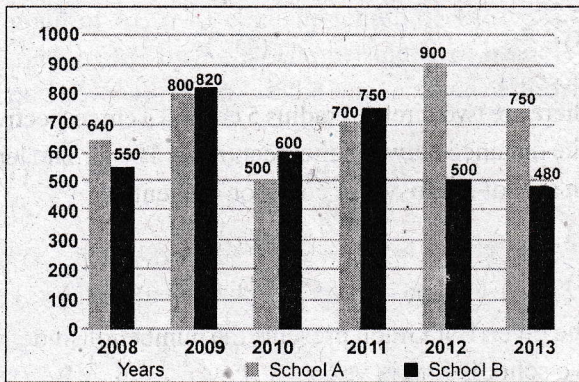


15. CHSL (10+2) Examination-2018

Test Time 1:00 PM - 2:00 PM

Test Date 08/07/2019

- If $x = 2 \div \sqrt{3}$, then the value of $x^3 - x^{-3}$ is:
 - 52
 - $-30\sqrt{3}$
 - $30\sqrt{3}$
 - 52
- The given Bar Graph presents the number of students of two schools for six years.



What is the average of the number of students from school A during the six year period?

- 760
 - 700
 - 715
 - 765
- A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for ₹35000. The share of A in the contracted money will be:
 - ₹15000
 - ₹14000
 - ₹21000
 - ₹7000
 - Chords AB and CD of a circle intersect externally at P. If AB = 6 cm, CD = 3 cm and PB = 4 cm, then the length (in cm) of PD is:
 - 5
 - 6
 - 2
 - 7
 - If each side of a rectangle is increased by 13%, then its area will increase by:
 - 21.69%
 - 13%
 - 27.69%
 - 26%
 - The sum of the salaries of A and B together is ₹43000. A spends 95% of his salary and B, 80% of his salary. If now their savings are the same, what is B's salary (in ₹)?
 - 8000
 - 34400
 - 10600
 - 8600

7. The value of $\frac{(3\frac{1}{5} + \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{8} \div \{\frac{5}{8} + (\frac{1}{8} \div \frac{1}{3})\}}$ is

- $\frac{19}{16}$
 - $\frac{19}{7}$
 - $\frac{19}{9}$
 - $\frac{19}{64}$
- The given Bar Graph presents the number of students of two schools for six years. (Graph see Q. 2) In which year, the absolute difference of the students in two schools is the lowest?
 - 2008
 - 2011
 - 2009
 - 2012
 - If $\sin \theta = 3x$ and $\cos \theta = -\frac{3}{x}$ ($x \neq 0$) then the value of $6(x^2 + \frac{1}{x^2})$ is:
 - $\frac{1}{4}$
 - $\frac{1}{3}$
 - $\frac{2}{3}$
 - $\frac{1}{2}$
 - If in a ΔABC , the bisectors of $\angle B$ and $\angle C$ meet at O, inside the triangle. If $\angle BOC = 156^\circ$, then the measure of $\angle A$ is:
 - 66°
 - 132°
 - 84°
 - 156°
 - Two numbers are in the ratio 3 : 4. On increasing each of them by 30, the ratio becomes 9 : 10. The numbers are:
 - 30, 40
 - 15, 20
 - 12, 16
 - 18, 24
 - The compound interest on a certain sum of money at 11% for 2 years is ₹6963. Its simple interest (in ₹) at the same rate and for the same period is:
 - ₹6500
 - ₹6600
 - ₹6750
 - ₹6000
 - A dealer buys an article marked at ₹20000 with two successive discounts of 10% and 8%. He spends ₹1440 on repairs and sells it for ₹20000, what is his profit/loss percent (correct to one decimal place)?
 - 12.3% Profit
 - 12.3% loss
 - 11.1% Profit
 - 11.1% loss



14. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of

$2 \cot^2 x - 3 \sec^2 x$ is:

- (1) 10 (2) 4
(3) 8 (4) 16

15. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 hours, then the sum of the speed (in km/h) of both the trains is:

- (1) 180 (2) 265
(3) 245 (4) 350

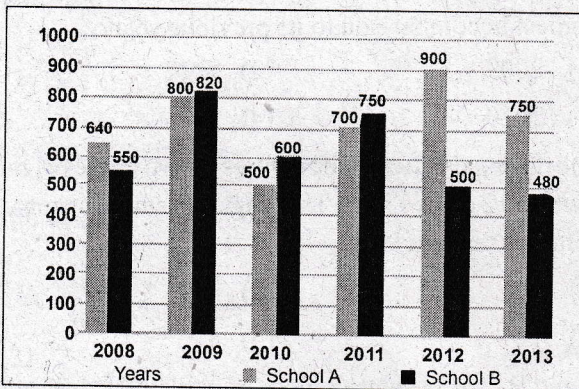
16. Two students, A and B, appeared for an examination. A secured 8 marks more than B and the marks of the former was 60% of the sum of their marks. The sum of the marks obtained by A and B is:

- (1) 45 (2) 50
(3) 40 (4) 75

17. The distance between the centre of two circles of radius 4 cm, and 2 cm is 10 cm. The length (in cm) of a transverse common tangent is:

- (1) 10 (2) 6
(2) 8 (4) 4

18. The given Bar Graph presents the number of students of two schools for six years.



In which year, the percentage increase of students in school A is the highest in comparison to its previous year?

- (1) 2010 (2) 2012
(3) 2011 (4) 2009

19. Given n is an integer, what is the remainder when $(6n+3)^2$ is divided by 9?

- (1) 3 (2) 2
(3) 1 (4) 0

20. There is a polygon of 11 sides. How many triangles can be drawn by only using the vertices of the polygon?

- (1) 165 (2) 150
(3) 175 (4) 180

21. If $6^{\sqrt{x}} + 8^{\sqrt{x}} = 10^{\sqrt{x}}$, then the value of x is:

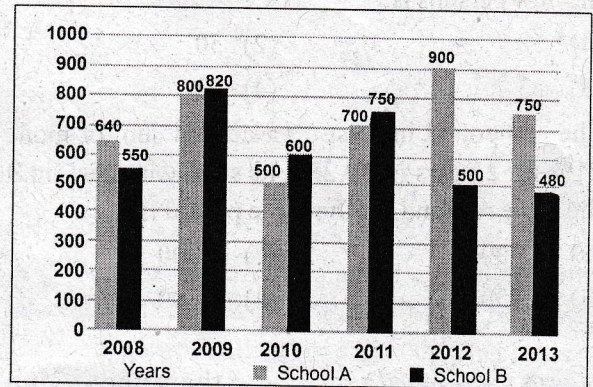
- (1) 2 (2) 16
(3) 4 (4) 8

22. If $4(\operatorname{cosec}^2 66^\circ - \tan^2 24^\circ) + \frac{1}{2} \sin 90^\circ - 4 \tan^2 66^\circ y \tan^2 24^\circ = \frac{y}{2}$, then

the value of y is:

- (1) $\frac{1}{2}$ (2) 1
(3) $-\frac{1}{2}$ (4) -1

23. The given Bar Graph presents the number of students of two schools for six years.



What is the ratio of the number of students taken for all years together from school A to that from school B?

- (1) 417 : 401 (2) 370 : 429
(3) 429 : 370 (4) 401 : 417

24. If $(x-7)^3 + (2x+8)^3 + (2x-3)^3 = 3(x-7)(2x+8)(2x-3)$, then what is the value of x ?

- (1) 1.6 (2) 2.4
(3) 1.2 (4) 0.4

25. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 7 years between them. The age (in years) of the elder among the new persons is:

- (1) 58 (2) 61
(3) 50 (4) 54

Answers

1. (3)	2. (3)	3. (3)	4. (1)	5. (3)
6. (4)	7. (3)	8. (3)	9. (3)	10. (2)
11. (2)	12. (2)	13. (3)	14. (1)	15. (3)
16. (3)	17. (2)	18. (3)	19. (4)	20. (1)
21. (2)	22. (2)	23. (3)	24. (4)	25. (2)



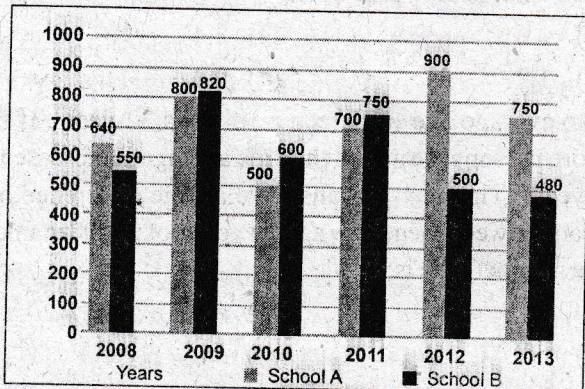
16. CHSL (10+2) Examination-2018

Test Time 4:00 PM - 5:00 PM

Test Date 08/07/2019

- If each side of a rectangle is decreased by 13%, then its area will decrease by:
 - 21.69%
 - 26%
 - 13%
 - 24.31%
- The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 9 years between them. The age (in years) of the elder among the new persons is:
 - 58
 - 50
 - 53
 - 62
- The compound interest on a certain sum of money at 21% for 2 years is ₹9,282. Its simple interest (in Rs) at the same rate and for the same period is:
 - 8,400
 - 8,000
 - 8,750
 - 8,500

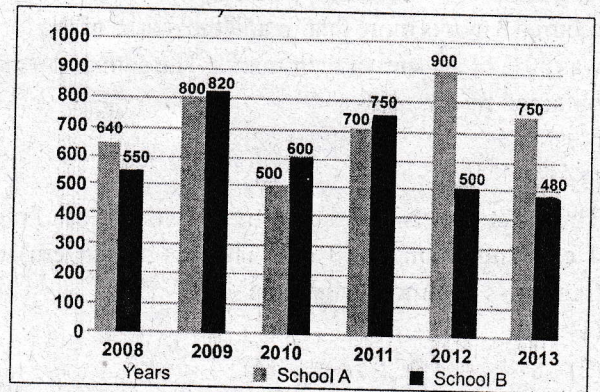
- If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\cot^2 x - 3\sec^2 x$ is:
 - 4
 - 2
 - 8
 - 6
- The given Bar Graph presents the number of students of two school for six years.



what is the average (Correct to two decimal places) of total students in schools A and B taken together during the six year period ?

- 1331.67
- 1133.57
- 1221.67
- 1122.57

- If $x^4 + x^{-4} = 47, (x > 0)$, then the value of $(2x-3)^2$ is:
 - 5
 - 3
 - 4
 - 2
- A earns ₹640 per day and works for 8 hours. B earns ₹360 per day and works for 6 hours. The ratio of per day wages of A to that of B is:
 - 5 : 4
 - 16 : 9
 - 9 : 16
 - 4 : 5
- The given Bar Graph presents the number of students of two school for six years.



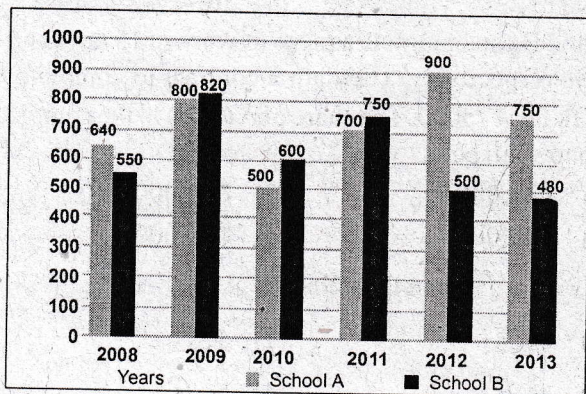
In which year, the percentage increase in the number of total students in schools A and B taken together is the highest in comparison to its previous year?

- 2009
 - 2012
 - 2010
 - 2011
- The distance between the centres of two circles of radius 3 cm and 2 cm is 13 cm. The length (in cm) of a transverse common tangent is:
 - 10
 - 6
 - 12
 - 8
 - A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for ₹75000. The share of B (in ₹) in the contracted money will be:
 - 40,000
 - 35,000
 - 30,000
 - 45,000

- Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta BBC)}{ar(\Delta PQR)} = \frac{4}{25}$. If $AB = 12$ cm, $BC = 8$ cm and $AC = 9$ cm, then PR is equal to:
 - 18
 - 17.5
 - 15
 - 20



12. The sum of the salaries of A and B together is ₹ 45000. A spends 85% of his salary and B, 70% of his salary. If now their savings are the same, what is B's salary (in ₹)?
- (1) 12,600 (2) 30,000
(3) 18,000 (4) 15,000
13. In $\triangle ABC$, the bisectors of $\angle B$ and $\angle C$ meet at O, inside the triangle. If $\angle BOC = 106^\circ$, then the measure of $\angle A$ is:
- (1) 84° (2) 106°
(3) 32° (4) 16°
14. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:
- (1) 305 (2) 105
(3) 180 (4) 165
15. PA and PB are the tangents to a circle with centre O, from a point P outside the circle. A and B are the points on the circle. If $\angle APB = 72^\circ$, then $\angle OAB$ is equal to:
- (1) 18° (2) 36°
(3) 72° (4) 24°
16. If $a^3 + b^3 = 1344$ and $a + b = 28$, then $(a + b)^2 - 3ab$ is equal to:
- (1) 32 (2) 16
(3) 48 (4) 24
17. If $4(\operatorname{cosec}^2 65^\circ - \tan^2 25^\circ) - \sin 90^\circ - \tan^2 63^\circ y \tan^2 27^\circ = \frac{y}{2}$ then the value of y is:
- (1) $-\frac{1}{2}$ (2) -1
(3) 2 (4) 1
18. The given Bar Graph presents the number of students of two school for six years.



What is the ratio of the number of students taken together for the year 2008, 2012 and 2013 in school A to the number of students taken together for the year 2008, 2012 and 2013 in school B?

- (1) 153 : 229 (2) 229 : 153
(3) 117 : 101 (4) 101 : 117

19. If $\cot \theta = 5x$ and $\operatorname{cosec} \theta = \frac{5}{x}$ ($x \neq 0$), then the value of

$5(x^2 - \frac{1}{x^2})$ is :

- (1) $\frac{1}{5}$ (2) $\frac{1}{2}$

- (3) $-\frac{1}{4}$ (4) $-\frac{1}{5}$

20. If $x = 2 + \sqrt{5}$ then the value of $(x^3 - x^{-3})$ is :

- (1) -76 (2) 76

- (3) -52 (4) 52

21. A dealer buys an article marked at ₹20000 with two successive discounts of 20% and 5%. He spends Rs.1800 for its repair and sells it for ₹20000. What is his profit/loss percent (correct to two decimal places)?

- (1) 76.65% loss (2) 17.65% profit

- (3) 23.46% profit (4) 23.64% loss

22. A man bought three articles for ₹3,000 each. He sold the articles respectively at 10% profit, 5% profit and 15% loss. The total percentage profit/loss he earned is:

- (1) 10% loss (2) 5% loss

- (3) No profit no loss (4) 5% profit

23. If the seven digit number $54x29y6$ ($x > y$) is divisible by 72, what is the value of $(2x + 3y)$?

- (1) 38 (2) 23

- (3) 32 (4) 13

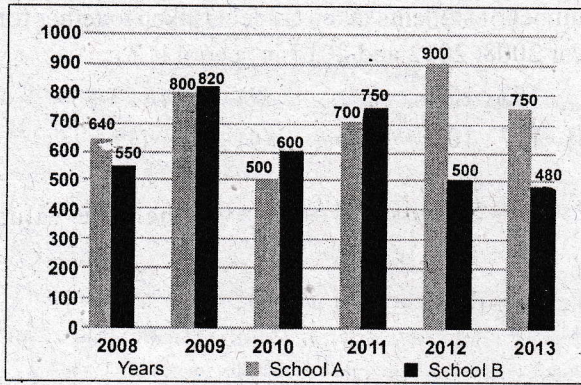
24. The simplified value of $\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 - 6)}$ is:

- (1) 1 (2) $\frac{19}{64}$

- (3) $\frac{19}{16}$ (4) 2



25. The given Bar Graph presents the number of students of two school for six years.



In which year the sum of the students in two schools is the highest ?

- (1) 2011 (2) 2012
(3) 2008 (4) 2009

Answers

1. (4)	2. (4)	3. (1)	4. (2)	5. (1)
6. (1)	7. (2)	8. (1)	9. (3)	10. (4)
11. (4)	12. (4)	13. (3)	14. (2)	15. (2)
16. (3)	17. (3)	18. (2)	19. (4)	20. (2)
21. (2)	22. (3)	23. (2)	24. (1)	25. (4)

17. CHSL (10+2) Examination-2018

Test Time 10:00 AM - 11:00 AM

Test Date 09/07/2019

1. A man bought three articles for ₹3,000 each. He sold the articles respectively at 15% profit, 10% profit and 15% loss. The total percentage profit/loss he earned is:

- (1) No profit no loss (2) $\frac{10}{3}$ % profit

- (3) $\frac{10}{3}$ % loss (4) 10% loss

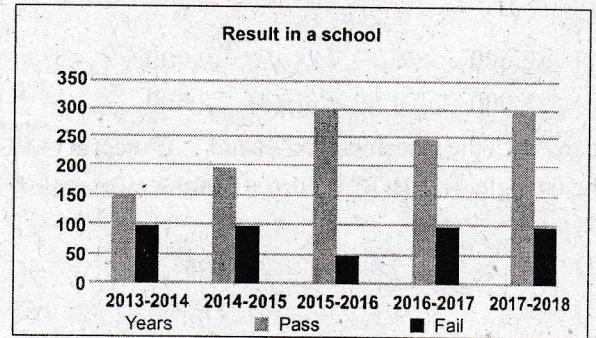
2. A earns ₹640 per day and works for 8 hours per day. B earns ₹360 per day and works for 6 hours per day. The ratio of per day wages of B to that of A is:

- (1) 9 : 16 (2) 4 : 5
(3) 5 : 4 (4) 16 : 9

3. The sum of the salaries of A and B is ₹42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is B's salary (in ₹)?

- (1) ₹18,000 (2) ₹12,600
(3) ₹15,000 (4) ₹30,000

4. The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.



What is the average number of students who passed in the five academic years?

- (1) 300 (2) 250
(3) 225 (4) 240

5. The simplified value of $\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)}$ is:

- (1) $\frac{1}{7}$ (2) 1

- (3) $\frac{1}{4}$ (4) $\frac{1}{2}$

6. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 9 years between them. The age (in years) of the younger among the new persons is:

- (1) 62 (2) 50
(3) 58 (4) 53

7. If each side of rectangle is decreased by 11%, then its area will decrease by:

- (1) 21.69% (2) 20.79%
(3) 13.13% (4) 26.78%

8. A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for ₹75000. The share of A (in ₹) in the contracted money will be:

- (1) ₹45,000 (2) ₹30,000
(3) ₹40,000 (4) ₹35,000

9. If $x = 2 + \sqrt{5}$ then the value of $x^3 + x^{-3}$ is:

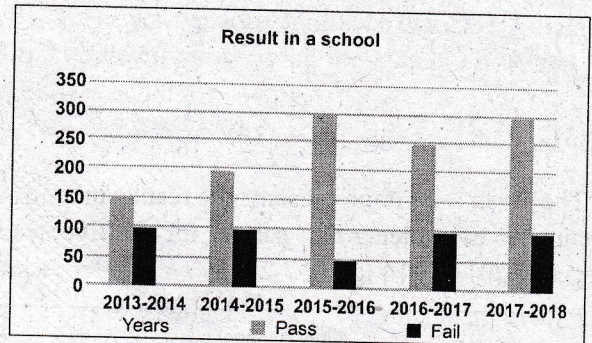
- (1) $40\sqrt{5}$ (2) $34\sqrt{5}$
(3) $46\sqrt{5}$ (4) $36\sqrt{5}$



10. If the seven digit number $64x29y6$ ($x > y$) is divisible by 72, what is the value of $(2x - 3y)$?
- (1) 13 (2) 3
(3) 9 (4) 7.
11. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\cot^2 x + 3\operatorname{cosec}^2 x$ is:
- (1) 14 (2) 16
(3) 8 (4) 18
12. If $a^3 - b^3 = 899$ and $a - b = 31$, then $(a - b)^2 + 3ab$ is equal to:
- (1) 35 (2) 31
(3) 16 (4) 29
13. The ratio between the speeds of two trains is 2 : 5. If the first train runs 250 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:
- (1) 75 (2) 180
(3) 65 (4) 150
14. In $\triangle ABC$, $\angle A = 52^\circ$. Its sides AB and AC are produced to the points D and E respectively. If the bisectors of the $\angle CBD$ and $\angle BCE$ meet at point O, then $\angle BOC$ is equal to:
- (1) 16° (2) 106°
(3) 32° (4) 64°
15. Let $\triangle ABC \sim \triangle QPR$ and $\frac{ar(\triangle ABC)}{ar(\triangle PQR)} = \frac{4}{25}$. If AB = 12 cm, BC = 8 cm and AC = 10 cm, then QR is equal to:
- (1) 15 (2) 18
(3) 20 (4) 25
16. If $x^4 + x^{-4} = 194$, ($x > 0$), then the value of $(2x - 4)^2$ is:
- (1) 15 (2) 20
(3) 12 (4) 16
17. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle $ADC = 126^\circ$. $\angle BAC$ is equal to:
- (1) 24° (2) 72°
(3) 36° (4) 18°
18. If $7(\operatorname{cosec}^2 55^\circ - \tan^2 35^\circ) + 2\sin 90^\circ - \tan^2 52^\circ y \tan^2 38^\circ = \frac{y}{2}$, then the value of y is:
- (1) 2 (2) 6
(3) 3 (4) 1
19. The compound interest on a certain sum of money at 21% for 2 years is ₹6,961.5. Its simple interest (in ₹) at the same rate and for the same period is:

- (1) ₹6,300 (2) ₹6,500
(3) ₹6,000 (4) ₹6,750

20. The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.



In which academic year the difference between the number of students passed and that of those failed is the lowest?

- (1) 2013-2014 (2) 2014-2015
(3) 2016-2017 (4) 2015-2016

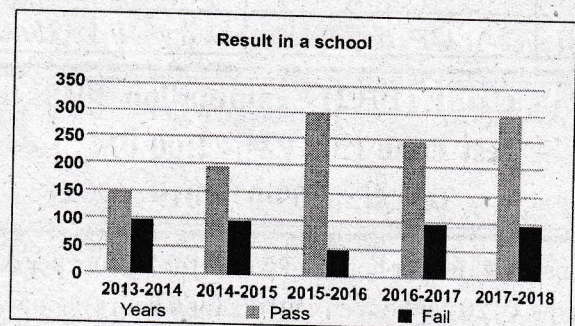
21. A dealer buys an article marked at ₹30000 with two successive discounts of 20% and 5%. He spends ₹1200 on repairs and sells it for ₹30000, what is his profit/loss percent?

- (1) 25% loss (2) 25% profit
(3) 20% profit (4) 20% loss

22. The distance between the centres of two circles of radius 2.5 cm each is 13 cm. The length (in cm) of a transverse common tangent is:

- (1) 6 (2) 12
(3) 8 (4) 10

23. The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.



In which year the percentage increase in total number of students is the lowest in comparison to its previous academic year?

- (1) 2016-2017 (2) 2017-2018
(3) 2015-2016 (4) 2014-2015

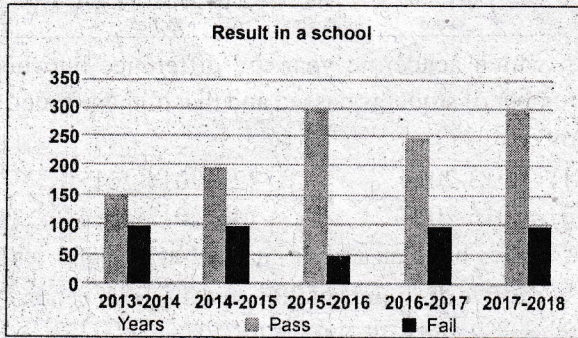


24. If $\cos\theta = 4x$ and $\sin\theta = \frac{4}{x}$ ($x \neq 0$), then the value of

$(x^2 + \frac{1}{x^2})$ is:

- (1) $\frac{1}{4}$ (2) $\frac{1}{3}$
 (3) $\frac{1}{2}$ (4) $\frac{1}{16}$

25. The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.



What is the approximate percentage (Correct to nearest integer) of the students who failed during the five academic years taken together?

- (1) 28% (2) 27%
 (3) 21% (4) 22%

Answers

1. (2)	2. (1)	3. (4)	4. (4)	5. (4)
6. (4)	7. (2)	8. (2)	9. (2)	10. (2)
11. (4)	12. (4)	13. (1)	14. (4)	15. (4)
16. (3)	17. (3)	18. (2)	19. (1)	20. (1)
21. (2)	22. (2)	23. (1)	24. (4)	25. (2)

18. CHSL (10+2) Examination-2018

Test Time 1:00 PM - 2:00 PM

Test Date 09/07/2019

1. A earns ₹100 per hour and works for 8 hours per day. B earns ₹120 per hour and works for 6 hours per day. The ratio of per day wages of B to that of A is:

- (1) 10 : 9
 (2) 4 : 5
 (3) 5 : 4
 (4) 9 : 10

2. The distance between the centres of two circles of radius 6 cm each is 13 cm. The length (in cm) of a transverse common tangent is:

- (1) 10 (2) 12
 (3) 5 (4) 6

3. The simplified value of $\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)}$ is:

- (1) 1 (2) $\frac{1}{4}$
 (3) 2 (4) $\frac{1}{2}$

4. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of

$4\cot^2 x - 3\operatorname{cosec}^2 x$ is:

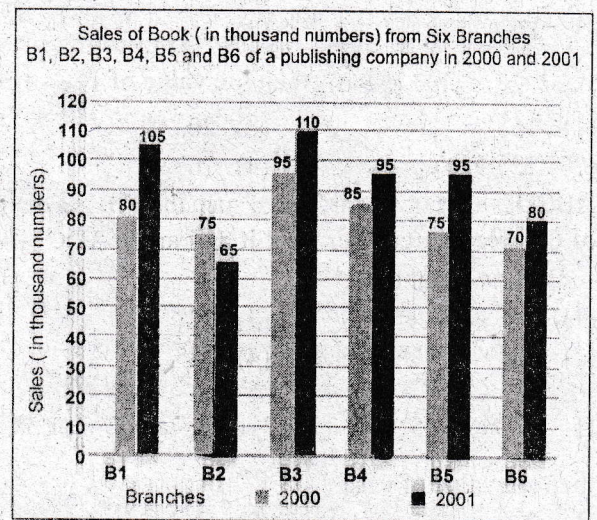
- (1) 8 (2) 0
 (3) 2 (4) 1

5. If $7(\operatorname{cosec}^2 57^\circ - \tan^2 33^\circ) + 2\sin 90^\circ - 4\tan^2 52^\circ + \tan^2 38^\circ = \frac{y}{2}$, then

the value of y is:

- (1) 2 (2) 4
 (3) 1 (4) 3

6. The given Bar Graph presents the sales of the number of books (in thousands) by six branches of a publishing company during two consecutive years 2000 and 2001.

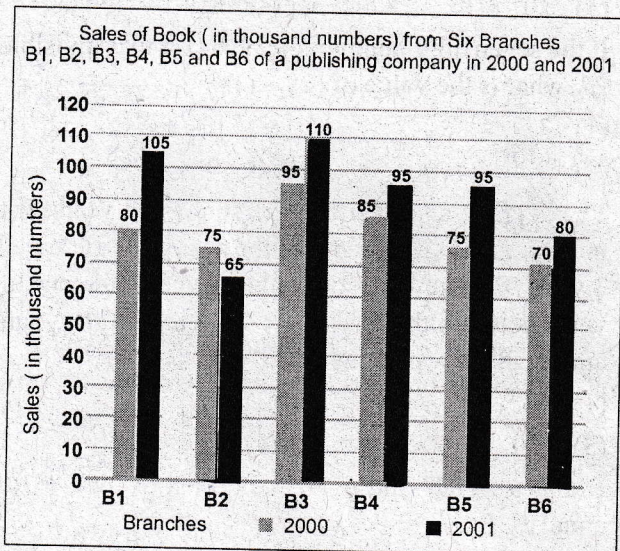


The ratio of total sales by all branches for the year 2001 to total sales by all branches for the year 2000 is:

- (1) 48 : 55 (2) 25 : 23
 (3) 55 : 48 (4) 23 : 25

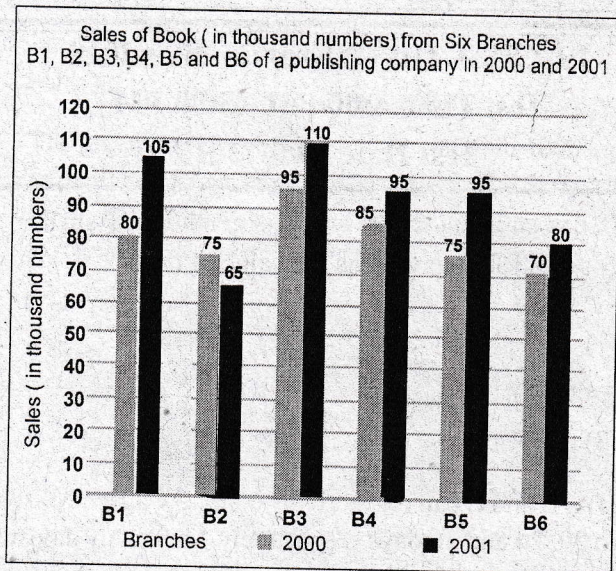


7. The given Bar Graph presents the sales of the number of books (in thousands) by six branches of a publishing company during two consecutive years 2000 and 2001.



The average of total sales (in thousands and correct to two decimal places) by all branches for both the years is:

- (1) 171.37 (2) 171.57
 (3) 171.27 (4) 171.67
8. The given Bar Graph presents the sales of the number of books (in thousands) by six branches of a publishing company during two consecutive years 2000 and 2001.



The ratio of total sales by branches B1, B3 and B5 for both the years to total sales by branches B2, B4, B6 for both the years is:

- (1) 21 : 23 (2) 56 : 47
 (3) 23 : 21 (4) 47 : 56

9. The sum of the salaries of A and B is ₹42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is A's salary (in ₹)?

- (1) 18,000 (2) 12,000
 (3) 30,000 (4) 15,000

10. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle $\angle ADC = 146^\circ$. $\angle BAC$ is equal to:

- (1) 56° (2) 24°
 (3) 72° (4) 18°

11. A dealer buys an article marked at ₹5000 with two successive discounts of 20% and 5%. He spends ₹200 on repairs and sells it for ₹5000, what is his profit/loss percent?

- (1) 25% profit (2) 25% loss
 (3) 20% profit (4) 20% loss

12. If the length of a rectangle is decreased by 11% and the breadth is increased by 11%, its area will undergo:

- (1) 13.13% increase (2) 1.21% increase
 (3) 1.21% decrease (4) 13.13% decrease

13. If $x - \frac{1}{x} = 7$, then $x^3 - \frac{1}{x^3}$ is equal to

- (1) 480 (2) 364
 (3) 376 (4) 500

14. In $\triangle ABC$, $\angle A = 72^\circ$. Its sides AB and AC are produced to the points D and E respectively. If the bisectors of the $\angle CBD$ and $\angle BCE$ meet at point o, then $\angle BOC$ is equal to:

- (1) 16° (2) 54°
 (3) 32° (4) 106°

15. A and B can complete a piece of work in 15 days and 20 days respectively. They got a contract to complete the work for ₹77000. The share of A (in ₹) in the contracted money will be:

- (1) 45,000 (2) 40,000
 (3) 44,000 (4) 42,000

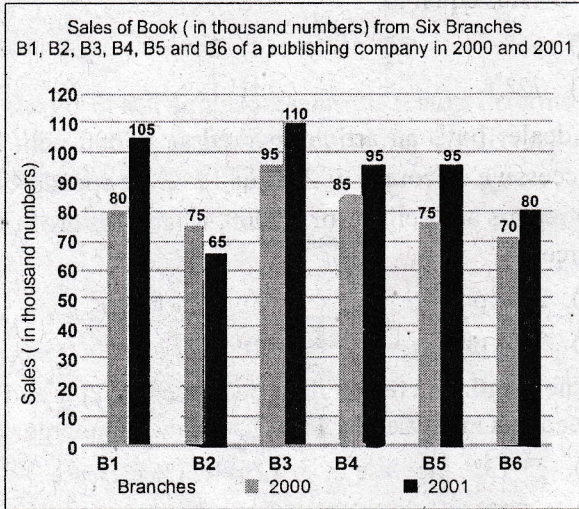
16. Let $\triangle ABC \sim \triangle QPR$ and $\frac{ar(\triangle ABC)}{ar(\triangle PQR)} = \frac{4}{25}$. If AB = 12 cm,

BC = 8 cm and AC = 10 cm, then QP is equal to:

- (1) 20 (2) 18
 (3) 15 (4) 30



17. A man bought three articles for ₹6,000 each. He sold the articles respectively at 15% profit, 12% profit and 15% loss. The total percentage profit/loss he earned is:
- (1) 4% profit (2) 3% loss
(3) 4% loss (4) No profit no loss
18. The given Bar Graph presents the sales of the number of books (in thousands) by six branches of a publishing company during two consecutive years 2000 and 2001.



The total sales (in thousands) by all branches for both the years is:

- (1) 470 (2) 560
(3) 1100 (4) 1030
19. If $\sec \theta = 8x$ and $\tan \theta = \frac{8}{x}$ ($x \neq 0$), then the value of

$16(x^2 - \frac{1}{x^2})$ is:

- (1) $\frac{1}{4}$ (2) $\frac{1}{16}$
(3) $\frac{1}{3}$ (4) $\frac{1}{2}$
20. The compound interest on a certain sum of money at 21% for 2 years is ₹11,602.5. Its simple interest (in ₹) at the same rate and for the same period is:
- (1) 10,750 (2) 16,000
(3) 12,500 (4) 10,500
21. The ratio between the speeds of two trains is 2:5. If the first train runs 250 km in 5 h, then the sum of the speeds (in km/h) of both the trains is:
- (1) 175 (2) 150
(3) 180 (4) 165

22. If $x^4 + x^{-4} = 1154$, ($x > 0$), then the value of $2(x-3)^2$ is:
- (1) 16 (2) 12
(3) 20 (4) 15
23. If the seven digit number $64x29y6$ ($x > y$) is divisible by 72, what is the value of $(2x-y)$?
- (1) 3 (2) 13
(3) 7 (4) 9
24. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 11 years between them. The age (in years) of the younger among the new persons is:
- (1) 63 (2) 52
(3) 50 (4) 58
25. If $a^3 - b^3 = 899$ and $a - b = 29$, then $(a-b)^2 + 3ab$ is equal to:
- (1) 35 (2) 29
(3) 16 (4) 31

Answers

1. (4)	2. (3)	3. (3)	4. (2)	5. (1)
6. (3)	7. (4)	8. (2)	9. (2)	10. (1)
11. (1)	12. (3)	13. (2)	14. (2)	15. (3)
16. (4)	17. (1)	18. (4)	19. (1)	20. (4)
21. (1)	22. (1)	23. (4)	24. (2)	25. (4)

19. CHSL (10+2) Examination-2018

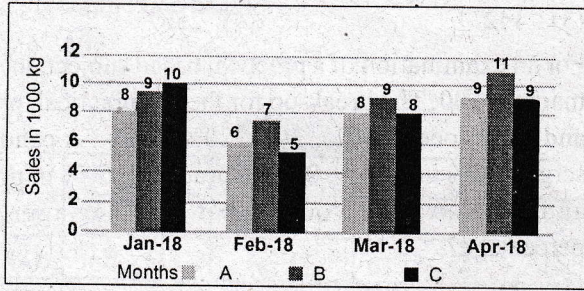
Test Time 4:00 PM - 5:00 PM

Test Date 09/07/2019

1. If θ is an acute angle, and it is given that $5 \sin \theta + 12 \cos \theta = 13$, then what is the value of $\tan \theta$?
- (1) $\frac{5}{13}$ (2) $\frac{12}{13}$
(3) $\frac{5}{12}$ (4) $\frac{13}{12}$
2. If A, B and C can respectively complete a piece of work in 20, 24 and 36 days respectively, how many days will they take to complete the work, if they work together?
- (1) $8\frac{16}{43}$ (2) $6\frac{1}{4}$
(3) $9\frac{1}{4}$ (4) $7\frac{19}{20}$



3. The given Bar Graph presents the scale (in 1000 kg) of a particular brand of tea by three outlets, A, B and C during the months Jan, Feb, Mar, and Apr, 2018.

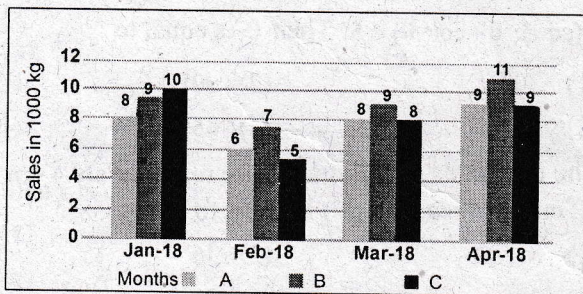


What is the ratio of rate of growth in sales from B to the rate of growth in sales from C in Mar 2018 with reference to its previous month?

- (1) 10 : 21
 - (2) 10 : 19
 - (3) 9 : 19
 - (4) 9 : 16
4. If I travel by bus, I reach my office 15 min late, and if I travel by car, I reach 10 min early. If the distance between my home and my office is 25 km, then the difference of the reciprocals of average speeds of the bus, in second per metre is :

- (1) $\frac{3}{20}$
- (2) $\frac{3}{50}$
- (3) $\frac{3}{25}$
- (4) $\frac{3}{10}$

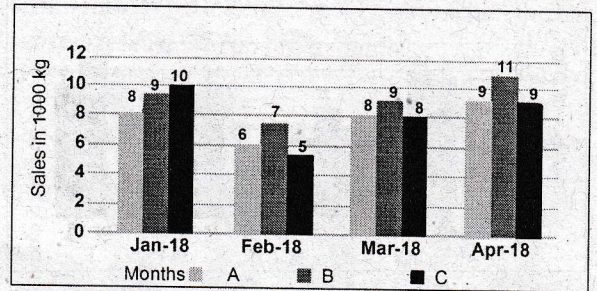
5. The given Bar Graph presents the scale (in 1000 kg) of a particular brand of tea by three outlets, A, B and C during the months Jan, Feb, Mar, and Apr, 2018.



What is the average scale per month by a during Jan-Mar, 2018?

- (1) 7505 kg
- (2) 7334.67 kg
- (3) 5500 kg
- (4) 7333.33 kg

6. The given Bar Graph presents the scale (in 1000 kg) of a particular brand of tea by three outlets, A, B and C during the months Jan, Feb, Mar, and Apr, 2018.



Arrange the ratio of sales from B to that from A and C, taken together, month wise in ascending order

- (1) Jan, Mar, Feb, Apr
 - (2) Jan, Feb, Mar, Apr
 - (3) Jan, Mar, Apr, Feb
 - (4) Jan, Apr, Mar, Feb
7. Which among the following increases continuously in the range $0^\circ < \theta < 90^\circ$?
- (1) $\cos \theta$
 - (2) $\tan \theta$
 - (3) $\cot \theta$
 - (4) $\operatorname{cosec} \theta$
8. If $(3x + 1)^3 + (x - 3)^3 + (2x - 4)^3 = 6(3x + 1)(x - 3)(x - 2)$, then x is equal to :

- (1) 1
- (2) 2
- (3) $-\frac{1}{3}$
- (4) 3

9. The value of the expression $\frac{1}{4} \left\{ \left(a + \frac{1}{a} \right)^2 - \left(a - \frac{1}{a} \right)^2 \right\}$ is :

- (1) 1
- (2) 4
- (3) $\frac{1}{4}$
- (4) $\frac{1}{2}$

10. Two items are sold for ₹18,602, each. On one item there has been a gain of 31% and on the second item a loss of 29%. What was the overall loss or gain in the transaction?

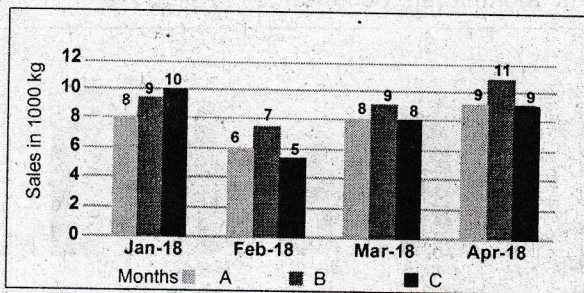
- (1) Gain 8.25%
- (2) loss 7.91%
- (3) loss 8.25%
- (4) Gain 7.91%

11. An article is sold for ₹688.16 after two successive discounts of 12% and 8% respectively. what is its marked price ?

- (1) ₹900
- (2) ₹850
- (3) ₹820
- (4) ₹800



12. The given Bar Graph presents the scale (in 1000 kg) of a particular brand of tea by three outlets, A, B and C during the months Jan, Feb, Mar, and Apr, 2018.



by how much quantity is the average sale per month from B more or less than that from C?

- (1) More by 1000 kg (2) Less by 1000 kg
 (3) More by 500 kg (4) Less by 800 kg
13. In a stadium an athlete is running on a circular path with uniform speed during a practice session. The angle covered by him during one second is found to be 10° by a coach observing him from the centre of the circular track. What would be the measure of angle (in degrees) described by the athlete by an observer standing on the circle?
- (1) It depends on the exact position of the observer on the circle
 (2) 5
 (3) 10
 (4) 20
14. The simplified value of $2\frac{1}{3}$ of $(\frac{3}{5} \div \frac{2}{9}) - (4\frac{2}{5} + \frac{19}{20} \div \frac{1}{2})$ is:
- (1) 1 (2) 0
 (3) $\frac{1}{2}$ (4) $\frac{1}{4}$
15. In a triangle ABC, PQ is a straight line parallel to AC, such that Area ABC : Area PBQ = 3 : 1 Then CB : CQ is equal to:
- (1) $\frac{\sqrt{3}}{2}(\sqrt{3}+1)$ (2) $\frac{\sqrt{3}-2}{2}$
 (3) $\frac{\sqrt{3}}{2}(\sqrt{3}-1)$ (4) $\frac{\sqrt{3}}{2}$
16. The circumcentre, incentre, orthocentre and the centroid of a triangle are one and the same point. The triangle must be:
- (a) isosceles (b) right-angled (c) right-angled isosceles (d) equilateral
- (1) (c) (2) (a)
 (3) (d) (4) (b)

17. The average of a number and its reciprocal is 4. The average of its cube and its reciprocal is equal to:

(1) 244 (2) 288
 (3) 142 (4) 256

18. For an examination of a practical based subject, the total marks is 100. The break-up for theory, practical, project and viva voce is 40%, 30%, 20%, 10%. A candidate scored 80% in theory, 70% in practical, 60% in project and 50% in viva voce. What was her aggregate percentage?

(1) 72 (2) 67
 (3) 68 (4) 70

19. If $a : b : c = 1 : 3 : 5$, what is the value of $\frac{4a-b+2c}{3(a+b+c)}$?

(1) $\frac{10}{27}$ (2) $\frac{8}{27}$
 (3) $\frac{1}{3}$ (4) $\frac{11}{27}$

20. The simplified value of $\frac{1.0025+6.25 \times 10^{-6}}{0.0025+0.95}$ is:

(1) 1.0505 (2) 1.0525
 (3) 1.0005 (4) 1.0025

21. The Seven digit number $78x1y68$ is divisible by 88. The value of $(x+y)$ is:

(1) 13 (2) 10
 (3) 14 (4) 11

22. For θ being an acute angle it is given that,

$3(\operatorname{cosec}^2\theta + \cot^2\theta) = 5$. Then θ is equal to:

(1) 30° (2) 60°
 (3) 0° (4) 45°

23. The diagonals of a rhombus are respectively 4 cm and 12 cm. Its area (in cm^2) is equal to:

(1) 8 (2) 36
 (3) 12 (4) 24

24. Two chords AB and CD of a circle intersect at a point O inside the circle. It is given that $AO = 1$ cm, $AB = 13$ cm, $CD = 8$ cm. What is the ratio between the larger and smaller section among CO and OD

(1) 5 : 3 (2) 3 : 1
 (3) 11 : 5 (4) 9 : 7



25. A certain sum invested on compound interest grows to ₹8,000 and ₹27,000 in three and six years, respectively when the interest is compounded annually. what is the percentage rate of interest ?

- (1) 10 (2) 0.5
(3) 25 (4) 50

Answers

1. (3)	2. (1)	3. (1)	4. (2)	5. (4)
6. (3)	7. (2)	8. (1)	9. (1)	10. (2)
11. (2)	12. (1)	13. (2)	14. (2)	15. (1)
16. (3)	17. (1)	18. (4)	19. (4)	20. (2)
21. (4)	22. (2)	23. (4)	24. (2)	25. (4)

20. CHSL (10+2) Examination-2018

Test Time 10:00 AM - 11:00 AM

Test Date 10/07/2019

1. The simplified value of

$$[1\frac{1}{5} \text{ of } \{ \frac{3}{7} - (1\frac{4}{15} - \frac{13}{15}) \times \frac{5}{7} \}] \div (\frac{6}{7} \div 5) \text{ is:}$$

- (1) $\frac{2}{15}$ (2) $\frac{1}{5}$
(3) 1 (4) $\frac{4}{15}$

2. The point A of a triangle ABC moves parallel to the straight line BC. Which one among the following also moves along a straight line parallel to BC?

(a) The circumcentre (b) the centroid (c) the incentre (d) the orthocentre.

- (1) (d) (2) (b)
(3) (c) (4) (a)

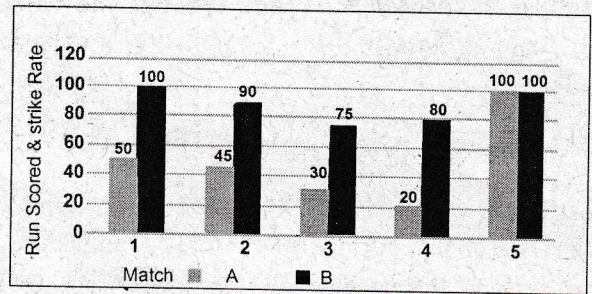
3. If $\frac{\cos \alpha}{\sin \alpha + \cos \beta} + \frac{\cos \beta}{\sin \beta - \cos \alpha} = \frac{x}{\sin \alpha - \cos \beta} + \frac{\cos \beta}{\sin \beta + \cos \alpha}$ then x is equal to:

- (1) $\cos \beta$ (2) $\cos \alpha$
(3) $\sin \beta$ (4) $\sin \alpha$

4. Three successive discounts on the marked price of an article turns out to be equivalent to a single discount of 19%. If the rates of the first and second discount are 10% and 4% respectively, what is the rate of the third discount?

- (1) 7.50% (2) 5.25%
(3) 6.25% (4) 6.00%

5. The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in five matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.



What is the average strike rate of the batsman?

- (1) 89 (2) 91.25
(3) 90.75 (4) 95.5

6. In a ΔABC , AD is perpendicular to BC from A. if $\angle BAC = 90^\circ$, then $AB^2 : AC^2$ is equal to:

- (1) $BD^2 : CD^2$ (2) $CD : BD$
(3) $CD^2 : BD^2$ (4) $BD : CD$

7. The total cost price of two articles is ₹2,000. One of them is sold at a profit of 12% and the other at a loss of 12%. The overall gain in the transaction is 1.2%. The cost price of the article for which there was a profit was:

- (1) ₹1,050 (2) ₹1,100
(3) ₹1,120 (4) ₹1,080

8. For θ being an acute angle,

$$4(2\sin^2 \theta + 7\cos^2 \theta) = 13. \text{ What is the value of } \theta ?$$

- (1) 60° (2) 45°
(3) 30° (4) 0°

9. A boy standing by the side of a railway track finds that an Up train crosses him in 8 seconds and a Down train of twice the length of that of the Up train crosses him in 20 seconds. How long (in seconds) will the two trains take to cross each other?

- (1) $13\frac{1}{3}$ (2) 15

- (3) 20 (4) $12\frac{1}{3}$

10. a, b, c are three positive numbers, such that, $(a+b+c) = 20$, $a^2 + b^2 + c^2 = 152$. The value of $(ab + bc + ca)$ is equal to:

- (1) 124 (2) 110
(3) 112 (4) 102



11. If 16 men working 12 hours a day can complete a work in 27 days, then working for how many hours a day can 18 men complete the work in 24 days?

- (1) 9 (2) 18
(3) 16 (4) 12

12. If $\sin \theta + \operatorname{cosec} \theta = 2$, then what is the value of $(\sin^{153} \theta + \operatorname{cosec}^{253} \theta)$?

- (1) $\frac{1}{153 \times 253}$ (2) $\frac{253}{153}$
(3) 2 (4) $\frac{153}{253}$

13. If $(x+y)^{\frac{1}{3}} + (y+z)^{\frac{1}{3}} = -(z+x)^{\frac{1}{3}}$, then $(x^3 + y^3 + z^3)$ can be expressed as:

- (1) $\frac{1}{8}xyz$
(2) $(x+y)(y+z)(z+x)$
(3) $\frac{3}{8}(x+y)(y+z)(z+x)$
(4) $3xyz$

14. The average of the first 1234 _____ numbers is equal to 1234.

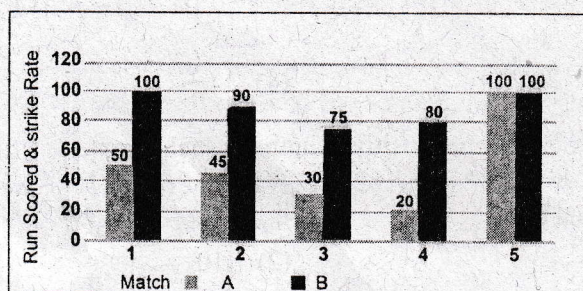
Fill in the blank.

- (1) odd (2) even
(3) prime (4) natural

15. A borrows a sum of ₹1,000 from his friend B on 31 December 2015 on the condition that he will return the same after one year with simple interest at 12%. However, A gets into a position of returning the money on 1 May 2016. How much amount he has to return to B?

- (1) ₹1,331.5 (2) ₹1,045
(3) ₹1,120 (4) ₹1,040

16. The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in five matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.



How many balls did the batsman face in the third match?

- (1) 60 (2) 30
(3) 40 (4) 50

17. Which among the following numbers is exactly divisible by 7, 11 and 13?

- (1) 14982 (2) 15004
(3) 14993 (4) 15015

18. Twelve sticks, each of length one unit, are used to form an equilateral triangle. The area of the triangle is:

- (1) $3\sqrt{3}$ sq units (2) $2\sqrt{3}$ sq units
(3) $4\sqrt{3}$ sq units (4) $8\sqrt{3}$ sq units

19. ₹8,000 is distributed among A, B and C such that they receive notes of ₹500, ₹200 and ₹100 respectively. The amounts received by them are in the ratio 15 : 2 : 3. What was the ratio of the number of notes of ₹500, ₹200 and ₹100?

- (1) 3 : 1 : 3
(2) 3 : 3 : 1
(3) 4 : 1 : 2
(4) 3 : 2 : 2

20. A regular hexagon is inscribed in a circle. What is the ratio of the area of the circle to that of its portion not covered by the hexagon?

- (1) $\frac{2\pi}{2\pi - 3\sqrt{3}}$ (2) $\frac{\pi}{\pi - 3\sqrt{3}}$
(3) $\frac{2\pi}{\sqrt{3}}$ (4) $\frac{\pi}{\sqrt{3}}$

21. If $a + \frac{1}{a} = 2$, what is the value of $(a^4 - \frac{1}{a^4})$?

- (1) 0 (2) 1
(3) 1 (4) 4

22. Two circles of diameters 4.8 cm and 8 cm are such that the distance between their centres is 6.5 cm. What is the length of a common tangent to the circles that does not intersect the line joining the centres?

- (1) 6.3 cm (2) 6.2 cm
(3) 6.1 cm (4) 6.0 cm

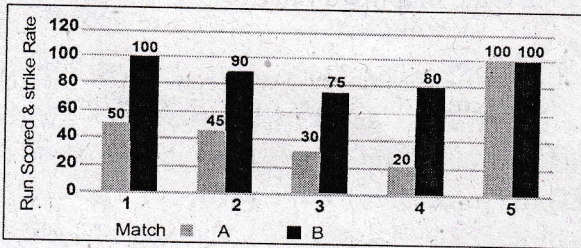


21. CHSL (10+2) Examination-2018

Test Time 1:00 PM - 2:00 PM

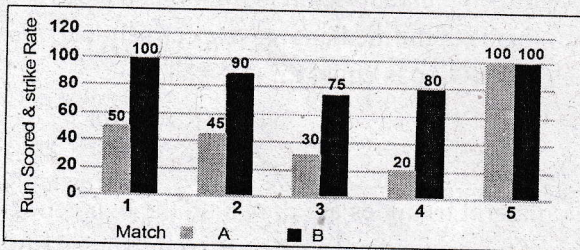
Test Date 10/07/2019

23. The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in five matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.



How many runs the batsman should have scored in the fifth match in as many balls he had faced in that match so that the average strike rate of the second and the fifth match becomes 120?

- (1) 150 (2) 240
 (3) 160 (4) 120
24. Price of tea has increased by 20% but I have decided to increase my expenditure towards tea by 15% only. By What percentage should I reduce my consumption (correct to one place of decimal) in order to be able to maintain the same level of expenses towards tea?
 (1) 5.4 (2) 4.2
 (3) 5.6 (4) 4.8
25. The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in five matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.



What is the average run scored by the batsman in the five matches?

- (1) 50 (2) 49
 (3) 45 (4) 56.25

Answers

1. (3)	2. (2)	3. (2)	4. (3)	5. (2)
6. (4)	7. (2)	8. (1)	9. (1)	10. (1)
11. (4)	12. (3)	13. (3)	14. (1)	15. (4)
16. (3)	17. (4)	18. (3)	19. (1)	20. (1)
21. (1)	22. (1)	23. (1)	24. (2)	25. (2)

1. ABCDEFGH is a regular octagon inscribed in a circle with centre at O. The ratio of $\angle OAB$ to $\angle AOB$ is equal to:

- (1) 8 : 3 (2) 3 : 2
 (3) 4 : 3 (4) 3 : 1

2. A borrows a sum of ₹2000 from his friend B on 31 December 2011 on the condition that he will return the same after one year with simple interest at 8% per annum. However, A get into a position of returning the money on 1 July 2012. How much amount he has to return to B?

- (1) ₹2088 (2) ₹2200
 (3) ₹2070 (4) ₹2080

3. θ being an acute angle, it is given that $\sec^2 \theta + 4 \tan^2 \theta = 6$. What is the value of θ ?

- (1) 0° (2) 45°
 (3) 60° (4) 30°

4. If $a + b - c = 12$ and $a^2 + b^2 + c^2 = 110$, then which among the following relations is true?

- (p) $ab + bc + ca = 34$,
 (q) $ab + bc - ca = 17$,
 (r) $ab - bc + ca = 17$,
 (s) $ab - bc - ca = 17$

- (1) (s) (2) (q)
 (3) (p) (4) (r)

5. Fill in the Blank.

The average of first 101 _____ numbers is equal to 102.

- (1) even (2) odd
 (3) perfect square (4) natural

6. By selling an article for ₹144, a shopkeeper loses 28%. What should be the selling price for bringing down the loss to 14%?

- (1) 172 (2) 180
 (3) 156 (4) 182

7. If $\frac{1}{a^3} + \frac{1}{b^3} + \frac{1}{c^3} = 0$, then $(a + b + c)^6$ is equal to:

- (1) $81 a^2 b^2 c^2$ (2) $729 abc$
 (3) $729 a^2 b^2 c^2$ (4) $81 abc$



8. Which among the following number is exactly divisible by 11, 13 and 7?

- (a) 624613 (b) 624624
 (c) 624635 (d) 624646
 (1) (d) (2) (b)
 (3) (a) (4) (c)

9. A shopkeeper normally allows a discount of 10% on the marked price of each article. During a sale season, he decides to give two more discounts, the first being at a rate of 50% of the original and the second at a rate of 40% of the first. What is the percentage rate of the equivalent single discount?

- (1) 13.27 (2) 16.21
 (3) 11.25 (4) 14.85

10. ₹10,000/- has to be distributed among 3 craftsmen, 5 helpers and 6 labourers such that each helper receives the amount twice as much as a labourer receives and each craftsman receives the amount thrice as much as a labourer receives. What is the amount received by the three craftsmen?

- (1) ₹4000 (2) ₹2400
 (3) ₹2700 (4) ₹3600

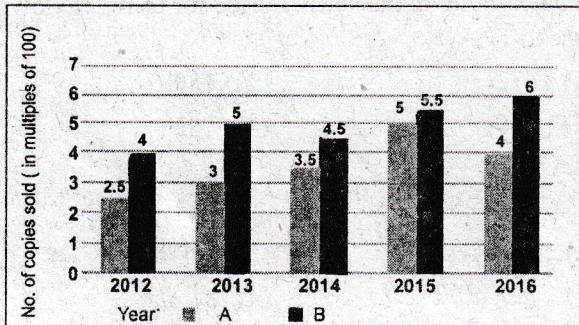
11. The price of sugar got raised by 25%. To maintain the same level of expenses on sugar, a person reduced the consumption of sugar by 4% and also increased his expenditure on sugar by $x\%$. The value of x is:

- (1) 21 (2) 19.5
 (3) 20 (4) 18.75

12. If $a + \frac{1}{a} = 3$, the value of $(a^6 + \frac{1}{a^6})$ is equal to:

- (1) 319 (2) 780
 (3) 730 (4) 322

13. A book has been co-authored by X and Y. The prices of the book in India and abroad are ₹800 and ₹1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5 : 3. The given Bar graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-2016).



What is the difference between the royalties earned by X and Y during the years 2014 and 2015 taken together?

- (1) 57000 (2) 57550
 (3) 41250 (4) 41340

14. What is the simplified value of

$$\frac{\sin^3 21^\circ + \cos^3 19^\circ}{\sin 21^\circ + \cos 19^\circ} + \sin^2 69^\circ + \cos^2 71^\circ + \frac{1}{\sec 69^\circ \operatorname{cosec} 71^\circ}$$

- (1) 1 (2) 2
 (3) 3 (4) 4

15. The simplified value of $\frac{1}{2}$ of $\frac{8}{5} \div \{2\frac{1}{5} - (\frac{5}{16} + \frac{3}{5} \times 1\frac{7}{8} \div \frac{2}{3})\}$ is:

- (1) $\frac{1}{5}$ (2) $\frac{2}{5}$
 (3) 1 (4) 4

16. Which among the following is an irrational quantity?

- (a) $\tan 30^\circ \tan 60^\circ$
 (b) $\sin 30^\circ$
 (c) $\tan 45^\circ$
 (d) $\cos 30^\circ$

- (1) (b) (2) (d)
 (3) (a) (4) (c)

17. It is given that the area of a triangle is A. The values of its perimeter, in radius, circumradius and the average of the lengths of the medians are respectively, p, r, R and d. The ratio A : p is equal to:

- (1) r : 1 (2) (R : r)² : d
 (3) r : 2 (4) (R - r)² : r

18. Equilateral triangles are drawn on the hypotenuse and one of the perpendicular sides of a right-angled isosceles

triangles. Their areas are H and A respectively. $\frac{A}{H}$ is equal to:

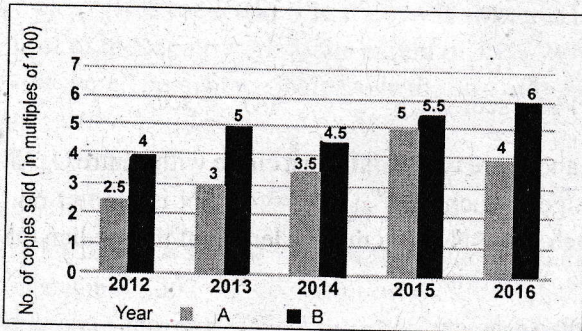
- (1) $\frac{1}{4}$ (2) $\frac{1}{\sqrt{2}}$
 (3) $\frac{1}{2}$ (4) $\frac{1}{2\sqrt{2}}$



19. Given that the lengths of the paths of a ball thrown with different speeds by two boys are the same, if they take 0.6 sec and 1 sec respectively to cover the said length, what is the average speed of travel for the first throw, if the same for the second is 96 km/hr?

- (1) 100 km/hr (2) 150 km/hr
(3) 160 km/hr (4) 120 km/hr

20. A book has been co-authored by X and Y. The prices of the book in India and abroad are ₹800 and ₹1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5 : 3. The given Bar graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-2016).



What is the total amount of royalty paid to the author during the years 2012, 2013 and 2016?

- (1) 272000 (2) 273400
(3) 316000 (4) 271600

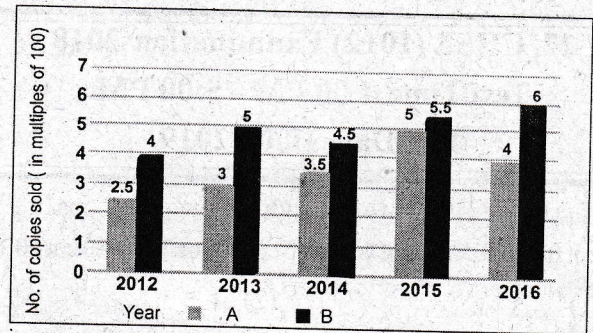
21. Twelve sticks, each of length 1 unit, are used to form a right - angled triangle. The area of the triangle is:

- (1) 6 sq units (2) 4 sq units
(3) 10 sq units (4) 8 sq units

22. If 40 men working 12 hrs a day can complete a work in 8 days, then how many men working 4 hrs a day can complete the same work in 16 days?

- (1) 54 (2) 60
(3) 45 (4) 50

23. A book has been co-authored by X and Y. The prices of the book in India and abroad are ₹800 and ₹1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5 : 3. The given Bar graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-2016.



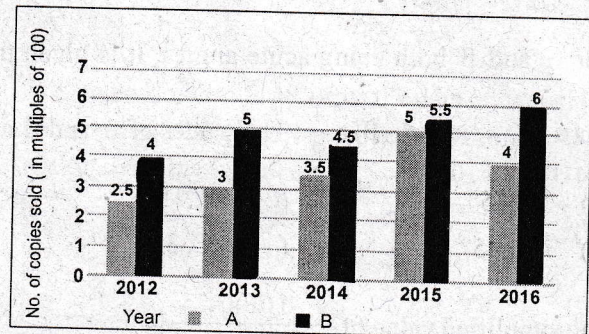
What is the ratio of royalties earned in the following cases - By X for sale of book in India in 2013 and 2014 and by Y for sale of book in Abroad in 2015 and 2016 ?

- (1) 62 : 117 (2) 63 : 130
(3) 64 : 135 (4) 65 : 138

24. Two circles of diameters 2 cm and 5.6 cm are such that the distance between their centre is 8.2 cm. What is the length of a common tangent to the circles that does not intersect the line joining the centre?

- (1) 8 cm (2) 7.2 cm
(3) 6.4 cm (4) 8.4 cm

25. A book has been co-authored by X and Y. The prices of the book in India and abroad are ₹800 and ₹1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5 : 3. The given Bar graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-2016).



What is the total numbers of the copies of the book sold in India during 2012-2015?

- (1) 1600 (2) 1400
(3) 1800 (4) 2000

Answers

1. (2)	2. (4)	3. (2)	4. (1)	5. (1)
6. (1)	7. (3)	8. (2)	9. (2)	10. (4)
11. (3)	12. (4)	13. (1)	14. (2)	15. (4)
16. (2)	17. (3)	18. (3)	19. (3)	20. (3)
21. (1)	22. (2)	23. (4)	24. (1)	25. (2)



22. CHSL (10+2) Examination-2018

Test Time 4:00 PM - 5:00 PM

Test Date 10/07/2019

- If $\theta = 9^\circ$, then what is the value of $\cot \theta \cot 2\theta \cot 3\theta \cot 4\theta \cot 5\theta \cot 6\theta \cot 7\theta \cot 8\theta \cot 9\theta$?
 (1) $\sqrt{3}-1$ (2) 1
 (3) $\sqrt{3}$ (4) $\frac{1}{\sqrt{3}}$
- If $a^2 + b^2 = 169$, $ab = 60$, ($a > b$), then $(a^2 - b^2)$ is equal to:
 (1) 149 (2) 129
 (3) 119 (4) 139
- If $x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} + \dots + \frac{1}{23.24}$
 $y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} + \dots + \frac{1}{71.72}$ then $\frac{x}{y}$ is equal to:
 (1) $\frac{1}{3}$ (2) $\frac{1}{24}$
 (3) $\frac{1}{72}$ (4) 3
- For α and β both being acute angles, it is given that $\sin(\alpha + \beta) = 1$, $\cos(\alpha - \beta) = \frac{1}{2}$. The values of α and β are:
 (1) $75^\circ, 15^\circ$ (2) $45^\circ, 15^\circ$
 (3) $75^\circ, 45^\circ$ (4) $60^\circ, 30^\circ$
- The simplified value of $\frac{0.01404}{24^2 + 6^2 - 144}$ is:
 (1) 3×10^{-5} (2) 6×10^{-5}
 (3) 2.4×10^{-4} (4) 3×10^{-4}
- OABC is a quadrilateral, where O is the centre of a circle and A, B, C are points in the circle, such that $\angle ABC = 120^\circ$. What is the ratio of the measure of $\angle AOC$ to that of $\angle OAC$?
 (1) 3 : 1 (2) 4 : 1
 (3) 2 : 1 (4) 3 : 2

- The simplified value of $\frac{1}{2} \text{ of } \frac{8}{5} \div \left\{ 2\frac{1}{5} - \left(\frac{5}{16} + \frac{3}{5} \times 1\frac{7}{8} \div \frac{2}{3} \right) \right\}$ is
 (1) $\frac{1}{4}$ (2) 4
 (3) $\frac{1}{5}$ (4) 5
- Given that the lengths of the paths of a ball thrown with different speeds by two boys are the same, and that the average speed for the first and second throws are respectively 90 km/h and 162 km/h, then what is the time taken by the first throw to cover the length if the same for the second throw is one second?
 (1) $\frac{3}{2}$ sec (2) 1 sec
 (3) $\frac{5}{9}$ sec (4) $\frac{2}{3}$ sec
- A and B are two points on a circle with centre O. AT is a tangent, such that $\angle BAT = 45^\circ$. N is a point on OA such that $BN = 10$ cm. The length of the median OM of the $\triangle NOB$ is:
 (1) $10\sqrt{2}$ cm (2) $5\sqrt{2}$ cm
 (3) $5\sqrt{3}$ cm (4) 5 cm
- The area of a sector of a circle with central angle 60° is A. The circumference of the circle is C. Then A is equal to:
 (1) $\frac{c^2}{6\pi}$ (2) $\frac{c^2}{18\pi}$
 (3) $\frac{c^2}{24\pi}$ (4) $\frac{c^2}{4\pi}$
- The difference between the average of first ten prime numbers and the first ten prime numbers of two digits is:
 (1) 14.5 (2) 16.5
 (3) 12.5 (4) 13.5
- The side BC of a right-angled triangle ABC ($\angle ABC = 90^\circ$) is divided into four equal parts at P, Q and R respectively. If $AP^2 + AQ^2 + AR^2 = 3b^2 + 17na^2$, then n is equal to:
 (1) $-\frac{1}{8}$ (2) $\frac{3}{4}$
 (3) $\frac{1}{8}$ (4) $-\frac{3}{4}$



13. It is given that, $\sqrt{\frac{1-\sin x}{1+\sin x}} = a - \tan x$ then a is equal to:

- (1) $\cos x$ (2) $\sin x$
 (3) $\operatorname{cosec} x$ (4) $\sec x$

14. A shopkeeper bought an article for ₹100 and marked its price 25% above the cost price. How much discount percentage should he announce in order to make a profit of 15%?

- (1) 8.25 (2) 8.5
 (3) 8 (4) 10

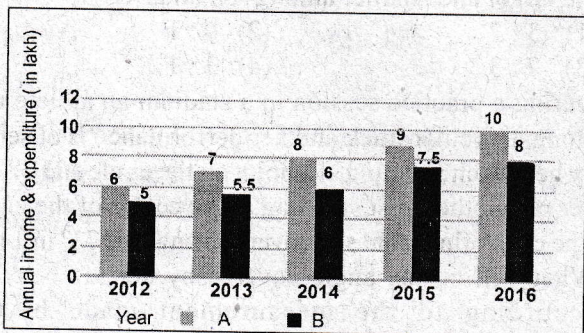
15. A rectangular portion of an airport runway was getting repaired for which an estimate was made on the basis of a rate ₹R per square unit. But while doing the work, the length of the portion got increased by 10% and the breadth by 8%. Over and above this, there was an increase in the cost of the repair work to the extent of 15%. What was the overall percentage increase in the cost of repair over the estimate?

- (1) 36.62 (2) 34.58
 (3) 33 (4) 35.24

16. A borrowed a sum of ₹3,000 from his friend B on 31 December 2007 on the condition that he would return the same after one year with simple interest at 15% per annum. However, A gets into a position of returning the sum on 31 August 2008. How much amount had A to return to B?

- (1) ₹3,300 (2) ₹33,200
 (3) ₹3,310 (4) ₹33,305

17. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi national company during the years 2012 to 2016.



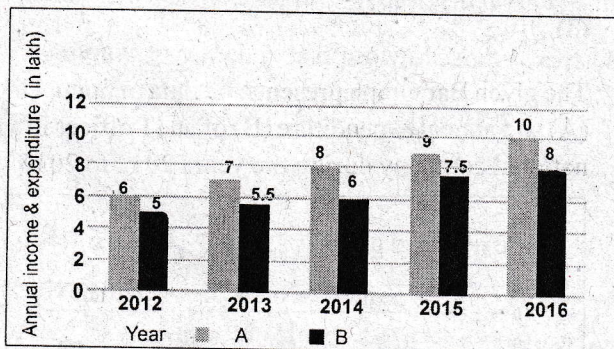
For which pair of years, the ratio of savings to expenditure is equal?

- (1) 2012, 2013 (2) 2013, 2014
 (3) 2014, 2015 (4) 2012, 2015

18. Which among the following numbers is exactly divisible by 11, 13 and 7?

- (1) 259237 (2) 259248
 (3) 259270 (4) 259259

19. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi national company during the years 2012 to 2016.



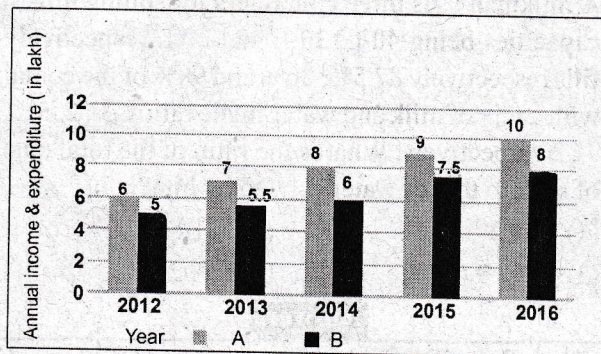
What was his average monthly savings (in ₹) in 2015 and 2016, taken together (correct to two decimal places)?

- (1) 14,506.33 (2) 14,967.67
 (3) 13,687.67 (4) 14,583.33

20. It is given that $\triangle ABC \sim \triangle PRQ$ and that Area ABC : Area PRQ = 16 : 169. If $AB = x$, $AC = y$, $BC = z$ (all in cm), then PQ is equal to:

- (1) $\frac{13}{4}y$ (2) $\frac{13}{4}z$
 (3) $\frac{13}{4}x$ (4) $\frac{13}{8}x$

21. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi national company during the years 2012 to 2016.



What is the percentage of his total savings with reference to his total income for the period 2012-15?

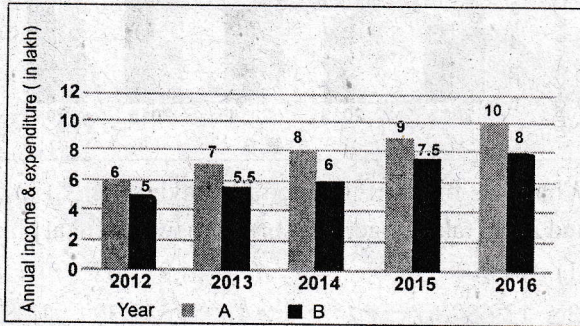
- (1) 30 (2) 27.5
 (3) 25 (4) 20



22. It is given that men are twice as efficient than women in respect of doing a work. If three men and two women can complete the work in 2 days, then in how many days can a woman working alone complete the work?

- (1) $12\frac{1}{2}$ (2) 16
(3) $10\frac{1}{3}$ (4) 8

23. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi national company during the years 2012 to 2016.



What is the ratio between the ratios of Savings to Expenditure, respectively for the periods 2012-13 and 2015-16?

- (1) 146 : 135 (2) 155 : 147
(3) 21 : 34 (4) 25 : 36
24. An article is subject to two successive discounts of 10% and 5% before being sold. If its marked price is ₹800, then its selling price is:
- (1) ₹722 (2) ₹684
(3) ₹703 (4) ₹680
25. A milkman uses three containers for selling milk, their capacities being 40 L, 30 L and 20 L respectively. He fills respectively 87.5%, 80% and 90% of the containers with a mix of milk and water in the ratios, 3 : 2, 5 : 1 and 7 : 2 respectively. What is the ratio of the total quantity of milk to that of water carried by him?

- (1) 7 : 2 (2) 31 : 12
(3) 35 : 9 (4) 5 : 2

Answers

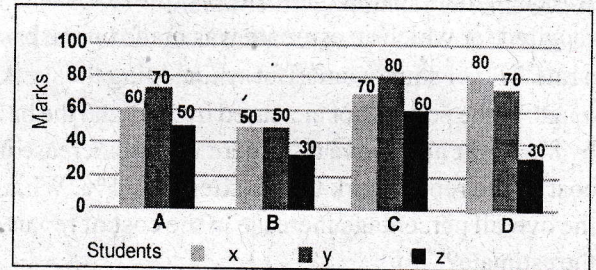
1. (2)	2. (3)	3. (4)	4. (1)	5. (1)
6. (2)	7. (2)	8. (3)	9. (4)	10. (3)
11. (4)	12. (1)	13. (4)	14. (3)	15. (1)
16. (1)	17. (4)	18. (4)	19. (4)	20. (1)
21. (4)	22. (2)	23. (2)	24. (2)	25. (4)

23. CHSL (10+2) Examination-2018

Test Time 10:00 AM - 11:00 AM

Test Date 11/07/2019

1. The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and (Z) project, which are the three components of evaluation is 6 : 5 : 4. In order to pass one has to score at least 40%, 50% and 50% respectively in XYZ and 60% in aggregate. The marks scored by four students ABC and D are shown in the given Bar Graph.

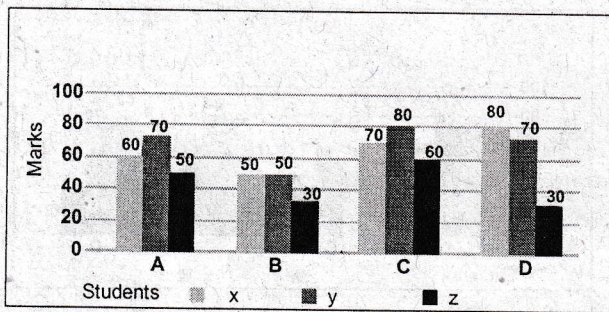


How much percentage marks more than B has C scored in practical?

- (1) 40 (2) 20
(3) 30 (4) 60
2. With reference to a number greater than one, the difference between itself and its reciprocal is 25% of the sum of itself and its reciprocal. By how much percentage (correct one decimal place) is the fourth power of the number greater than its square?
- (1) 62.5 (2) 66.7
(3) 64.5 (4) 57.8
3. AB and CD are two chords of a circle which intersect at a point O inside the circle. It is given that, AB = 10 cm, CO = 1.5 cm and DO = 12.5 cm. What is the ratio between the larger and smaller among AO and BO?
- (1) 3 : 2 (2) 4 : 1
(3) 7 : 3 (4) 3 : 1
4. During a practice session in a stadium an athlete runs along a circular track and her performance is observed by her coach standing at a point on the circle and also by her physiotherapist standing at the centre of the circle. The coach finds that she covers an angle of 72° in 1 min. What will be the angle covered by her in 1 second according to the measurement made by her physiotherapist?
- (1) 2.4
(2) 1.2
(3) 4.8
(4) It depend on the position of the coach on the circular track



5. The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and (Z) project, which are the three components of evaluation is 6 : 5 : 4. In order to pass one has to score at least 40%, 50% and 50% respectively in XYZ and 60% in aggregate. The marks scored by four students ABC and D are shown in the given Bar Graph.



What is the average marks of the four students in theory?

- (1) 60 (2) 65
(3) 70 (4) 68
6. The value of $\frac{18.43 \times 18.43 - 6.57 \times 6.57}{11.86}$ is:
- (1) 23.62 (2) 26
(3) 24.12 (4) 25
7. A purchased two articles for ₹200 and ₹300 respectively and sold at gains of 5% and 10% respectively. What was his overall gain percentage?
- (1) 8 (2) 5
(3) 9 (4) 6
8. A can complete a piece of work in 20 days and B can complete 20% of the work in 6 days. If they work together in how many days can they finish 50% of the work, if they work together?
- (1) 6 (2) 8
(3) 9 (4) 12
9. The ten digit number $2x600000y8$ is exactly divisible by 24. If $x \neq 0$ and $y \neq 0$, then the least value of $(x + y)$ is equal to:
- (1) 2 (2) 5
(3) 8 (4) 9
10. The average of 1088 real numbers is zero. At most how many of them can be negative?
- (1) 88 (2) 100
(3) 1087 (4) 544

11. The two diagonals of a rhombus are respectively, 14 cm and 48 cm. The perimeter of the rhombus is equal to:
- (1) 100 cm (2) 160 cm
(3) 80 cm (4) 120 cm
12. A certain sum was invested on simple interest. The amount to which it had grown in five years was $1\frac{1}{4}$ times the amount to which it had grown in three years. The percentage rate of interest was:
- (1) 15% (2) 25%
(3) 20% (4) 10%
13. For all $\alpha_i, (i = 1, 2, 3, \dots, 20)$ lying between 0° and 90° , it is given that $\sin \alpha_1 + \sin \alpha_2 + \sin \alpha_3 + \dots + \sin \alpha_{20} = 20$. What is the value (in degrees) of $(\alpha_1 + \alpha_2 + \alpha_3 + \dots + \alpha_{20})$
- (1) 900 (2) 1800
(3) 0 (4) 20
14. The ration of the square of a number to the reciprocal of its cube is $\frac{243}{16807}$ What is the number?
- (1) $\frac{2}{7}$ (2) $\frac{3}{7}$
(3) $\frac{5}{7}$ (4) $\frac{7}{3}$
15. O, G, I and H are respectively the circumcentre, centroid, incentre and orthocentre of an equilateral triangle. Which of these points are identical?
- (1) O and I only (2) O, G, I and H
(3) O and G only (4) O, G and H only
16. What is the value of $\operatorname{cosec}^2 30^\circ + \sin^2 45^\circ + \sec^2 60^\circ + \tan^2 30^\circ$?
- (1) 8 (2) $\frac{53}{6}$
(3) 9 (4) $\frac{25}{3}$
17. For $0^\circ \leq \theta \leq 90^\circ$, what is θ , when $\sqrt{3} \cos \theta + \sin \theta = 1$?
- (1) 0° (2) 30°
(3) 45° (4) 90°



18. An article having marked price, ₹900, was sold for ₹648 after two successive discounts. The first discount was 20%. What was the percentage rate of the second discount?

- (1) 5 (2) 15
(3) 10 (4) 12.5

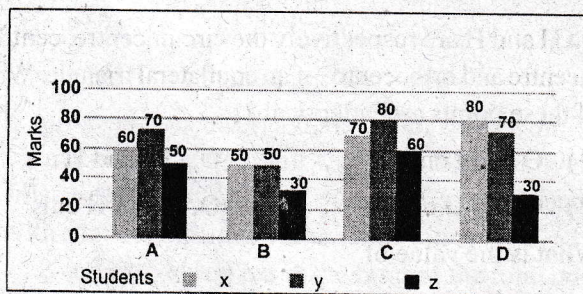
19. If $\frac{10}{7}(1 - 2.43 \times 10^{-3}) = 1.417 + x$, then x is equal to:

- (1) 0.417 (2) 0.81
(3) 0.0081 (4) 0.417

20. The simplified value of $\{ \frac{1}{4} \text{ of } (2\frac{1}{3} \div 1\frac{2}{5}) - 1\frac{5}{12} \} + \frac{1}{9} \div 2\frac{1}{3} + \frac{2}{7} + \frac{1}{6}$ is :

- (1) 1 (2) $\frac{3}{2}$
(3) $\frac{7}{3}$ (4) $\frac{7}{6}$

21. The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and (Z) project, which are the three components of evaluation is 6 : 5 : 4. In order to pass one has to score at least 40%, 50% and 50% respectively in XYZ and 60% in aggregate. The marks scored by four students ABC and D are shown in the given Bar Graph.



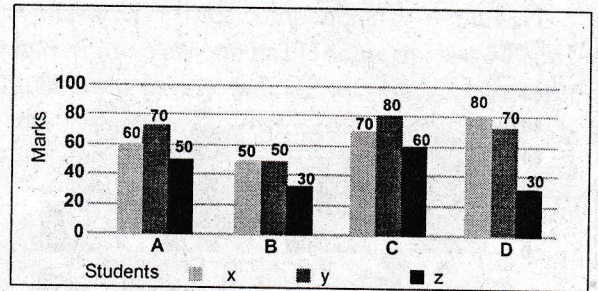
Who among the students could not pass?

- (1) B only (2) A only
(3) B and C (4) B and D

22. If $(3x + 1)^3 + (x - 3)^3 + (4 - 2x)^3 + 6(3x + 1)(x - 3)(x - 2) = 0$, then x is equal to:

- (1) 1 (2) -1
(3) $\frac{1}{2}$ (4) $-\frac{1}{2}$

23. The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and (Z) project, which are the three components of evaluation is 6 : 5 : 4. In order to pass one has to score at least 40%, 50% and 50% respectively in XYZ and 60% in aggregate. The marks scored by four students ABC and D are shown in the given Bar Graph.



Arrange the students B, C and D according to the ascending order of the aggregate marks scored by them.

- (1) B, C, D (2) B, D, C
(3) D, B, C (4) C, D, B

24. The platform of a station 400 m long starts exactly where the last span of a bridge 1.2 km long ends. How long will a train 200 m long and travelling at the speed of 72 km/h take to cover the distance between the starting point of the span of the bridge and the far end of the platform?

- (1) 1.5 min (2) 1.2 min
(3) 1.6 min (4) 1.8 min

25. $\triangle ABC \sim \triangle DEF$ and their perimeters are 64 cm and 48 cm respectively. What is the length AB, if DE is equal to 9 cm?

- (1) 18 cm (2) 12 cm
(3) 17.5 cm (4) 16 cm

Answers

1. (3)	2. (2)	3. (4)	4. (1)	5. (2)
6. (4)	7. (1)	8. (1)	9. (2)	10. (3)
11. (1)	12. (3)	13. (2)	14. (2)	15. (3)
16. (2)	17. (4)	18. (3)	19. (3)	20. (4)
21. (4)	22. (2)	23. (2)	24. (1)	25. (2)



24. CHSL (10+2) Examination-2018

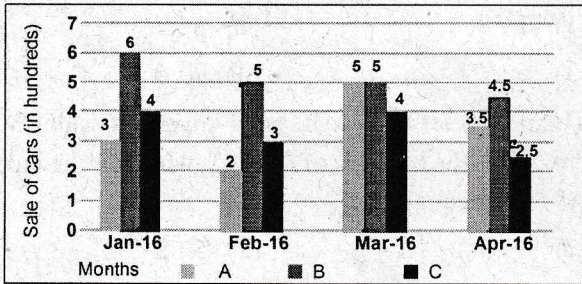
Test Time 1:00 PM - 2:00 PM

Test Date 11/07/2019

1. The difference between the compound interest and the simple interest on a sum at 10% p.a. for three years is ₹ 155. The sum (in Rs) is:

- (1) 6,000 (2) 6,600
(3) 5,000 (4) 5,500

2. The given Bar Graph presents the sale of a particular brand of car by three showrooms, A, B and C (in multiples of 100) during the months Jan, Feb, mar and Apr, 2016



What was the average number of cars sold by A during Feb-Apr, 2016?

- (1) 250 (2) 350
(3) 300 (4) 375
3. The 10-digit number $79x00001y6$ is exactly divisible by 88. What is the value of $(x + y)$?
- (1) 9 (2) 7
(3) 6 (4) 5
4. A shopkeeper decides to raise the marked price of an article by 10%. How much discount should he allow so as to be able to sell the article at the original marked price?

- (1) $9\frac{1}{11}\%$ (2) $8\frac{1}{9}\%$
(3) $19\frac{2}{2}\%$ (4) 10%

5. Given, $a + \frac{1}{a} = 2$, what is the value of $(a^{118} + \frac{1}{a^{117}})$?

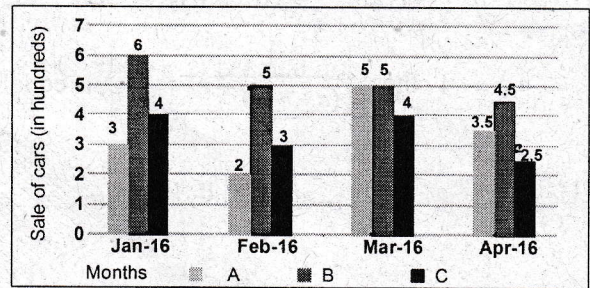
- (1) 118 (2) 2
(3) 1 (4) 117

6. What is the simplified value of

$$\left(\frac{\sin^2 31^\circ + \sin^2 59^\circ}{\sec^2 35^\circ - \cot^2 55^\circ} + \tan 29^\circ \cot 61^\circ - \operatorname{cosec}^2 61^\circ \right)$$

- (1) $\frac{1}{2}$ (2) -1
(3) 1 (4) 0

7. The given Bar Graph presents the sale of a particular brand of car by three showrooms, A, B and C (in multiples of 100) during the months Jan, Feb, mar and Apr, 2016



What is the ratio of number of cars sold by A in Jan-Feb, 2016 to that of cars sold by B during Mar-Apr, 2016 ?

- (1) 8 : 17 (2) 5 : 8
(3) 12 : 19 (4) 10 : 19

8. ABCD is a rhombus with each side being equal to 8 cm. If $BD = 10$ cm, $AC = 2\sqrt{x}$ cm, what is the value of $\sqrt{x+10}$?

- (1) $2\sqrt{3}$ (2) 7
(3) $3\sqrt{2}$ (4) 5

9. A square has been inscribed in a circle. What is the ratio of the length of a side of the square to the radius of the circle ?

- (1) $\sqrt{2} : 1$ (2) 2 : 1
(3) 1 : 2 (4) $1 : \sqrt{2}$

10. The volume of a right circular cone is equal to that of sphere, whose radius is half the radius of the base of the cone. What is the ration of the rhombus of the base to the height of the cone?

- (1) 1 : 4 (2) 1 : 2
(3) 4 : 1 (4) 2 : 1

11. For all $\alpha_i, (i=1,2,3,\dots,20)$ lying between 0° and 90° , it is given that $\cos \alpha_1 + \cos \alpha_2 + \cos \alpha_3 + \dots + \cos \alpha_{20} = 20$ What is the value of $(\alpha_1 + \alpha_2 + \alpha_3 + \dots + \alpha_{20})$?

- (1) 0° (2) 20°
(3) 900° (4) 1800°



12. An inlet pipe can fill a tank in 10 hours and an outlet pipe can empty the completely filled tank in 20 hours. Both the pipes are opened at 6.30 a.m. When will the tank get filled ?

- (1) 1 a.m. next day (2) 2 a.m. next day
 (3) 12.00 midnight (4) 2.30 a.m. next day

13. If $(a + b + 4)\{ab + 4(a + b)\} - 4ab = 0$, and

$a \neq -4, b \neq -4$, then $\left\{ \frac{1}{(a+b+4)^{117}} - 2^{-234} \right\}$ is equal to:

- (1) $\frac{1}{2^{117}}$ (2) 0

- (3) $-\frac{1}{2^{234}}$ (4) $\frac{1}{4^{117}}$

14. A man loses 20% by selling an article for ₹96. For what amount should he have sold the article to gain 15%?

- (1) ₹138 (2) ₹120
 (3) ₹140 (4) ₹115

15. For $0^\circ < \theta < 90^\circ$, $\tan \theta + \cot \theta = 2$. θ is equal to:

- (1) 45° (2) 60°
 (3) 0° (4) 30°

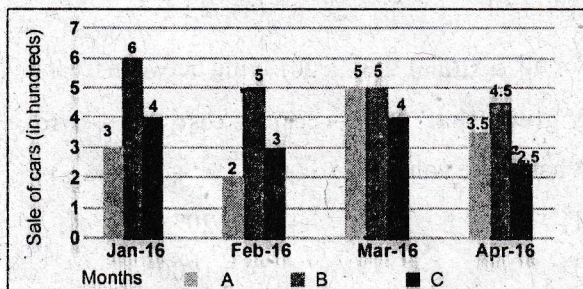
16. The chords, AB and CD of circle meet at a point O, outside the circle. It is given that $AB = 7$ cm, $CD = 4$ cm, $OB = 5$ cm. What is the length of OD ?

- (1) 10 cm (2) 7.5 cm
 (3) 6 cm (4) 5 cm

17. The average of a series of 21 members is equal to 43. The average of the first eleven of them is 33. The average of the last eleven numbers is 53. The eleventh number of the series is:

- (1) 47 (2) 43
 (3) 33 (4) 46

18. The given Bar Graph presents the sale of a particular brand of car by three showrooms, A, B and C (in multiples of 100) during the months Jan, Feb, mar and Apr, 2016



If the cars sold by A and B all found to be in perfect order, but the cars sold by C were found to be defective to the extent of 15%, 10%, 8% and 6%, respectively in Jan, Feb, Mar and Apr 2016, then what is the ratio of non-defective cars sold by C to that of all cars sold by A and B during Jan-Mar 2016?

- (1) 117 : 1400
 (2) 384 : 1385
 (3) 489 : 1300
 (4) 255 : 1348

19. What is the ratio between the fourth proportional of 3, 4, 9 and the mean proportional between 2 and 98 ?

- (1) 7 : 8 (2) 8 : 7
 (3) 6 : 7 (4) 7 : 6

20. The perimeter of $\triangle ABC$ is 24 cm and its side, $BC = 9$ cm. AD is the bisector of $\angle BAC$, while I is the incentre. $AI : ID$ is equal to:

- (1) 5 : 3 (2) 5 : 2
 (3) 3 : 2 (4) 7 : 5

21. A train goes from P to Q with a speed u km/h, then from Q to R ($QR = 2PQ$) with a speed $3u$ km/h, and returns from R to P with a speed $\frac{u}{2}$ km/h. What is the average speed (in km/h) of the train for the entire journey starting from P and back to P?

- (1) $\frac{18u}{23}$ (2) $\frac{16u}{23}$
 (3) $\frac{3u}{2}$ (4) $\frac{4u}{3}$

22. If $(1.25)(1 - 6.4 \times 10^{-5}) = 1.2496 + a$, then a is equal to:

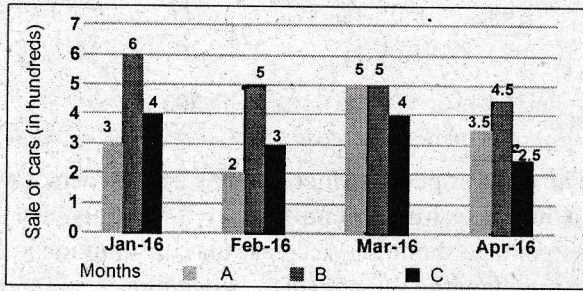
- (1) 0.00016 (2) 0.0032
 (3) 0.00032 (4) 0.0016

23. The simplified value of $\frac{2}{3} + \left\{ \frac{3}{7} \text{ of } \frac{14}{5} \times 1\frac{2}{3} - \left(3\frac{1}{2} - 2\frac{1}{6} \right) \right\}$ is:

- (1) 2 (2) 1
 (3) $\frac{1}{3}$ (4) $\frac{2}{3}$



24. The given Bar Graph presents the sale of a particular brand of car by three showrooms, A, B and C (in multiples of 100) during the months Jan, Feb, Mar and Apr, 2016



If the cars sold by A and B all found to be in perfect order, but the cars sold by C were found to be defective to the extent of 15%, 10%, 8% and 6%, respectively in Jan, Feb, Mar and Apr 2016. what is the percentage defective cars sold by all showrooms during Apr, 2016?

- (1) $7\frac{2}{3}$ (2) $1\frac{3}{7}$
 (3) $4\frac{4}{9}$ (4) $2\frac{4}{9}$
25. For a number, greater than one, the difference between itself and its reciprocal is 20% of the sum of itself and its reciprocal. By how much percentage (nearest to an integer) is the square of the number less than its cube?
- (1) 81 (2) 18
 (3) 33 (4) 122

Answers

1. (3)	2. (2)	3. (1)	4. (1)	5. (2)
6. (4)	7. (4)	8. (2)	9. (1)	10. (4)
11. (1)	12. (4)	13. (2)	14. (1)	15. (1)
16. (3)	17. (2)	18. (3)	19. (3)	20. (1)
21. (1)	22. (3)	23. (2)	24. (2)	25. (2)

25. CHSL (10+2) Examination-2018

Test Time 4:00 PM - 5:00 PM

Test Date 11/07/2019

1. If $a + b + c = 5$ and $ab + bc + ca = 4$, then $a^3 + b^3 + c^3 - 3abc$ is equal to:
 (1) 65 (2) 62
 (3) 68 (4) 72
2. If $a = \sqrt{8} - \sqrt{7}$ and $a = \frac{1}{b}$, then $\frac{a^2 + b^2 - 3ab}{a^2 + ab + b^2}$ is equal to:
 (1) $\frac{14}{\sqrt{34}}$ (2) $\frac{15}{34}$
 (3) $\frac{16}{\sqrt{34}}$ (4) $\sqrt{17}$
3. Given that x, y, z are position real numbers, if $(x+y)^2 - z^2 = 8, (y+z)^2 - x^2 = 10$ and $(x+z)^2 - y^2 = 7$, then $(x + y + z)$ is equal to:
 (1) 8 (2) 7
 (3) 6 (4) 5
4. The simplified value of $20 - [2.8 \times 5 \div 0.7 - 3 \div 0.9 \times 1.5 + 2]$ is equal to:
 (1) 3 (2) 3.5
 (3) 3.8 (4) 2.5
5. The cost price of an article is ₹425. A shopkeeper gives a discount of 20% and still gains 16%. What is the marked price of the article?
 (1) 616.25 (2) 616.75
 (3) 620.25 (4) 620.75
6. The average of 24 numbers is 65. The average of first 11 numbers is 67 and the average of last 10 numbers is 70. If the 12th number is 13 less than the 13th number, and the 14th number is one more than the 13th number, then the average of 12th and 14th number is:
 (1) 42 (2) 39
 (3) 36 (4) 37
7. A, B and C alone can do a piece of work in 9, 12 and 18 days respectively. They all started the work together, but A left after 3 days. In how many days, was the remaining work completed?
 (1) $\frac{11}{4}$ (2) $\frac{9}{5}$
 (3) 2 (4) $\frac{5}{2}$
8. If $\tan \theta = \frac{3}{5}, (0^\circ < \theta < 90^\circ)$ then $\sin \theta \cos \theta$ is equal to:



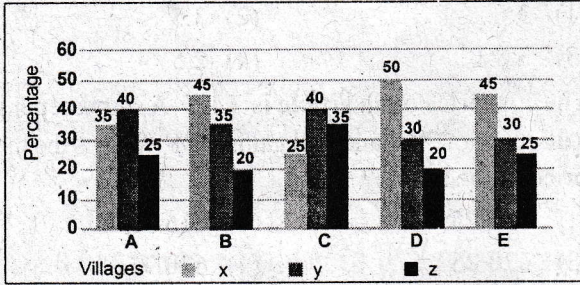
9. In $\triangle ABC$, $\angle ABC = 90^\circ$ and $BD \perp AC$. If $AD = 4$ cm and $CD = 5$ cm, then BD is equal to:

- (1) $2\sqrt{5}$ cm (2) $4\sqrt{5}$ cm
 (3) $3\sqrt{5}$ cm (4) $3\sqrt{2}$ cm

10. What is the ratio of the mean proportional between 14.4 and 3.6 and the third proportional of 5 and 4?

- (1) 6 : 5 (2) 9 : 4
 (3) 3 : 5 (4) 4 : 9

11. The given Bar Graph presents the percentages of population in the age groups, X (above 50 years), Y (20 to 50 years) & Z (above 20 years) in five different villages, A, B, C, D and E with total population of 5000, 6000, 8000, 4500 & 6000 respectively.



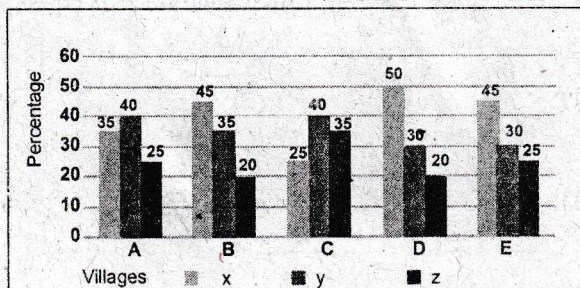
The difference between the number of persons of ages below 20 years in villages D and E, taken together, is what percentage of the number of persons of the same age group in Village D?

- (1) $\frac{185}{3}$ (2) $\frac{200}{3}$
 (3) $\frac{182}{3}$ (4) $\frac{190}{3}$

12. The difference between compound interest and simple interest on ₹ x at 6.5% per annum for 2 years is ₹33.80. What is the value of x ?

- (1) ₹7800 (2) ₹7500
 (3) ₹8000 (4) ₹8500

13. The given Bar Graph presents the percentages of population in the age groups, X, Y & Z in five different villages, A, B, C, D and E with total population of 5000, 6000, 8000, 4500 & 6000 respectively.



The number of person having ages below 20 years in villages, B and C taken together is what percentage of the total population of the said villages?

- (1) $\frac{190}{7}$ (2) $\frac{186}{5}$
 (3) $\frac{184}{5}$ (4) $\frac{200}{7}$

14. The price of petrol is increased by 24%. A person wants to increase his expenditure by 14% only. By what percentage should he decrease his consumption in order to maintain the same level of expenditure?

- (1) 8.1 (2) 8.3
 (3) 7.4 (4) 7.6

15. The eight digit number $5x32465y$ is divisible by 88. What is the value of $(2x + 3y)$?

- (1) 24 (2) 26
 (3) 28 (4) 29

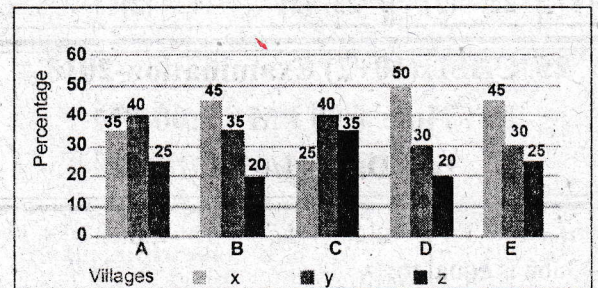
16. The selling price of 24 articles is to the cost price of 26 articles. What is the gain percentage in such a situation?

- (1) $\frac{25}{3}\%$ (2) $\frac{1}{8}\%$
 (3) $\frac{105}{13}\%$ (4) $\frac{100}{13}\%$

17. $(\sin^2 36^\circ + \tan^2 60^\circ + \sec^2 30^\circ + \sin^2 54^\circ)$ is equal to:

- (1) $\frac{16}{3}$ (2) $\frac{14}{3}$
 (3) 5 (4) $\frac{17}{3}$

18. The given Bar Graph presents the percentages of population in the age groups, X, Y & Z in five different villages, A, B, C, D & E with total population of 5000, 6000, 8000, 4500 & 6000 respectively.

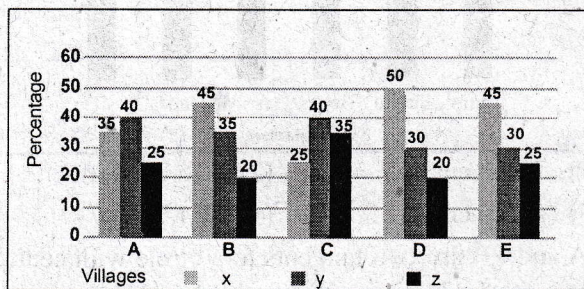


What is the ratio of the total number of persons of ages above 50 years in the villages, B and C, taken together to the total number of persons having ages between 20 and 50 years in the said villages?

- (1) 34 : 27 (2) 49 : 57
 (3) 47 : 53 (4) 51 : 59



19. In a circle, chords AD and BC meet at a point E outside the circle. If $\angle BAE = 76^\circ$ and $\angle ADC = 102^\circ$, then $\angle AEC$ is equal to:
- (1) 24° (2) 26°
 (3) 29° (4) 28°
20. Four cubes, each of edge 5 cm are joined end to end. What is the total surface area of the resulting cuboid?
- (1) 450 cm^2 (2) 600 cm^2
 (3) 500 cm^2 (4) 475 cm^2
21. If $2\sin^2\theta + 3\sin\theta - 2 = 0$, ($0^\circ < \theta < 90^\circ$) then the value of θ is:
- (1) 45° (2) 30°
 (3) 60° (4) 90°
22. The given Bar Graph presents the percentages of population in the age groups, X, Y & Z in five different villages, A, B, C, D & E with total population of 5000, 6000, 8000, 4500 & 6000 respectively.



What is the total number of persons in the age group of 20 to 50 years in the villages A and B, taken together?

- (1) 4100 (2) 4200
 (3) 4300 (4) 4400
23. A person covers 40% of a distance with a speed of 60 km/hr and the remaining with a speed of 40 km/hr. What is average speed for the whole journey in km/hr?
- (1) $\frac{600}{11}$ (2) $\frac{500}{13}$
 (3) $\frac{500}{11}$ (4) $\frac{600}{13}$
24. A quadrilateral ABCD is inscribed in a circle with centre O. $\angle BOC = 92^\circ$ and $\angle ADC = 112^\circ$, then $\angle ABO$ is equal to:
- (1) 24° (2) 26°
 (3) 22° (4) 28°
25. If in $\triangle ABC$, D is a point on BC, such that $BD : BC = 2 : 5$, what is the ratio area ($\triangle ABD$) : area($\triangle ADC$)?
- (1) 4 : 9 (2) 2 : 3
 (3) 3 : 2 (4) 9 : 4

Answers

1. (1)	2. (1)	3. (4)	4. (1)	5. (1)
6. (2)	7. (2)	8. (2)	9. (1)	10. (2)
11. (2)	12. (3)	13. (4)	14. (1)	15. (1)
16. (1)	17. (1)	18. (3)	19. (2)	20. (1)
21. (2)	22. (1)	23. (4)	24. (1)	25. (2)

