SSC CGL 2019 TIER 2 NOVEMBER 15, 2020 SHIFT 1 QUANTITATIVE ABILITIES QUESTION PAPER

Section : **Quantitative abilities**

Q.1 The value of

$3 \div 18\ of\ 3 \times 6 + 21 \times 6 \div 18 - 3 \div 2 + 3 - 3 \div 9\ of\ 3 \times 9$ is:

Ans

✗ 1. $\frac{29}{6}$

✗ 2. $\frac{41}{9}$

✓ 3. $\frac{47}{6}$

✗ 4. $\frac{35}{9}$

Question ID : **8161615279**
Status : **Answered**
Chosen Option : **3**

Q.2 In ΔABC, D and E are the mid points of sides BC and AC, respectively. If AD = 10.8 cm, BE = 14.4 cm and AD and BE intersect at G at a right angle, then the area (in cm^2) of ΔABC is:

Ans

✓ 1. 103.68

✗ 2. 56.76

✗ 3. 80.64

✗ 4. 53.76

Question ID : **8161615338**
Status : **Not Answered**
Chosen Option : **--**

Q.3 Rishu saves x% of her income. If her income increases by 26% and the expenditure increases by 20%, then her savings increase by 50%. What is the value of x?

Ans

✗ 1. 30

✗ 2. 10

✓ 3. 20

✗ 4. 25

Question ID : **8161615296**
Status : **Not Answered**
Chosen Option : **--**

Q.4 If $\frac{45}{53} = \frac{1}{a+\frac{1}{b+\frac{1}{c-\frac{2}{5}}}}$, where a, b and c are positive integers, then what is the value of $(4a - b + 3c)$?

Ans
1. 6
2. 4
3. 7
4. 5 ✔

Question ID : **8161615287**
Status : **Not Answered**
Chosen Option : **--**

Q.5 कोई व्यक्ति किसी निश्चित राशि को अपने तीन बेटों के बीच 3 : 4 : 5 के अनुपात में विभाजित करता है। यदि उसने इस राशि को $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$ के अनुपात में विभाजित किया होता, तो उसके उस बेटे को, जिसे पहले सबसे कम हिस्सा मिला था, उसे ₹1,188 अधिक मिलते। राशि (₹ में) ज्ञात कीजिए।

Ans
1. 5,640
2. 6,840
3. 6,768 ✔
4. 7,008

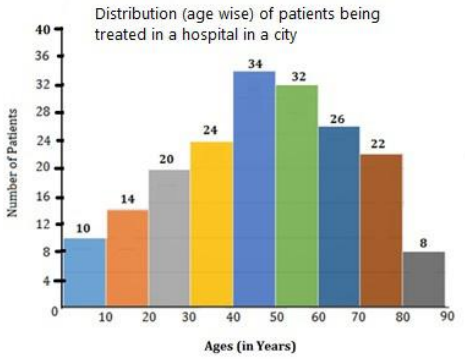
Question ID : **8161615300**
Status : **Answered**
Chosen Option : **3**

Q.6 The value of $\frac{sec^2\theta(2+tan^2\theta+cot^2\theta)\div(sin^2\theta-tan^2\theta)}{(cosec^2\theta+sec^2\theta)(1+cot^2\theta)^2}$ is:

Ans
1. 2
2. -2
3. -1 ✔
4. 1

Question ID : **8161615362**
Status : **Answered**
Chosen Option : **3**

Q.7 Study the given graph and answer the question that follows.



The number of patients aged 10 or more years but below 40 years is what per cent less than the number of patients aged 50 or more years but below 80 years?

Ans
✔ 1. 27.5
✘ 2. 30.2
✘ 3. 25
✘ 4. 34

Question ID : **8161615371**
Status : **Answered**
Chosen Option : **1**

Q.8 If $(x + 20)\%$ of 250 is 25% more than $x\%$ of 220, then 10% of $(x + 50)$ is what per cent less than 15% of x?

Ans
✔ 1. $16\frac{2}{3}$
✘ 2. $33\frac{1}{3}$
✘ 3. $8\frac{1}{3}$
✘ 4. $13\frac{1}{3}$

Question ID : **8161615294**
Status : **Answered**
Chosen Option : **1**

Q.9 Remi earns a profit of 20% on selling an article at a certain price. If she sells the articles for ₹8 more, she will gain 30%.
What is the original cost price of 16 such articles?

Ans
✘ 1. ₹1,200
✘ 2. ₹1,120
✘ 3. ₹1,152
✔ 4. ₹1,280

Question ID : **8161615308**
Status : **Answered**
Chosen Option : **4**

Q.10 ΔPQR में, O अन्तःकेंद्र है और ∠P = 42° है। तो ∠QOR का माप ज्ञात कीजिए।

Ans
1. 121°
2. 138°
3. 111°
4. 132°

Question ID : **8161615335**
Status : **Answered**
Chosen Option : **2**

Q.11 The sum of the present ages of a father and son is 52 years. Four years hence, the son's age will be $\frac{1}{4}$ that of the father. What will be the ratio of the ages of the son and father, 10 years from now?

Ans
1. 3 : 8
2. 1 : 3
3. 2 : 7
4. 2 : 5

Question ID : **8161615292**
Status : **Answered**
Chosen Option : **2**

Q.12 $\left(\frac{1}{\cos\theta} - \frac{1}{\sin\theta}\right) + \frac{1}{\operatorname{cosec}\theta - \cot\theta} - \frac{1}{\sec\theta + \tan\theta} = ?$

Ans
1. $\sin\theta \cos\theta$
2. $\sin\theta \tan\theta$
3. $\operatorname{cosec}\theta \cot\theta$
4. $\sec\theta \operatorname{cosec}\theta$

Question ID : **8161615363**
Status : **Not Answered**
Chosen Option : **--**

Q.13 A takes 2 hours more than B to cover a distance of 40 km. If A doubles his speed, he takes $1\frac{1}{2}$ hours more than B to cover 80 km. To cover a distance of 90 km, how much time will B take travelling at his same speed?

Ans
1. $1\frac{1}{3}$ hours
2. $1\frac{3}{8}$ hours
3. $1\frac{1}{8}$ hours
4. $1\frac{1}{6}$ hours

Question ID : **8161615319**
Status : **Not Answered**
Chosen Option : **--**

Q.14 On selling an article for ₹123.40, the gain is 20% more than the amount of loss incurred on selling it for ₹108. If the article is sold for ₹120.75, then what is the gain/loss per cent?

Ans

1. Loss 5% ✗
2. Gain 5% ✓
3. Gain 2.5% ✗
4. Loss 2.5% ✗

Question ID : **8161615309**
Status : **Answered**
Chosen Option : **1**

Q.15 In ΔPQR, ∠Q = 84°, ∠R = 48°, PS ⊥ QR at S and the bisector of ∠P meets QR at T. What is the measure of ∠SPT?

Ans

1. 24° ✗
2. 21° ✗
3. 12° ✗
4. 18° ✓

Question ID : **8161615337**
Status : **Answered**
Chosen Option : **4**

Q.16 In ΔABC, ∠A = 90°, AD is the bisector of ∠A meeting BC at D, and DE ⊥ AC at E. If AB = 10 cm and AC = 15 cm, then the length of DE, in cm, is:

Ans

1. 7.5 ✗
2. 6 ✓
3. 6.25 ✗
4. 8 ✗

Question ID : **8161615340**
Status : **Answered**
Chosen Option : **2**

Q.17 The base of a right pyramid is a square of side 10 cm. If its height is 10 cm, then the area (in cm²) of its lateral surface is:

Ans

1. $50\sqrt{5}$ ✗
2. $100\sqrt{5}$ ✓
3. 100 ✗
4. $100(\sqrt{5}+1)$ ✗

Question ID : **8161615349**
Status : **Answered**
Chosen Option : **3**

Q.18 The compound interest on a sum of ₹5,500 at 15% p.a. for 2 years, when the interest is compounded 8 monthly, is:

Ans
1. ₹1,820.50 ✔
2. ₹1,880 ✘
3. ₹1,850 ✘
4. ₹1,773.75 ✘

Question ID : **8161615304**
Status : **Answered**
Chosen Option : **1**

Q.19 The value of $(2.\bar{4} \times 0.\bar{6} \times 3 \times 0.1\bar{6}) \times [0.\overline{27} \times (0.8\bar{3} \div 0.1\bar{6})]$ is:

Ans
1. $0.\overline{11}$ ✘
2. $1.\overline{36}$ ✘
3. $1.\bar{1}$ ✔
4. $0.\overline{814}$ ✘

Question ID : **8161615283**
Status : **Answered**
Chosen Option : **3**

Q.20 A sold a watch to B at a profit of 20%. B sold it to C at 30% profit. C sold it to D at 10% loss. If B's profit is ₹80 more than that of A, then D bought it for:

Ans
1. ₹702 ✔
2. ₹700 ✘
3. ₹680 ✘
4. ₹652 ✘

Question ID : **8161615307**
Status : **Not Answered**
Chosen Option : **--**

Q.21 The value of $\left[\frac{4}{7} \text{ of } 2\frac{4}{5} \times 1\frac{2}{3} - \left(3\frac{1}{2} - 2\frac{1}{6}\right)\right] \div \left(3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3}\right)$ is:

Ans
1. 10 ✔
2. $7\frac{1}{2}$ ✘
3. $1\frac{1}{3}$ ✘
4. 15 ✘

Question ID : **8161615285**
Status : **Answered**
Chosen Option : **1**

Q.22 The average score in Mathematics of 90 students of section A and B of class IX was 63. The number of students in A were 10 more than those in B. The average score of students in A was 30% more than that of students in B. The average score of students in B is:

Ans
1. 60
2. 50
3. 54
4. 56

Question ID : **8161615326**
Status : **Answered**
Chosen Option : **3**

Q.23 The curved surface area of a right cylinder is 3696 cm². Its height is three times its radius. What is the capacity (in litres) of the cylinder? (Take $\pi = \frac{22}{7}$)

Ans
1. 19.008
2. 30.87
3. 25.872
4. 29.75

Question ID : **8161615357**
Status : **Not Answered**
Chosen Option : **--**

Q.24 The sides BA and DE of a regular pentagon are produced to meet at F. What is the measure of ∠EFA?

Ans
1. 60°
2. 72°
3. 36°
4. 54°

Question ID : **8161615347**
Status : **Answered**
Chosen Option : **3**

Q.25 The expression $\frac{15(\sqrt{10}+\sqrt{5})}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$ is equal to:

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

Question ID : **8161615290**
Status : **Answered**
Chosen Option : **1**

Q.26 A person has to cover a distance of 160 km in 15 hours. If he covers $\frac{4}{5}$ of the distance in $\frac{2}{3}$ of the time, then what should be his speed (in km/h) to cover the remaining distance in the remaining time?

Ans
1. 6 ✗
2. 8 ✗
3. 6.5 ✗
4. 6.4 ✓

Question ID : **8161615318**
Status : **Not Answered**
Chosen Option : **--**

Q.27 The height of a solid cylinder is 30 cm and the diameter of its base is 10 cm. Two identical conical holes each of radius 5 cm and height 12 cm are drilled out. What is the surface area (in cm^2) of the remaining solid?

Ans
1. 430π ✓
2. 120π ✗
3. 330π ✗
4. 230π ✗

Question ID : **8161615355**
Status : **Answered**
Chosen Option : **1**

Q.28 If $9x^2 + y^2 = 37$ and $xy = 2, x,\ y > 0$, then the value of $(27x^3 + y^3)$ is:

Ans
1. 259 ✗
2. 301 ✗
3. 207 ✗
4. 217 ✓

Question ID : **8161615328**
Status : **Answered**
Chosen Option : **4**

Q.29 The value of $\frac{cosec^2 30° sin^2 45° + sec^2 60°}{tan60° cosec^2 45° - sec^2 60° tan45°}$ is:

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

Question ID : **8161615367**
Status : **Answered**
Chosen Option : **1**

Q.30 Given that $\Delta DEF \sim \Delta ABC$. If the area of ΔABC is 9 cm² and that of ΔDEF = 12 cm² and BC = 2.1 cm, then the length of EF is:

Ans

1. $\frac{8\sqrt{3}}{5}$ cm
2. $\frac{3\sqrt{7}}{5}$ cm
3. $\frac{4\sqrt{7}}{5}$ cm
4. $\frac{7\sqrt{3}}{5}$ cm

Question ID : **8161615341**
Status : **Answered**
Chosen Option : **4**

Q.31 If $a + b + c = 6, a^3 + b^3 + c^3 - 3abc = 342$, then what is the value of $ab + bc + ca$?

Ans

1. 5
2. -5
3. -7
4. 8

Question ID : **8161615330**
Status : **Answered**
Chosen Option : **3**

Q.32 If $3x^2 - 5x + 1 = 0$, then the value of $(x^2 + \frac{1}{9x^2})$ is:

Ans

1. $1\frac{2}{3}$
2. $1\frac{1}{3}$
3. $2\frac{1}{9}$
4. $2\frac{1}{3}$

Question ID : **8161615329**
Status : **Answered**
Chosen Option : **3**

Q.33 A spherical metallic shell with 6 cm external radius weighs 6688 g. What is the thickness of the shell if the density of metal is 10.5 g per cm^3?

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

Ans

✔ 1. 2 cm

✘ 2. 4 cm

✘ 3. $2\frac{1}{2}$ cm

✘ 4. 3 cm

Question ID : **8161615354**
Status : **Answered**
Chosen Option : **1**

Q.34 Two positive numbers differ by 1280. When the greater number is divided by the smaller number, the quotient is 7 and the remainder is 50. The greater number is:

Ans

✘ 1. 1585

✘ 2. 1458

✘ 3. 1558

✔ 4. 1485

Question ID : **8161615281**
Status : **Answered**
Chosen Option : **4**

Q.35 A can do a piece of work in 15 days. B is 25% more efficient than A, and C is 40% more efficient than B. A and C work together for 3 days and then C leaves. A and B together will complete the remaining work in:

Ans

✘ 1. $2\frac{1}{2}$ days

✘ 2. $3\frac{1}{2}$ days

✘ 3. 4 days

✔ 4. 3 days

Question ID : **8161615324**
Status : **Answered**
Chosen Option : **4**

Q.36 The base of a right prism is a regular hexagon of side 5 cm. If its height is $12\sqrt{3}$ cm, then its volume (in cm^3) is:

Ans

✘ 1. 1800

✘ 2. 900

✔ 3. 1350

✘ 4. 675

Question ID : **8161615348**
Status : **Answered**
Chosen Option : **3**

Q.37 Let $x = \left(\frac{\sqrt{1875}}{\sqrt{3888}} \div \frac{\sqrt{1200}}{\sqrt{768}}\right) \times \frac{\sqrt{175}}{\sqrt{1792}}$. Then $\sqrt{x}$ is equal to:

Ans

1. $\frac{4}{9}$
2. $\frac{5}{9}$
3. $\frac{5}{12}$
4. $\frac{7}{12}$

Question ID : **8161615289**
Status : **Answered**
Chosen Option : **3**

Q.38 The area of the base of a right circular cone is 81π cm² and its height is 12 cm. What is the curved surface area (in cm²) of the cone?

Ans

1. $144\ \pi$
2. $108\ \pi$
3. $126\ \pi$
4. $135\ \pi$

Question ID : **8161615350**
Status : **Answered**
Chosen Option : **2**

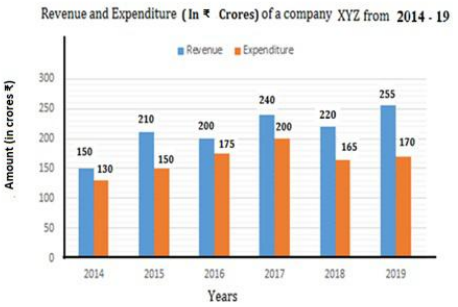
Q.39 The value of $\frac{2\ sin^2 38° sec^2 52° + \cos 64°\ sin 26° + sin^2 64°}{tan^2 23° + cot^2 23° - sec^2 67° - cosec^2 67°}$ is:

Ans

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

Question ID : **8161615369**
Status : **Answered**
Chosen Option : **1**

Q.40 Study the given graph and answer the question that follows.



The total revenue in 2015 and 2017 is what per cent of the total expenditure of the company in 2016, 2018 and 2019 (correct to one decimal place)?

Ans

1. 86.3
2. 88.2
3. 86.5
4. 89.1

Question ID : **8161615374**
Status : **Answered**
Chosen Option : **1**

Q.41 In ΔABC, $\angle C = 90°$. Points P and Q are on the sides AC and BC, respectively, such that AP : PC = BQ : QC = 1 : 2.

Then, $\frac{AQ^2+BP^2}{AB^2}$ is equal to:

Ans

1. $\frac{4}{9}$
2. $\frac{8}{3}$
3. $\frac{4}{3}$
4. $\frac{13}{9}$

Question ID : **8161615334**
Status : **Not Answered**
Chosen Option : **--**

Q.42 The marked price of an article is 40% above its cost price. If its selling price is $73\frac{1}{2}\%$ of the marked price, then the profit percentage is:

Ans

1. 3.1%
2. 2.4%
3. 2.7%
4. 2.9%

Question ID : **8161615310**
Status : **Answered**
Chosen Option : **3**

Q.43 ABCD is a cyclic quadrilateral. Diagonals BD and AC intersect each other at E. If ∠BEC = 128° and ∠ECD = 25°, then what is the measure of ∠BAC?

Ans

1. 52° ✗
2. 103° ✓
3. 93° ✗
4. 98° ✗

Question ID : **8161615344**
Status : **Answered**
Chosen Option : **3**

Q.44 A certain sum amounts to ₹15,500 in 2 years at 12% p.a. simple interest. The same sum will amount to what in $1\frac{1}{2}$ years at 10% p.a., if the interest is compounded half yearly (nearest to ₹1)?

Ans

1. ₹14,470 ✓
2. ₹15,125 ✗
3. ₹14,360 ✗
4. ₹13,460 ✗

Question ID : **8161615303**
Status : **Answered**
Chosen Option : **4**

Q.45 A and B start moving towards each other from places X and Y, respectively, at the same time on the same day. The speed of A is 20% more than that of B. After meeting on the way, A and B take p hours and $7\frac{1}{5}$ hours, respectively, to reach Y and X, respectively. What is the value of p?

Ans

1. 5.5 ✗
2. 6 ✗
3. 4.5 ✗
4. 5 ✓

Question ID : **8161615320**
Status : **Not Answered**
Chosen Option : **--**

Q.46 If $\sec\theta = \frac{a}{b}$, $b \neq 0$, then $\frac{1-tan^2\theta}{2-sin^2\theta} = ?$

Ans

1. $\frac{b^2(2b^2-a^2)}{a^2(a^2+b^2)}$ ✗
2. $\frac{a^2(2b^2+a^2)}{b^2(a^2+b^2)}$ ✗
3. $\frac{a^2(2b^2-a^2)}{b^2(a^2+b^2)}$ ✓
4. $\frac{a^2(2b^2+a^2)}{b^2(a^2-b^2)}$ ✗

Question ID : **8161615365**
Status : **Answered**
Chosen Option : **3**

Q.47 If $\sin 3A = \cos(A+10°)$, where 3A is an acute angle, then what is the value of $2\text{cosec}\frac{3A}{2} + 6sin^2 3A - \frac{3}{2}tan^2 3A$?

Ans

1. $\frac{17}{2}$
2. 5
3. 4
4. $\frac{7}{4}$

Question ID : **8161615368**
Status : **Answered**
Chosen Option : **3**

Q.48 When x is added to each of 9, 15, 21 and 31, the numbers so obtained are in proportion. What is the mean proportional between the numbers $(3x - 2)$ and $(5x + 4)$?

Ans

1. 30
2. 42
3. 35
4. 20

Question ID : **8161615299**
Status : **Not Answered**
Chosen Option : **--**

Q.49 In Δ PQR, $\angle Q = 90°$. If $\cot R = \frac{1}{3}$, then what is the value of $\frac{secP(cosR+sinP)}{cosec\ R\ (sinR-cosec\ P)}$?

Ans

1. $\frac{2}{7}$
2. $-\frac{2}{3}$
3. $-\frac{2}{7}$
4. $\frac{2}{3}$

Question ID : **8161615366**
Status : **Answered**
Chosen Option : **2**

Q.50 अमित, अंकित मूल्य पर 12% छूट देने के बाद किसी वस्तु को ₹369.60 में बेचता है। यदि उसने कोई छूट नहीं दी होती तो उसे 20% का लाभ होता। वस्तु का क्रय मूल्य ज्ञात कीजिए।

Ans

1. ₹320
2. ₹400
3. ₹380
4. ₹350

Question ID : **8161615312**
Status : **Answered**
Chosen Option : **4**

Q.51 When positive numbers x, y and z are divided by 31, the remainders are 17, 24 and 27, respectively. When $(4x - 2y + 3z)$ is divided by 31, the remainder will be:

Ans
1. 8 ✓
2. 19 ✗
3. 16 ✗
4. 9 ✗

Question ID : **8161615278**
Status : **Not Answered**
Chosen Option : **--**

Q.52 As observed from the top of a light house, $120\sqrt{3}$ m above the sea level, the angle of depression of a ship sailing towards it changes from 30° to 60°. The distance travelled by the ship during the period of observation is:

Ans
1. $180\sqrt{3}$ m ✗
2. 180 m ✗
3. 240 m ✓
4. $240\sqrt{3}$ m ✗

Question ID : **8161615370**
Status : **Answered**
Chosen Option : **3**

Q.53 Study the given graph and answer the question that follows.

In which year was the revenue $33\frac{1}{3}\%$ more than the average expenditure of the company during 2014 to 2019?

Ans
1. 2017 ✗
2. 2016 ✗
3. 2018 ✓
4. 2015 ✗

Question ID : **8161615372**
Status : **Not Answered**
Chosen Option : **--**

Q.54 The value of $\frac{\cos^6\theta+\sin^6\theta+3\sin^2\theta\cos^2\theta}{\operatorname{cosec}\theta\sec\theta(\sin\theta+\cos\theta-1)(\sin\theta+\cos\theta+1)}$ is:

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

Question ID : **8161615364**
Status : **Answered**
Chosen Option : **1**

Q.55 A certain sum is lent at 4% p.a. for 3 years, 8% p.a. for the next 4 years, and 12% p.a. beyond 7 years. If for a period of 11 years, the simple interest obtained is ₹27,600, then the sum is (in ₹):

Ans
1. 27,000 ✗
2. 30,000 ✓
3. 25,000 ✗
4. 32,000 ✗

Question ID : **8161615302**
Status : **Answered**
Chosen Option : **2**

Q.56 The areas of three adjacent faces of a cuboidal tank are 3 m^2, 12 m^2 and 16 m^2. The capacity of the tank, in litres, is:

Ans
1. 48000 ✗
2. 72000 ✗
3. 24000 ✓
4. 36000 ✗

Question ID : **8161615359**
Status : **Answered**
Chosen Option : **3**

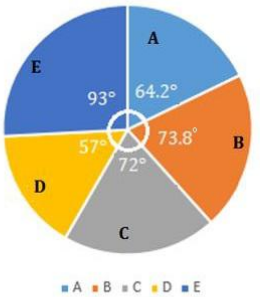
Q.57 A train of length 287 m, running at 80 km/h, crosses another train moving in the opposite direction at 37 km/h in 18 seconds. What is the length of the other train?

Ans
1. 285 m ✗
2. 300 m ✗
3. 298 m ✓
4. 289 m ✗

Question ID : **8161615317**
Status : **Answered**
Chosen Option : **3**

Q.58 Study the given graph and answer the question that follows.

Break up for distribution (degree wise) of the employees working in five departments (A, B, C, D and E) in a company



Total number of employees = 3000

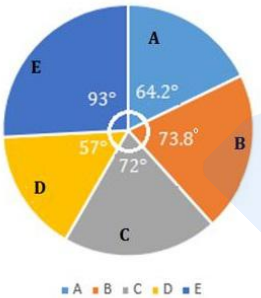
The total number of employees working in departments A and C exceeds the total number of employees working in departments B and D by x. The value of x lies between:

Ans
1. 20 and 28
2. 44 and 52
3. 28 and 36
4. 36 and 44

Question ID : **8161615375**
Status : **Answered**
Chosen Option : **2**

Q.59 Study the given graph and answer the question that follows.

Break up for distribution (degree wise) of the employees working in five departments (A, B, C, D and E) in a company



Total number of employees = 3000

If 20% of the employees working in department E are transferred to department A, then the difference between the number of employees in A and 124% of the employees working in department C is:

Ans
1. 50
2. 64
3. 60
4. 54

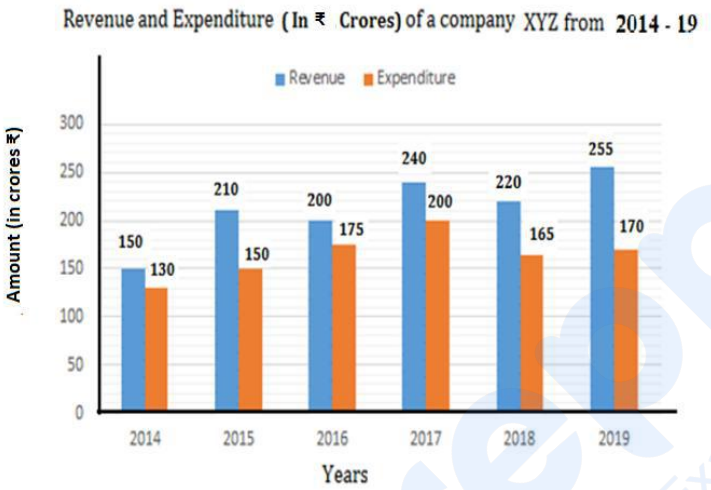
Question ID : **8161615377**
Status : **Answered**
Chosen Option : **4**

Q.60 If $\frac{1}{4-\sqrt{8}}+\frac{3+2\sqrt{2}}{3-2\sqrt{2}}-\frac{3-2\sqrt{2}}{3+2\sqrt{2}}=a+b\sqrt{2}$, then what is the value of $(3a+4b)$?

Ans
1. $99\frac{1}{2}$
2. 97
3. $98\frac{1}{2}$
4. 98

Question ID : **8161615291**
Status : **Answered**
Chosen Option : **1**

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



In how many years was the profit (Revenue – Expenditure) as a percentage of the revenue, more than 25%?

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

Question ID : **8161615373**
Status : **Not Answered**
Chosen Option : **--**

Q.62 A and B are solutions of acid and water. The ratios of water and acid in A and B are 4 : 5 and 1 : 2, respectively. If x litres of A is mixed with y litres of B, then the ratio of water and acid in the mixture becomes 8 : 13. What is $x : y$?

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

Question ID : **8161615316**
Status : **Answered**
Chosen Option : **3**

Q.63 The numerator of a fraction is 3 more than the denominator. When 5 is added to the numerator and 2 is subtracted from the denominator, the fraction becomes $\frac{8}{3}$. When the original fraction is divided by $5\frac{1}{2}$, the fraction so obtained is:

Ans

1. $\frac{1}{2}$
2. $\frac{2}{3}$
3. $\frac{3}{4}$
4. $\frac{1}{4}$

Question ID : **8161615288**
Status : **Answered**
Chosen Option : **4**

Q.64 In ΔABC, the bisector of $\angle A$ intersects side BC at D. If AB = 12 cm, AC = 15 cm and BC = 18 cm, then the length of BD is:

Ans

1. 8 cm
2. 9.6 cm
3. 7.5 cm
4. 9 cm

Question ID : **8161615339**
Status : **Answered**
Chosen Option : **1**

Q.65 The lengths of two sides of a parallelogram are 3 cm and 10 cm. What is the sum of the squares of the diagonals of the parallelogram?

Ans

1. 218 cm^2
2. 109 cm^2
3. 169 cm^2
4. 206 cm^2

Question ID : **8161615346**
Status : **Answered**
Chosen Option : **1**

Q.66 The monthly incomes of A and B are in the ratio 3 : 5 and the ratio of their savings is 2 : 3. If the income of B is equal to three times the savings of A, then what is the ratio of the expenditures of A and B?

Ans

1. 8 : 15
2. 7 : 11
3. 5 : 8
4. 3 : 7

Question ID : **8161615301**
Status : **Not Answered**
Chosen Option : **--**

Q.67 X and Y enter into a partnership with capital in the ratio 3 : 5. After 5 months X adds 50% of his capital, while Y withdraws 60% of his capital. What is the share (in ₹ lakhs) of X in the annual profit of ₹6.84 lakhs?

Ans

1. 3.12 ✗
2. 3.6 ✗
3. 3.72 ✓
4. 4.2 ✗

Question ID : **8161615314**
Status : **Answered**
Chosen Option : **2**

Q.68 The average of three numbers a, b and c is 2 more than c. The average of a and b is 48. If d is 10 less than c, then the average of c and d is:

Ans

1. 38 ✗
2. 36 ✗
3. 35 ✗
4. 40 ✓

Question ID : **8161615325**
Status : **Answered**
Chosen Option : **4**

Q.69 The radius and height of a right circular cone are in the ratio 3 : 4. If its curved surface area (in cm^2) is 240 π, then its volume (in cm^3) is:

Ans

1. 1536 π ✗
2. 768 π ✓
3. 384 π ✗
4. 2304 π ✗

Question ID : **8161615351**
Status : **Answered**
Chosen Option : **4**

Q.70 Anuja owns $66\frac{2}{3}$% of a property. If 30% of the property that she owns is worth ₹1,25,000, then 45% of the value (in ₹) of the property is:

Ans

1. 2,62,500 ✗
2. 2,81,250 ✓
3. 2,25,000 ✗
4. 2,70,000 ✗

Question ID : **8161615295**
Status : **Not Answered**
Chosen Option : **--**

Q.71 The sum of the radii of spheres A and B is 14 cm, the radius of A being larger than that of B. The difference between their surface areas is 112 π. What is the ratio of the volumes of A and B?

Ans
1. 64 : 27
2. 8 : 1
3. 27 : 8
4. 125 : 64

Question ID : **8161615352**
Status : **Not Answered**
Chosen Option : **--**

Q.72 The perimeters of ΔABC and ΔDEF are 43.2 cm and 28.8 cm, respectively, and ΔABC~ΔDEF. If DE = 12 cm, then the length of AB is:

Ans
1. 18 cm
2. 20 cm
3. 18.4 cm
4. 20.4 cm

Question ID : **8161615342**
Status : **Answered**
Chosen Option : **1**

Q.73 If $27(x+y)^3 - 8(x-y)^3 = (x+5y)(Ax^2 + By^2 + Cxy)$, then what is the value of (A + B − C)?

Ans
1. 13
2. 16
3. 18
4. 11

Question ID : **8161615327**
Status : **Not Answered**
Chosen Option : **--**

Q.74 When 1062, 1134 and 1182 are divided by the greatest number x, the remainder in each case is y. What is the value of $(x - y)$?

Ans
1. 19
2. 17
3. 18
4. 16

Question ID : **8161615282**
Status : **Not Answered**
Chosen Option : **--**

Q.75 Pipes A and B can fill a tank in 43.2 minutes and 108 minutes, respectively. Pipe C can empty it at 3 litres/minute. When all the three pipes are opened together, they fill the tank in 54 minutes. The capacity (in litres) of the tank is:

Ans
1. 160
2. 216
3. 200
4. 180

Question ID : **8161615322**
Status : **Not Answered**
Chosen Option : **--**

Q.76 Given that $x^8 - 34x^4 + 1 = 0$, $x > 0$. What is the value of $(x^3 + x^{-3})$?

Ans
1. $6\sqrt{8}$ ✗
2. $5\sqrt{8}$ ✓
3. $6\sqrt{6}$ ✗
4. $5\sqrt{6}$ ✗

Question ID : **8161615331**
Status : **Not Answered**
Chosen Option : **--**

Q.77 A solid metallic sphere of radius 15 cm is melted and recast into spherical balls of radius 3 cm each. What is the ratio of the surface area of the original sphere and the sum of the surface areas of all the balls?

Ans
1. 1 : 10 ✗
2. 1 : 5 ✓
3. 5 : 27 ✗
4. 3 : 40 ✗

Question ID : **8161615353**
Status : **Not Answered**
Chosen Option : **--**

Q.78 The value of $\frac{0.0203\times2.92}{0.7\times0.0365\times2.9} \div \frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$ is:

Ans
1. 0.05 ✓
2. 0.01 ✗
3. 0.1 ✗
4. 0.5 ✗

Question ID : **8161615284**
Status : **Not Answered**
Chosen Option : **--**

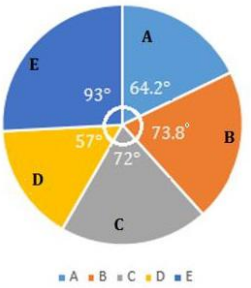
Q.79 $\cos A(\sec A - \cos A)(\cot A + \tan A) = ?$

Ans
1. $\tan A$ ✓
2. $\sec A$ ✗
3. $\sin A$ ✗
4. $\cot A$ ✗

Question ID : **8161615361**
Status : **Not Answered**
Chosen Option : **--**

Q.80 Study the given graph and answer the question that follows.

Break up for distribution (degree wise) of the employees working in five departments (A, B, C, D and E) in a company



Total number of employees = 3000

The number of employees in department B is what per cent of the total number of employees working in departments D and E?

Ans
1. 48.6
2. 45.8
3. 50.4
4. 49.2

Question ID : **8161615376**
Status : **Not Answered**
Chosen Option : **--**

Q.81 If the 5-digit number 535ab is divisible by 3, 7 and 11, then what is the value of $(a^2 - b^2 + ab)$?

Ans
1. 83
2. 89
3. 95
4. 77

Question ID : **8161615280**
Status : **Not Answered**
Chosen Option : **--**

Q.82 If the radius of the base of a right circular cylinder is increased by 20% and the height is decreased by 30%, then what is the percentage increase/decrease in the volume?

Ans
1. Decrease 0.8%
2. Increase 2%
3. Increase 0.8%
4. Decrease 2%

Question ID : **8161615356**
Status : **Not Answered**
Chosen Option : **--**

Q.83 The area (in sq. units) of the triangle formed by the graphs of $8x + 3y = 24$, $2x + 8 = y$ and the x-axis is:

Ans
1. 14
2. 28
3. 15
4. 24

Question ID : **8161615333**
Status : **Not Answered**
Chosen Option : **--**

Q.84 is 80% more than B and C is $48\frac{4}{7}\%$ less than the sum of A and B. By what per cent is C less than A?

Ans

1. 30 ✗
2. 20 ✓
3. 25 ✗
4. 15 ✗

Question ID : **8161615293**
Status : **Not Answered**
Chosen Option : **--**

Q.85 In a school, $\frac{3}{8}$ of the number of students are girls and the rest are boys. One-third of the number of boys are below 10 years and $\frac{2}{3}$ of the number of girls are also below 10 years. If the number of students of age 10 or more years is 260, then the number of boys in the school is:

Ans

1. 312 ✗
2. 280 ✗
3. 234 ✗
4. 300 ✓

Question ID : **8161615286**
Status : **Not Answered**
Chosen Option : **--**

Q.86 A certain number of students from school X appeared in an examination and 30% students failed. 150% more students than those from school X, appeared in the same examination from school Y. If 80% of the total number of students who appeared from X and Y passed, then what is the percentage of students who failed from Y?

Ans

1. 24 ✗
2. 16 ✓
3. 20 ✗
4. 18 ✗

Question ID : **8161615297**
Status : **Not Answered**
Chosen Option : **--**

Q.87 The radii of two right circular cylinders are in the ratio 3 : 2 and the ratio of their volumes is 27 : 16. What is the ratio of their heights?

Ans

1. 4 : 3 ✗
2. 9 : 8 ✗
3. 3 : 4 ✓
4. 8 : 9 ✗

Question ID : **8161615358**
Status : **Not Answered**
Chosen Option : **--**

Q.88 An article is marked 35% above its cost. If a profit of 20% is earned by selling the article, then the discount per cent offered on the marked price of the article is:

Ans

✔ 1. $11\frac{1}{9}\%$

✘ 2. 15%

✘ 3. 12%

✘ 4. $10\frac{1}{9}\%$

Question ID : **8161615311**
Status : **Not Answered**
Chosen Option : **--**

Q.89 How many kg of rice costing ₹42 per kg should be mixed with $7\frac{1}{2}$ kg rice costing ₹50 per kg so that by selling the mixture at ₹53.10 per kg, there is a gain of 18%?

Ans

✔ 1. $12\frac{1}{2}$

✘ 2. $10\frac{1}{2}$

✘ 3. 8

✘ 4. 9

Question ID : **8161615315**
Status : **Not Answered**
Chosen Option : **--**

Q.90 A, B and C started a business. Twice the investment of A is equal to thrice the investment of B and also five times the investment of C. If the total profit after a year is ₹15.5 lakhs, then the share of B in the profit is (in ₹ lakhs):

Ans

✔ 1. 5

✘ 2. 7.5

✘ 3. 4.5

✘ 4. 3

Question ID : **8161615313**
Status : **Not Answered**
Chosen Option : **--**

Q.91 In a circle with centre O, BC is a chord. Points D and A are on the circle, on the opposite side of BC, such that ∠DBC = 28° and BD = DC. What is the measure of ∠BOC?

Ans

✔ 1. 112°

✘ 2. 96°

✘ 3. 98°

✘ 4. 84°

Question ID : **8161615343**
Status : **Not Answered**
Chosen Option : **--**

Q.92 A can do 20% of a work in 4 days, B can do $33\frac{1}{3}$% of the same work in 10 days. They worked together for 9 days. C completed the remaining work in 6 days. B and C together will complete 75% of the same work in:

Ans

✗ 1. 15 days

✗ 2. 12 days

✓ 3. 10 days

✗ 4. 9 days

Question ID : **8161615321**
Status : **Not Answered**
Chosen Option : **--**

Q.93 Shashi sells two articles for ₹5,000 each with no loss and no profit in the overall transaction. If one article is sold at $16\frac{2}{3}$% loss, then the other is sold at a profit of:

Ans

✗ 1. $18\frac{1}{3}\%$

✓ 2. 25%

✗ 3. 24%

✗ 4. $16\frac{2}{3}\%$

Question ID : **8161615306**
Status : **Not Answered**
Chosen Option : **--**

Q.94 $\frac{\sin\theta[(1-\tan\theta)\tan\theta+\sec^2\theta]}{(1-\sin\theta)\tan\theta(1+\tan\theta)(\sec\theta+\tan\theta)}$ is equal to:

Ans

✗ 1. $\sin\theta\cos\theta$

✗ 2. -1

✗ 3. $\text{cosec}\theta\sec\theta$

✓ 4. 1

Question ID : **8161615360**
Status : **Not Answered**
Chosen Option : **--**

Q.95 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 the point C on it. If $\angle BPT = 36°$, then what is the measure of $\angle BCP$?

Ans

✓ 1. 27°

✗ 2. 24°

✗ 3. 36°

✗ 4. 18°

Question ID : **8161615345**
Status : **Not Answered**
Chosen Option : **--**

Q.96 Surekha borrowed a sum of money and returned it in two equal annual instalments of ₹5,547 each. If the rate of interest was $7\frac{1}{2}$% p.a. compounded yearly, then the total interest paid by her was:

Ans
1. ₹1,134 ✔
2. ₹1,144 ✘
3. ₹1,126 ✘
4. ₹1,096 ✘

Question ID : **8161615305**
Status : **Not Answered**
Chosen Option : **--**

Q.97 The graphs of the equations $3x - 20y - 2 = 0$ and $11x - 5y + 61 = 0$ intersect at P(a,b). What is the value of $(a^2 + b^2 - ab)/(a^2 - b^2 + ab)$?

Ans
1. $\frac{41}{31}$ ✘
2. $\frac{31}{41}$ ✔
3. $\frac{37}{35}$ ✘
4. $\frac{5}{7}$ ✘

Question ID : **8161615332**
Status : **Not Answered**
Chosen Option : **--**

Q.98 If $(10a^3 + 4b^3) : (11a^3 - 15b^3) = 7 : 5$, then $(3a + 5b) : (9a - 2b) = ?$

Ans
1. 3 : 2 ✘
2. 10 : 13 ✔
3. 8 : 7 ✘
4. 5 : 4 ✘

Question ID : **8161615298**
Status : **Not Answered**
Chosen Option : **--**

Q.99 In ΔABC, $\angle A - \angle B = 33°$, $\angle B - \angle C = 18°$.
What is the sum of the smallest and the largest angles of the triangle?

Ans
1. 92° ✘
2. 143° ✘
3. 125° ✔
4. 108° ✘

Question ID : **8161615336**
Status : **Not Answered**
Chosen Option : **--**

Q.100 Three men and 4 women can do a piece of work in 7 days, whereas 2 men and 1 woman can do it in 14 days. Seven women will complete the same work in:

Ans

1. 8 days
2. 9 days
3. 10 days
4. 12 days

Question ID : **8161615323**
Status : **Not Answered**
Chosen Option : **--**