed?

Ans

✓ 1. 7 h

✗ 2. 6 h 30 m

✗ 3. 6 h 18 m

✗ 4. 7 h 52 m

Question ID : **81616112564**
Status : **Answered**
Chosen Option : **1**

Q.3 If $a^4 + b^4 + a^2b^2 = 273$ and $a^2 + b^2 - ab = 21$, then one of the values of $\left(\frac{1}{a} + \frac{1}{b}\right)$ is:

Ans

✗ 1. $-\frac{9}{4}$

✓ 2. $-\frac{3}{4}$

✗ 3. $\frac{9}{8}$

✗ 4. $\frac{3}{2}$

Question ID : **81616114285**
Status : **Answered**
Chosen Option : **2**

Q.4 A customer wanted to purchase an item marked for ₹10000. Shopkeeper offered two types of discounts, 25% flat discount or successive discounts of 14% and 12%. Which is the better offer for the customers and by how much?

Ans

✗ 1. second offer by ₹100

✓ 2. first offer by ₹68

✗ 3. second offer by ₹68

✗ 4. first offer by ₹32

Question ID : **81616112558**
Status : **Answered**
Chosen Option : **2**

Q.5 A sum of ₹9500 amounts to ₹11495 in 2 years at a certain rate percent per annum, interest compounded yearly. What is the simple interest (in ₹) on the same sum for the same time and double the rate?

Ans

✗ 1. 3420

✗ 2. 3990

✓ 3. 3800

✗ 4. 4560

Question ID : **81616114279**
Status : **Answered**
Chosen Option : **3**

Q.6 Study the following table and answer the question:

Number of students Appeared (A) and Passed (P) in an annual examination from four schools Q, R, S & T in five years (2014 to 2018)

School / Year	Q		R		S		T	
	A	P	A	P	A	P	A	P
2014	320	240	400	340	420	273	250	225
2015	400	320	380	285	350	280	300	228
2016	440	286	360	288	330	264	320	256
2017	350	252	420	294	380	247	350	315
2018	375	320	450	405	400	344	375	300

The total number of students passed from school S in 2014 and 2017 is what percent of 90% of the total number of students appeared from school T in 2015, 2016 and 2017? (correct to one decimal place)

Ans

✗ 1. 53.9

✗ 2. 57.4

✗ 3. 54.8

✓ 4. 59.6

Question ID : **81616114296**
Status : **Answered**
Chosen Option : **4**

Q.7 If $2x+3y+1=0$, then what is the value of $\left(8x^3+8+27y^3-18xy\right)$?

Ans

✓ 1. 7

✗ 2. -9

✗ 3. -7

✗ 4. 9

Question ID : **81616112567**
Status : **Answered**
Chosen Option : **1**

Q.8 The total number of students in a school is 1400, out of which 35% of the students are girls and the rest are boys. If 80% of the boys and 90% of the girls passed in an annual examination, then the percentage of the students who failed is:

Ans

✗ 1. 17.4

✗ 2. 21.5

✗ 3. 15.8

✓ 4. 16.5

Question ID : **81616114276**
Status : **Answered**
Chosen Option : **4**

Q.9 The average of 23 numbers is 51. The average of first 12 numbers is 49 and the average of last 12 numbers is 54. If the twelfth number is removed, then the average of the remaining numbers (correct to two decimal places) is:

Ans

✓ 1. 50.45

✗ 2. 53.25

✗ 3. 51.75

✗ 4. 52.65

Question ID : **81616113062**
Status : **Answered**
Chosen Option : **1**

Q.10 A can complete a work in $11\frac{1}{2}$ days. B is 25% more efficient than A and C is 50% efficient than B. Working together A, B and C will complete the same work

Ans

✗ 1. 8 days

✓ 2. 4 days

✗ 3. 3 days

✗ 4. 5 days

Question ID : **81616114280**
Status : **Not Answered**
Chosen Option : **--**

Q.11 The area of a table top in the shape of an equilateral triangle is $9\sqrt{3}\ cm^2$. What is the length (in cm) of each side of the table?

Ans

✓ 1. 6

✗ 2. 2

✗ 3. 4

✗ 4. 3

Question ID : **81616113070**
Status : **Answered**
Chosen Option : **1**

Q.12 Table shows the number of trees planted in 4 cities from 2016 to 2020.

Years	Chandigarh	Ahmadabad	Pune	Kolkata
2016	1800	2500	1800	2000
2017	2500	2300	1850	1800
2018	2300	2400	1840	1760
2019	2440	1950	1900	1600
2020	2250	2100	2000	1750

What is the total number of trees planted in Chandigarh in 2017 and in Kolkata in 2020?

Ans

✗ 1. 4750

✗ 2. 4500

✓ 3. 4250

✗ 4. 3550

Question ID : **81616112375**
Status : **Answered**
Chosen Option : **3**

Q.13 Let $\triangle ABC \sim \triangle RPQ$ and $\frac{ar(\triangle ABC)}{ar(\triangle PQR)} = \frac{16}{25}$. If PQ = 4 cm, QR = 6 cm and PR = 7 cm, then AC (in cm) is equal to:

Ans

✗ 1. 7.2

✗ 2. 6

✓ 3. 4.8

✗ 4. 3.6

Question ID : **81616113077**
Status : **Answered**
Chosen Option : **3**

Q.14 If $\tan\theta + 3\cot\theta - 2\sqrt{3} = 0,\ 0° < \theta < 90°$, then what is the value of $(\text{cosec}^2\theta + \cos^2\theta)$?

Ans

✓ 1. $\frac{19}{12}$

✗ 2. $\frac{2}{3}$

✗ 3. $\frac{11}{12}$

✗ 4. $\frac{14}{3}$

Question ID : **81616114290**
Status : **Answered**
Chosen Option : **1**

Q.15 The value of $3\frac{1}{5} \div 4\frac{1}{2}\ of\ 5\frac{1}{3} - \frac{1}{8} \div \frac{1}{2} of\ \frac{1}{4} + \frac{1}{4}\left(\frac{1}{2} \div \frac{1}{8} \times \frac{1}{4}\right)$ is:

Ans

✔ 1. $-\frac{37}{60}$

✗ 2. $\frac{17}{60}$

✗ 3. $-\frac{17}{60}$

✗ 4. $\frac{37}{60}$

Question ID : **81616113061**
Status : **Answered**
Chosen Option : **1**

Q.16 Study the following table and answer the question:

Number of students Appeared (A) and Passed (P) in an annual examination from four schools Q, R, S & T in five years (2014 to 2018)

School / Year	Q		R		S		T	
	A	P	A	P	A	P	A	P
2014	320	240	400	340	420	273	250	225
2015	400	320	380	285	350	280	300	228
2016	440	286	360	288	330	264	320	256
2017	350	252	420	294	380	247	350	315
2018	375	320	450	405	400	344	375	300

The difference between the average number of students passed from school R in 2015 to 2017 and the number of students passed from school Q in 2015 is x. The value of x lies between:

Ans

✗ 1. 35 and 40

✔ 2. 30 and 35

✗ 3. 20 and 25

✗ 4. 25 and 30

Question ID : **81616114294**
Status : **Answered**
Chosen Option : **2**

Q.17 The sum of 3-digit numbers abc, cab and bca is not divisible by:

Ans

✗ 1. a + b + c

✗ 2. 37

✔ 3. 31

✗ 4. 3

Question ID : **81616114272**
Status : **Not Answered**
Chosen Option : **--**

Q.18 In a triangle ABC, length of the side AC is 4 cm more than 2 times the length of the side AB. Length of the side BC is 4 cm less than the three times the length of the side AB. If the perimeter of ΔABC is 60 cm, then its area (in cm^2) is:

Ans

✔ 1. 120

✗ 2. 150

✗ 3. 144

✗ 4. 100

Question ID : **81616113076**
Status : **Answered**
Chosen Option : **1**

Q.19 Table shows income (in ₹) received by 4 employees of a company during the month of December 2020 and all their income sources.

Source	Amit	Suresh	Nitin	Varun
Salary	35000	38500	29000	42000
Arrears	6000	6300	5000	7500
Bonus	1000	1100	1000	1240
Overtime	1800	1950	1400	1500

What is the ratio of salary of Varun to his income other than salary?

Ans

✔ 1. 525 : 128

✗ 2. 653 : 128

✗ 3. 128 : 653

✗ 4. 128 : 525

Question ID : **81616112377**
Status : **Answered**
Chosen Option : **1**

Q.20 If $x + \frac{1}{x} = 7$, then $x^2 + \frac{1}{x^2}$ is equal to:

Ans

✔ 1. 47

✗ 2. 49

✗ 3. 61

✗ 4. 51

Question ID : **81616113071**
Status : **Answered**
Chosen Option : **1**

Q.21 ABCD is a cyclic quadrilateral such that when sides AB and DC are produced, they meet at E, and sides AD and BC meet at F, when produced. If $\angle ADE = 80°$ and $\angle AED = 50°$, then what is the measure of $\angle AFB$?

Ans

✔ 1. 30°

✗ 2. 40°

✗ 3. 20°

✗ 4. 50°

Question ID : **81616114287**
Status : **Answered**
Chosen Option : **1**

Q.22 Simplify $\sec^2\alpha\left(1+\frac{1}{\operatorname{cosec}\alpha}\right)\left(1-\frac{1}{\operatorname{cosec}\alpha}\right)$.

Ans
1. $\tan^4\alpha$ ✗
2. -1 ✗
3. 1 ✓
4. $\sin^2\alpha$ ✗

Question ID : **81616112675**
Status : **Answered**
Chosen Option : **3**

Q.23 In ΔABC, right angled at B, if $\cot A=\frac{1}{2}$, then the value of $\frac{\sin A\,(\cos C+\cos A)}{\cos C(\sin C-\sin A)}$ is

Ans
1. -3 ✓
2. 2 ✗
3. 3 ✗
4. -2 ✗

Question ID : **81616113686**
Status : **Answered**
Chosen Option : **1**

Q.24 The vertices of a Δ ABC lie on a circle with centre O. AO is produced to meet the circle at the point P. D is a point on BC such that AD $\perp$ BC. If $\angle$ B = 68° and $\angle$ C = 52°, then the measure of $\angle$ DAP is:

Ans
1. 28° ✗
2. 16° ✓
3. 12° ✗
4. 18° ✗

Question ID : **81616113074**
Status : **Not Answered**
Chosen Option : **--**

Q.25 If selling price of 75 articles is equal to cost price of 60 articles, then the approximate loss or gain percent is :

Ans
1. Loss of 20% ✓
2. No profit no loss ✗
3. Profit of 25% ✗
4. Loss of 30% ✗

Question ID : **81616113065**
Status : **Answered**
Chosen Option : **1**

Section : **English Comprehension**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name
Venue Name

Gagan Pratap Maths

Exam Date 24/08/2021
Exam Time 12:00 PM - 1:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 Points A, B and C are on a circle with centre O such that $\angle BOC = 84°$. If AC is produced to a point D such that $\angle BDC = 40°$, then find the measure of $\angle ABD$ (in degrees).

Ans
✗ 1. 92
✗ 2. 102
✗ 3. 56
✓ 4. 98

Question ID : **81616112973**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.2 Avinash has 20% less coins of different countries than Gaurav has. Gaurav has 40% more such coins than Chetan has. By what percent the number of coins which Chetan has is less than the number of coins which Avinash has? (correct to one decimal place)

Ans

✗ 1. 10.6

✗ 2. 10.5

✗ 3. 12

✓ 4. 10.7

Question ID : **81616112559**
Status : **Answered**
Chosen Option : **3**

Q.3 Simplify the following expression.

$$\frac{5\left(a^6-b^6\right)^3+5\left(b^6-c^6\right)^3+5\left(c^6-a^6\right)^3}{2\left(a^3-b^3\right)^3+2\left(b^3-c^3\right)^3+2\left(c^3-a^3\right)^3}$$

Ans

✓ 1. $\frac{5}{2}\left(a^3+b^3\right)\left(b^3+c^3\right)\left(c^3+a^3\right)$

✗ 2. $\frac{5}{2}\left(a^3+b^3\right)\left(b^3-c^3\right)\left(c^3-a^3\right)$

✗ 3. $\frac{5}{2}\left(a^3-b^3\right)\left(b^3+c^3\right)\left(c^3+a^3\right)$

✗ 4. $\frac{5}{2}\left(a^3-b^3\right)\left(b^3-c^3\right)\left(c^3+a^3\right)$

Question ID : **81616112568**
Status : **Not Answered**
Chosen Option : **--**

Q.4 A man walking at a speed of 3km/h crosses a square field diagonally in 5 minutes. What is the area of the field (in m^2) ?

Ans

✗ 1. 3125

✓ 2. 31250

✗ 3. 3.125

✗ 4. 312.5

Question ID : **81616112969**
Status : **Answered**
Chosen Option : **3**

Q.5 The value of $\frac{sec^2 60° cos^2 45° + cosec^2 30°}{cot 30° \, sec^2 45° - cosec^2 30° tan 45°}$ is:

Ans

✗ 1. $3(2-\sqrt{3})$

✗ 2. $-3(2-\sqrt{3})$

✗ 3. $3(2+\sqrt{3})$

✓ 4. $-3(2+\sqrt{3})$

Question ID : **81616113484**
Status : **Answered**
Chosen Option : **1**

Q.6 Places A and B are 45 km apart from each other. A car starts from place A and another car starts from place B at the same time. If they move in the same direction, they meet in 4 and a half hour and if they move towards each other, they meet in 27 minutes. What is the speed (in km/h) of the car which moves faster?

Ans

✗ 1. 50

✗ 2. 45

✓ 3. 55

✗ 4. 56

Question ID : **81616112665**
Status : **Answered**
Chosen Option : **3**

Q.7 The data given in the table shows the number of boys and girls enrolled in three different streams in a school over 5 years.

	Arts		Science		Commerce	
years	Boys	Girls	Boys	Girls	Boys	Girls
2012	48	36	40	35	35	45
2014	42	43	42	32	32	42
2016	45	42	38	30	36	38
2018	39	46	41	23	28	34
2020	36	43	39	30	39	41

What is the ratio of the total number of boys in the year 2014 to the total number of girls in the year 2020?

Ans

✗ 1. 1 : 1

✓ 2. 58 : 57

✗ 3. 55 : 57

✗ 4. 58 : 53

Question ID : **81616112477**
Status : **Answered**
Chosen Option : **2**

Q.8 Simplify the following expression:

$$\frac{7}{12} \div \frac{1}{10} \text{ of } \frac{2}{3} - \frac{5}{3} \times \frac{9}{10} + \frac{5}{8} \div \frac{3}{4} \text{ of } \frac{2}{3}$$

Ans

✗ 1. -4

✓ 2. $8\frac{1}{2}$

✗ 3. $3\frac{23}{36}$

✗ 4. $7\frac{29}{36}$

Question ID : **81616112657**
Status : **Answered**
Chosen Option : **2**

Q.9 If $y = 2x + 1$, then what is the value of $(8x^3 - y^3 + 6xy)$?

Ans
✗ 1. -15
✗ 2. 1
✓ 3. -1
✗ 4. 15

Question ID : **81616112668**
Status : **Answered**
Chosen Option : **3**

Q.10 Find the sum of all the possible values of (a + b), so that the number 4a067b is divisible by 11.

Ans
✗ 1. 5
✗ 2. 16
✓ 3. 21
✗ 4. 11

Question ID : **81616112555**
Status : **Answered**
Chosen Option : **3**

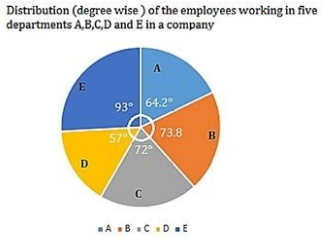
Q.11 A shop keeper sold an article at four-fifth of the marked price and suffered a loss of $3\frac{1}{3}\%$. Find the profit percent, if he sold the article at the marked price. (correct to nearest integer)

Ans
✗ 1. 20
✗ 2. 22
✗ 3. 18
✓ 4. 21

Question ID : **81616112661**
Status : **Not Answered**
Chosen Option : **--**

Q.12 The pie graph shows the distribution of employees working in five departments A, B, C, D and E of a company.

Total number of employees = 9000



If the number of employees working in department A is x and the total number of employees working in departments C and E is y, then the value of y-2x is:

Ans
✓ 1. 915
✗ 2. 850
✗ 3. 725
✗ 4. 1000

Question ID : **81616113487**
Status : **Answered**
Chosen Option : **1**

Q.13 What is the product of the average of first ten positive odd numbers and the average of first fifteen positive even numbers?

Ans

✗ 1. 85.25

✗ 2. 44

✓ 3. 160

✗ 4. 150

Question ID : **81616112961**
Status : **Marked For Review**
Chosen Option : **3**

Q.14 Find the value of $\sin^2 60° + \cos^2 30° - \sin^2 45° - 3\sin^2 90°$.

Ans

✗ 1. $-1\frac{3}{4}$

✗ 2. $-2\frac{1}{2}$

✗ 3. $\frac{1}{3}$

✓ 4. -2

Question ID : **81616112575**
Status : **Answered**
Chosen Option : **4**

Q.15 Eighteen men can complete a work in 14 days. Three women do as much work as two men. Five men and six women started the work and continued for 4 days. Subsequently 3 more men joined the group. In how many total days was the work completed?

Ans

✗ 1. $21\frac{1}{3}$

✗ 2. $17\frac{1}{3}$

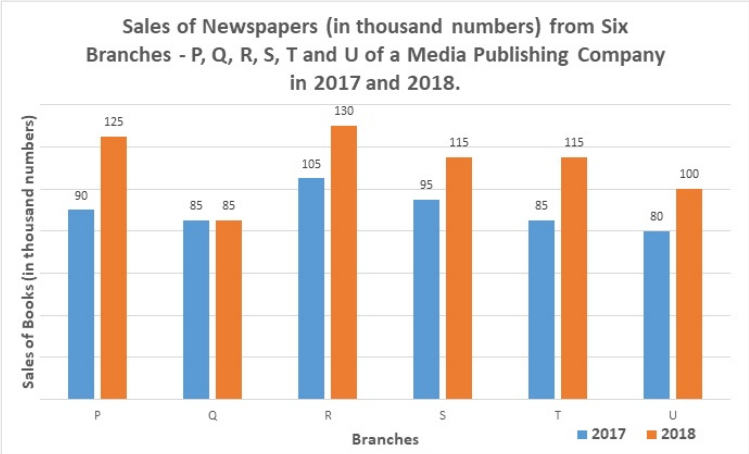
✗ 3. 18

✓ 4. 22

Question ID : **81616112563**
Status : **Not Answered**
Chosen Option : **--**

Q.16 The bar graph given below shows the sales of Newspapers (in lakh number) from six branches of a Media Publication Company during two consecutive years 2017 and 2018.

(Note: The data shown below is only for mathematical exercise. They do not represent the actual figures).



Total Sales of U for both the years is what percent (correct to one place of decimal) of the combined Sales of the branches Q and R for 2017 and 2018?

Ans

✗ 1. 41.0%

✗ 2. 48.6%

✗ 3. 67.1%

✓ 4. 44.4%

Question ID : **81616112475**
Status : **Answered**
Chosen Option : **4**

Q.17 In a circle with centre O, AB is a chord of length 10 cm. Tangents at points A and B intersect outside the circle at P. If OP = 2 OA, then find the length (in cm) of AP.

Ans

✓ 1. 10

✗ 2. 12

✗ 3. 12.5

✗ 4. 15

Question ID : **81616112570**
Status : **Answered**
Chosen Option : **1**

Q.18

If $\sin^2\theta = 2\sin\theta - 1,\ 0° \le \theta \le 90°$, then find the value of: $\frac{1+\operatorname{cosec}\theta}{1-\cos\theta}$.

Ans

✗ 1. -1

✗ 2. 1

✓ 3. 2

✗ 4. -2

Question ID : **81616112573**
Status : **Answered**
Chosen Option : **3**

Q.19 Trader A gives a single discount of 25% and Trader B gives two successive discounts of 20% and 5% on an identical item. If the discount given by A is ₹320 more than the discount given by B, then what is the marked price (in ₹) of the item?

Ans
✔ 1. 32000
✘ 2. 30000
✘ 3. 25000
✘ 4. 3200

Question ID : **81616112659**
Status : **Answered**
Chosen Option : **1**

Q.20 If $x - \frac{2}{x} = 15$, then what is the value of $\left(x^2 + \frac{4}{x^2}\right)$?

Ans
✘ 1. 227
✘ 2. 221
✘ 3. 223
✔ 4. 229

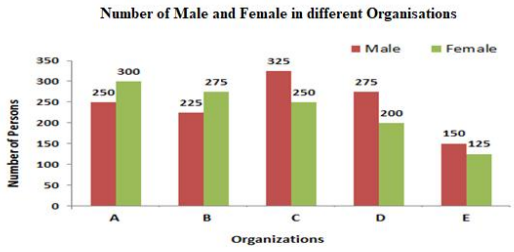
Question ID : **81616112667**
Status : **Answered**
Chosen Option : **4**

Q.21 Points M and N are on the sides PQ and QR respectively of a triangle PQR, right angled at Q. If PN = 9 cm, MR = 7 cm, and MN = 3 cm, then find the length of PR (in cm).

Ans
✘ 1. 13
✔ 2. 11
✘ 3. 12
✘ 4. $\sqrt{41}$

Question ID : **81616112976**
Status : **Not Answered**
Chosen Option : **--**

Q.22 Bar graph shows the number of males and females in five organizations A, B, C, D and E.



What is the ratio of number of males working in organizations C, D and E taken together to that of females working in organizations A, B and C taken together?

Ans
✘ 1. 11 : 10
✔ 2. 10 : 11
✘ 3. 46 : 49
✘ 4. 49 : 46

Question ID : **81616113485**
Status : **Answered**
Chosen Option : **2**

Q.23 Atul borrowed a sum of ₹12000 and agreed to repay it by paying ₹4800 at the end of first year and ₹9240 at the end of second year. What is the rate of compound interest compounded annually?

Ans

✔ 1. 10%

✗ 2. 12%

✗ 3. $\frac{8}{5}\%$

✗ 4. 8%

Question ID : **81616112562**
Status : **Answered**
Chosen Option : **1**

Q.24 In ΔABC and ΔDEF, we have $\frac{AB}{DF}=\frac{BC}{DE}=\frac{AC}{EF}$, then which of the following is true?

Ans

✗ 1. $\Delta DEF \sim \Delta ABC$

✔ 2. $\Delta BCA \sim \Delta DEF$

✗ 3. $\Delta CAB \sim \Delta DEF$

✗ 4. $\Delta DEF \sim \Delta BAC$

Question ID : **81616112672**
Status : **Answered**
Chosen Option : **2**

Combined Graduate Level Examination 2020 Tier-I

Roll Number
Candidate Name **Gagan Pratap Maths**
Venue Name
Exam Date 24/08/2021
Exam Time 3:00 PM - 4:00 PM
Subject Combined Graduate Level Examination 2020 Tier 1

Section : **Quantitative Aptitude**

Q.1 What is the coefficient of x^2 in the expansion of $\left(5-\frac{x^2}{3}\right)^3$?

Ans

✗ 1. $-\frac{25}{3}$

✓ 2. -25

✗ 3. $-\frac{5}{3}$

✗ 4. 25

Question ID : **81616112869**
Status : **Answered**
Chosen Option : **2**

Q.2 Table shows District-wise data of number of primary school teachers posted in schools of a city.

Study the table and answer the question:

District	Male teachers	Female teachers
East	1650	2375
North	1075	2651
West	1280	1520
South	1170	1085
Central	690	859

What is the difference between the total number of male teachers in the districts East, North, West taken together and the total number of female teachers in the districts East and South?

Ans

✓ 1. 545

✗ 2. 110

✗ 3. 735

✗ 4. 771

Question ID : **81616112980**
Status : **Answered**
Chosen Option : **1**

Q.3 If $sec\,31° = x$, then $sin^2 59° + \frac{1}{sec^2 31°} - \frac{1}{sin^2 59° cosec^2 59°}$ is equal to:

Ans

1. ✗ $\frac{x^2-2}{x}$
2. ✓ $\frac{2-x^2}{x^2}$
3. ✗ $\frac{x^2-2}{x^2}$
4. ✗ $\frac{2-x^2}{x}$

Question ID : **81616113280**
Status : **Answered**
Chosen Option : **2**

Q.4 In the table, the production and the sale (in 1000 tonnes) of a certain product of a company over 5 years is given.

years	Production (in 1000 tonnes)	Sale (in 1000 tonnes)
2015	1250	1000
2016	1400	1290
2017	1450	1100
2018	1500	1450
2019	1600	1390

In which year(s) the production increases by more than 10% of that in the previous year?

Ans

1. ✓ 2016
2. ✗ 2018, 2019
3. ✗ 2019
4. ✗ 2017, 2018

Question ID : **81616112982**
Status : **Answered**
Chosen Option : **1**

Q.5 Study the following table and answer the question:
Percentage of marks obtained by six students A, B, C, D, E and F in five subjects.

Subjects / Students	English (Out of 50)	Math (Out of 150)	Science (Out of 80)	Hindi (Out of 75)	Social Studies (Out of 100)
A	70	90	65	64	88
B	84	92	75	68	49
C	66	80	85	80	84
D	62	74	75	88	60
E	54	64	55	72	85
F	72	84	65	60	65

Total marks obtained by student E in all the five subjects are ?

Ans
✗ 1. 340
✗ 2. 316
✗ 3. 330
✓ 4. 306

Question ID : **81616113789**
Status : **Answered**
Chosen Option : **3**

Q.6 What is the difference between the compound interest (in ₹) compounded yearly and compounded half yearly for 18 months at 20% per annum on a sum of ₹12,000?

Ans
✗ 1. 145
✗ 2. 165
✗ 3. 121
✓ 4. 132

Question ID : **81616113269**
Status : **Not Answered**
Chosen Option : **--**

Q.7

Simplify: $\frac{(\sin\theta + \sec\theta)^2 + (\cos\theta + \operatorname{cosec}\theta)^2}{(1 + \sec\theta \operatorname{cosec}\theta)^2}, 0° < \theta < 90°$

Ans
✗ 1. 0
✗ 2. 2
✗ 3. -1
✓ 4. 1

Question ID : **81616112574**
Status : **Answered**
Chosen Option : **4**

Q.8 A shopkeeper marks an article at a price such that after giving a discount of x%, he gains 20%. If the cost price and the marked price of the article are ₹920 and ₹1472 respectively, then what is the value of x?

Ans
1. ✗ 18
2. ✗ 20
3. ✓ 25
4. ✗ 30

Question ID : **81616113669**
Status : **Answered**
Chosen Option : **3**

Q.9 The surface area of a cube is 13.5 m^2 . What is the length (in m) of its diagonal?

Ans
1. ✗ $2\sqrt{3}$
2. ✗ 1.5
3. ✗ 2
4. ✓ $1.5\sqrt{3}$

Question ID : **81616112868**
Status : **Answered**
Chosen Option : **4**

Q.10 If $x^4 - 62x^2 + 1 = 0$, where $x > 0$, then the value of $x^3 + x^{-3}$ is:

Ans
1. ✓ 488
2. ✗ 364
3. ✗ 512
4. ✗ 500

Question ID : **81616113678**
Status : **Answered**
Chosen Option : **1**

Q.11 In a circle with centre O, a diameter AB is produced to a point P lying outside the circle and PT is a tangent to the circle at a point C on it. If ∠BPT=28°, then what is the measure of ∠BCP?

Ans
1. ✗ 28°
2. ✓ 31°
3. ✗ 62°
4. ✗ 45°

Question ID : **81616113277**
Status : **Answered**
Chosen Option : **2**

Q.12 Given that $x^8 - 34x^4 + 1 = 0$, x>0. What is the value of ($x^3 - x^{-3}$)?

Ans
1. ✗ 12
2. ✓ 14
3. ✗ 18
4. ✗ 16

Question ID : **81616113275**
Status : **Answered**
Chosen Option : **2**

Q.13 A shopkeeper sold an article for ₹455 at a loss (in ₹). If he sells it for ₹490, then he would gain an amount four times the loss. At what price (in ₹) should he sell the article to gain 25%?

Ans

✔ 1. 577.50

✗ 2. 575

✗ 3. 570.50

✗ 4. 115.50

Question ID : **81616112863**
Status : **Answered**
Chosen Option : **1**

Q.14 A tank is filled in 4 hours by three pipes A, B and C. The pipe C is $1\frac{1}{2}$ times as fast as B and B is 3 times as fast as A. How many hours will pipe A alone take to fill the tank?

Ans

✗ 1. 17

✔ 2. 34

✗ 3. 30

✗ 4. 15

Question ID : **81616113270**
Status : **Answered**
Chosen Option : **2**

Q.15 Study the following table and answer the question:
Percentage of marks obtained by six students A, B, C, D, E and F in five subjects.

Subjects / Students	English (Out of 50)	Math (Out of 150)	Science (Out of 80)	Hindi (Out of 75)	Social Studies (Out of 100)
A	70	90	65	64	88
B	84	92	75	68	49
C	66	80	85	80	84
D	62	74	75	88	60
E	54	64	55	72	85
F	72	84	65	60	65

The total marks obtained by students C, D and F in Science is what percent more than the total marks obtained by B in Science, Hindi and Social Studies?

Ans

✔ 1. 12.5

✗ 2. 12.2

✗ 3. 11.1

✗ 4. 10.5

Question ID : **81616113791**
Status : **Not Answered**
Chosen Option : **--**

Q.16 Simplify the following expression:

$$\left(\frac{3}{4}-\frac{1}{4}\div\frac{1}{4}\text{ of }\frac{2}{5}\right)\div\left(\frac{3}{4}\div\frac{2}{3}\text{ of }\frac{3}{5}\right)$$

Ans

✗ 1. $\frac{14}{75}$

✗ 2. $-\frac{70}{27}$

✓ 3. $-\frac{14}{15}$

✗ 4. $\frac{32}{75}$

Question ID : **81616112859**
Status : **Answered**
Chosen Option : **3**

Q.17 A certain sum is divided among A, B, C and D such that the ratio of the shares is A : B : C : D = 4 : 12 : 30 : 45. If the difference between the shares of A and D is ₹5,535, then the total sum (in ₹) is:

Ans

✓ 1. 12285

✗ 2. 11000

✗ 3. 12785

✗ 4. 13550

Question ID : **81616113672**
Status : **Answered**
Chosen Option : **1**

Q.18 The speed of a motorboat in still water is 20 km/h. It travels 150 km downstream and then returns to the starting point. If the round trip takes a total of 16 hours, what is the speed (in km/h) of the flow of river?

Ans

✗ 1. 6

✗ 2. 4

✗ 3. 8

✓ 4. 5

Question ID : **81616113675**
Status : **Answered**
Chosen Option : **4**

Q.19 If a nine-digit number $769\,8x138y$ is divisible by 72, then the value of $\sqrt{4x+y}$ is:

Ans

✗ 1. 8

✓ 2. 6

✗ 3. 5

✗ 4. 9

Question ID : **81616113262**
Status : **Answered**
Chosen Option : **2**

Q.20 If $\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta}=5$, then the value of $\frac{4\sin^2\theta+3}{2\cos^2\theta+2}$ is:

Ans

✔ 1. $\frac{75}{34}$

✘ 2. $\frac{75}{17}$

✘ 3. $\frac{3}{2}$

✘ 4. $\frac{1}{2}$

Question ID : **81616113585**
Status : **Answered**
Chosen Option : **1**

Q.21 Triangle ABC is right angled at B and D is a point of BC such that BD = 5 cm, AD = 13 cm and AC = 37 cm, then find the length of DC in cm.

Ans

✘ 1. 25

✘ 2. 35

✘ 3. 5

✔ 4. 30

Question ID : **81616112874**
Status : **Answered**
Chosen Option : **4**

Q.22 In a circle with centre O, points A, B, C and D in this order are concyclic such that BD is a diameter of the circle. If ∠BAC = 22°, then find the measure (in degrees) of ∠COD.

Ans

✘ 1. 158

✘ 2. 68

✘ 3. 79

✔ 4. 136

Question ID : **81616112872**
Status : **Answered**
Chosen Option : **4**

Q.23 By mistake, the reciprocal of a positive fraction got typed in place of itself, and thereby its value got reduced by $\frac{175}{4}$ %. What was the value of the fraction?

Ans

✘ 1. $\frac{1}{2}$

✔ 2. $\frac{4}{3}$

✘ 3. $\frac{3}{4}$

✘ 4. $\frac{1}{4}$

Question ID : **81616113266**
Status : **Not Answered**
Chosen Option : **--**

Q.24 Triangle ABC is right angled at B. BD is an altitude intersecting AC at D. If AC = 9 cm and CD = 3 cm, then find the measure of AB (in cm).

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

Question ID : **81616112875**
Status : **Answered**
Chosen Option : **4**

Q.25 What is the average of numbers from 1 to 50 which are multiples of 2 or 5? (correct to one decimal place)

Ans
✗ 1. 25.4
✗ 2. 25.9
✗ 3. 26.4
✓ 4. 25.8

Question ID : **81616112860**
Status : **Not Answered**
Chosen Option : **--**

Section : **English Comprehension**

Q.1 **Select the most appropriate synonym of the given word.**

Humdrum

Ans
✗ 1. Exciting
✗ 2. Lively
✓ 3. Boring
✗ 4. Noisy

Question ID : **81616112898**
Status : **Answered**
Chosen Option : **3**

Q.2 **Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.**

A. At its height, around 1,200 years ago, the city of Calakmul had a population of about 50,000 people, but the kingdom as a whole numbered more than 1.5 million.
B. Deep in the jungle of southern Mexico lie the ruins of a city that thrived for centuries before it was abandoned more than 1,000 years ago.
C. Archaeologists have uncovered 6,750 structures here—the largest is this pyramid temple, called, simply, 'Structure 2.'
D. Calakmul was once one of the two duelling superpowers—along with Tikal—of the Classical Mayan civilisation.

Ans
✗ 1. DBCA
✗ 2. ACDB
✗ 3. BCDA
✓ 4. BDAC

Question ID : **81616113704**
Status : **Answered**
Chosen Option : **4**