



RRB JE 2025 CBT-1

Junior Engineer, DMS, CMA · CEN 05/2025 · CBT-1 · Mathematics — Topic-wise

Kannada

28 Chapters · 211 Questions · Official Answer Key

About this Compilation

Every **Mathematics** question asked across all 7 shifts of the **RRB JE 2025 CBT-1** examination (CEN 05/2025), regrouped by **chapter** instead of by shift, so you can revise one topic end to end. The correct option is marked as per the official answer key.

Sections. The JE CBT-1 paper is not divided into sections and the saved paper carries no section labels. In this book the questions of every shift are grouped by subject (Mathematics, General Intelligence and Reasoning, General Awareness, General Science), assigned from our topic tags, so the section counts may differ slightly from the notified pattern.

2 questions without question text. The saved paper record has no question text or figure for them; they are printed with their options and official answer and marked in the text.

160 of these 211 questions are shown in English. RRB did not release them in Kannada to any candidate whose response sheet we could reach, so the official English version is printed instead and marked with an **ENGLISH** chip. Nothing here is machine translated.

10 duplicate questions removed. RRB repeated these word-for-word across different shifts. They appear once here, so a chapter never prints the same question twice - the complete and section-wise books still carry every occurrence.

How to use

- Use the **Index** to jump to any chapter (clickable).
- Within a chapter, questions on the same idea are placed together.
- The correct answer is highlighted in green with a tick.
- The same paper is also available complete and section-wise.



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Arithmetic

13 Questions • Answer Key

Q1 Election votes **ENGLISH**

In an election between two candidates, 86% of the registered voters cast their votes and 6% of the votes polled were found invalid. The winning candidate got 58% of the valid votes and won the election by a margin of 202100 votes. How many voters were registered?

A. 1562200

B. 1562800

C. 1562500

D. 1562400

Q2 Income expenditure savings **ENGLISH**

Ajay spends 80% of his income. His income is increased by 30%, and his expenditure is increased by 10%. Find the percentage increase in his savings.

A. 90%

B. 100%

C. 110%

D. 105%

Q3 Income expenditure savings **ENGLISH**

Monthly income of Mohit is ₹12800 and his monthly expenditure is ₹ 4000. If his income is decreased by 25% and expenditure is decreased by ₹ 1000, then find the decrease in his monthly savings?

A. ₹ 2600

B. ₹ 2800

C. ₹ 2400

D. ₹ 2200

Q4 Percentage marks **ENGLISH**

Girish scored 459 marks in an examination and was 81 marks short of 20% of the maximum marks. In the same examination, his friend scored 756 marks. What is the percentage of marks scored by his friend?

A. 27%

B. 28%

C. 29%

D. 30%

Q5 Percentage marks **ENGLISH**

Mr. Madan got 9 out of 10 marks in English, 15 out of 16 in life sciences and the ratio of the percentage of his marks in English and Mathematics is 15: 16. If the total marks of Mathematics are 20, then find the difference of the percentage of his marks in Mathematics and life sciences.

A. 2.25%

B. 3.5%

C. 5.25%

D. 4.35%

Q6 Percentage marks **ENGLISH**

Girish scored 664 marks in an examination and was 8 marks short of 84% of the maximum marks. In the same examination, his friend scored 472 marks. What is the percentage of marks scored by his friend?

A. 59%

B. 61%

C. 58%

D. 56%

Q7 Percentage marks

ಒಂದು ಪರೀಕ್ಷೆಯಲ್ಲಿ ಗಿರೀಶ್ 695 ಅಂಕಗಳನ್ನು ಗಳಿಸಿದನು ಮತ್ತು ಅವನ ಅಂಕಗಳು ಗರಿಷ್ಠ ಅಂಕಗಳ 89% ಕ್ಕೆ 17 ಅಂಕಗಳಷ್ಟು ಕಡಿಮೆ ಇದ್ದವು. ಅದೇ ಪರೀಕ್ಷೆಯಲ್ಲಿ ಅವನ ಸ್ನೇಹಿತನು 688 ಅಂಕಗಳನ್ನು ಗಳಿಸಿದನು. ಹಾಗಾದರೆ ಅವನ ಸ್ನೇಹಿತನು ಗಳಿಸಿದ ಅಂಕಗಳ ಶೇಕಡಾವಾರು ಎಷ್ಟು?

A. 83%

B. 86%

C. 84%

D. 87%



Q8 Percentage savings

ಚೀತನ್ ಅವರ ಮಾಸಿಕ ಆದಾಯ ₹60,000 ಆಗಿದೆ ಮತ್ತು ಅವರ ಖರ್ಚು ₹35,000 ಆಗಿದೆ. ಒಂದು ವೇಳೆ ಅವರ ಆದಾಯವು 25% ಹೆಚ್ಚಾದರೆ ಮತ್ತು ಅವರ ಖರ್ಚು 15% ಹೆಚ್ಚಾದರೆ, ಅವರ ಉಳಿತಾಯದಲ್ಲಿನ ಶೇಕಡಾವಾರು ಹೆಚ್ಚಳ ಎಷ್ಟು?

A. 36%

B. 39% ✓

C. 38%

D. 35%

Q9 Salary percentage ENGLISH

Anwar's salary is ₹19,000 per month. He spends ₹4,500 on house rent, ₹1,500 on bills and the rest of the amount is his monthly savings. Find his savings (in ₹) in a year, if in the month of his birthday, he spent his complete monthly savings for his birthday celebration.

A. 1,17,000

B. 1,30,000

C. 1,56,000

D. 1,43,000 ✓

Q10 Successive percentage

ಇಂಧನದ ಬೆಲೆಯು ಮೂರು ತಿಂಗಳುಗಳಲ್ಲಿ ಸತತವಾಗಿ 35%, 10% ಮತ್ತು 50% ರಷ್ಟು ಕಡಿಮೆಯಾಯಿತು, ಆದರೆ ನಾಲ್ಕನೇ ತಿಂಗಳಲ್ಲಿ 40% ರಷ್ಟು ಹೆಚ್ಚಾಯಿತು. ಇಂಧನದ ಮೂಲ ಬೆಲೆಗೆ ಹೋಲಿಸಿದರೆ ನಾಲ್ಕನೇ ತಿಂಗಳಲ್ಲಿ ಇಂಧನದ ಬೆಲೆಯಲ್ಲಿ ಉಂಟಾದ ಶೇಕಡಾವಾರು ಏರಿಕೆ/ಇಳಿಕೆ ಎಷ್ಟು?

A. 59.05% ಇಳಿಕೆ ✓

B. 63.97% ಇಳಿಕೆ

C. 56.75% ಏರಿಕೆ

D. 64.45% ಏರಿಕೆ

Q11 Successive percentage ENGLISH

Chetan's salary was first reduced by 40% and subsequently raised by 24%. How much percentage was his final salary lower compared to his initial salary?

A. 25.6% ✓

B. 9.6%

C. 24%

D. 40%

Q12 Successive percentage ENGLISH

The price of fuel decreases by 55%, 55% and 30% in three successive months, but increases by 50% in the fourth month. What is the percentage increase/decrease in the price of fuel in the fourth month as compared to its original price?

[Give your answer correct to two places after decimal.]

A. Increases by 76.66%

B. Decreases by 81.55%

C. Decreases by 78.74% ✓

D. Increases by 75.63%

Q13 Successive percentage ENGLISH

Rupesh's salary was first reduced by 44% and subsequently raised by 15%. How much percentage was his final salary lower compared to his initial salary?

A. 15%

B. 29%

C. 35.6% ✓

D. 6.6%



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Arithmetic

21 Questions • Answer Key

Q1 Articles CP SP ENGLISH

If the cost price of 24 articles is equal to the selling price of 15 articles, then find the percentage of profit.

A. 60%



B. 71%

C. 40%

D. 55%

Q2 Cost price mix ENGLISH

A man bought two types of sharpeners, one at ₹18 for 9 sharpeners and the other at ₹8 per sharpener. He purchased an equal number of each type and sold all the sharpeners at ₹8 per piece. Find his percentage profit.

A. 80%

B. 85%

C. 60%



D. 75%

Q3 Cost price mix ENGLISH

A man bought two types of apples, one at ₹2 for 3 apples and the other at ₹6 per apple. He purchased an equal number of each type and sold all the apples at ₹6 per apple. Find his percentage profit.

A. 80%



B. 78%

C. 75%

D. 77%

Q4 Cost selling price ENGLISH

100 apples were bought at ₹1,240 per hundred and were sold at a profit of ₹935. Find the selling price (in ₹) per dozen of apples.

A. 256

B. 271

C. 261



D. 266

Q5 Discount VAT ENGLISH

A shopkeeper marks an article at ₹ x and offers a discount of 50% on it. He sells it for ₹287 after charging VAT of 64% on the discounted price. What is the value of x ?

A. 300

B. 250

C. 350



D. 200

Q6 Discount free articles ENGLISH

A trader gives 10% discount on the marked price of an article and gives 40 articles free for buying 112 articles and gains 26% in the entire transaction. Assuming a customer pays for 112 articles, the marked price of an article is what percentage more than its cost price?

A. 95%

B. 98%

C. 90%



D. 82%

Q7 Discount scheme ENGLISH

A store offers a trade discount of 16% on all items. In addition, they offer a "Buy four get one free" scheme on specific items. If a customer purchases five items each marked at ₹700 and the "Buy four get one free" scheme applies, what is the total discounted price for five items, the customer has to pay?

A. ₹2336

B. ₹2352



C. ₹2305

D. ₹2378



Q8 False weight profit ENGLISH

A dishonest vendor claims that he is selling goods at their cost price. But he is weighing 902 grams for 1000 grams. What is his profit percentage (rounded off to 2 decimal places)?

A. 10.86%



B. 11.82%

C. 12.08%

D. 6.51%

Q9 Gain percent ENGLISH

A shopkeeper bought six identical mobile phones for ₹72,000. He sold two of these mobile phones for ₹42,000. Find his gain percentage.

A. 77%

B. 78%

C. 75%



D. 76%

Q10 Gain percent ENGLISH

A shopkeeper bought six identical mobile phones for ₹45,000. He sold two of these mobile phones for ₹42,000. Find his gain percentage.

A. 180%



B. 181%

C. 179%

D. 178%

Q11 Overall profit loss ENGLISH

The ratio of the cost prices of articles X and Y is 3 : 7. A man earns a profit of 49% by selling X and loses 16% by selling Y. What is his gain/loss percentage in the entire transaction?

A. Loss, 5%

B. Gain, 3%

C. Loss, 3.5%

D. Gain, 3.5%

**Q12 Overall profit loss**

X ಮತ್ತು Y ಎಂಬ ವಸ್ತುಗಳ ಅಸಲು ಬೆಲೆಗಳ ನಡುವಿನ ಅನುಪಾತವು 1:2 ಆಗಿದೆ. ಒಬ್ಬ ವ್ಯಕ್ತಿಯು X ವಸ್ತುವನ್ನು ಮಾರಾಟ ಮಾಡುವುದರ ಮೂಲಕ 12% ಲಾಭವನ್ನು ಗಳಿಸುತ್ತಾನೆ ಮತ್ತು Y ವಸ್ತುವನ್ನು ಮಾರಾಟ ಮಾಡುವುದರಿಂದ 36% ನಷ್ಟವನ್ನು ಅನುಭವಿಸುತ್ತಾನೆ. ಇಡೀ ವ್ಯವಹಾರದಲ್ಲಿ ಅವನಿಗೆ ಉಂಟಾದ ಒಟ್ಟಾರೆ ಶೇಕಡಾವಾರು ಲಾಭ ಅಥವಾ ನಷ್ಟ ಎಷ್ಟು?

A. ಲಾಭ, 20%

B. ಲಾಭ, 26.5%

C. ನಷ್ಟ, 20%



D. ನಷ್ಟ, 24.5%

Q13 Profit percent

ಒಂದು ಮಾರಾಟದ ಸಮಯದಲ್ಲಿ 50% ರಷ್ಟು ಸರಕುಗಳನ್ನು 19% ಲಾಭದಲ್ಲಿ ಮಾರಾಟ ಮಾಡಲಾಗುತ್ತದೆ, ಉಳಿದ ಸರಕುಗಳಲ್ಲಿ 20% ರಷ್ಟನ್ನು 40% ಲಾಭದಲ್ಲಿ ಮಾರಾಟ ಮಾಡಲಾಗುತ್ತದೆ ಮತ್ತು ಉಳಿದ ಸರಕುಗಳನ್ನು 25% ನಷ್ಟದಲ್ಲಿ ಮಾರಾಟ ಮಾಡಲಾಗುತ್ತದೆ. ಒಂದು ವೇಳೆ ಒಟ್ಟಾರೆ x% ಲಾಭವಿದ್ದರೆ, x ನ ಮೌಲ್ಯ ಎಷ್ಟು?

A. 3.5



B. 2

C. 5

D. 4

Q14 Successive discounts ENGLISH

The list price of a washing machine is ₹87,200. It is sold to a retailer after two successive discounts of 9% and 50%. The retailer wants to earn a profit of 25% on his cost after allowing a 48% discount (on its new list price) to the customer. At what price should he list the washing machine?

A. ₹95,476

B. ₹95,333

C. ₹95,434

D. ₹95,375



Q15 Successive discounts **ENGLISH**

The list price of a refrigerator is ₹15,000. It is sold to a retailer after two successive discounts of 32% and 40%. The retailer wants to earn a profit of 45% on his cost after allowing a 49% discount (on its new list price) to the customer. At what price should he list the refrigerator?

A. ₹17,325

B. ₹17,504

C. ₹17,400



D. ₹17,412

Q16 Articles CP SP **ENGLISH**

The selling price of 20 books is equal to the cost price of 31 books. Find the loss or gain percentage.

A. 55 % loss

B. $\frac{100}{11}\%$ loss

C. $\frac{100}{11}\%$ gain

D. 55 % gain

**Q17** Discount and free **ENGLISH**

A trader gives 8% discount on the marked price of an article and gives 3 articles free for buying 18 articles and gains 38% in the entire transaction. Assuming a customer pays for 18 articles, the marked price of an article is what percent more than its cost price?

A. 70%

B. 85%

C. 75%



D. 79%

Q18 Discount profit

ಒಬ್ಬ ವ್ಯಾಪಾರಿಯು ಒಂದು ವಸ್ತುವನ್ನು ಅದರ ನಮೂದಿತ ಬೆಲೆಯ 76% ಗೆ ಮಾರಾಟ ಮಾಡುವುದರಿಂದ 20% ನಷ್ಟವನ್ನು ಅನುಭವಿಸುತ್ತಾನೆ. ಒಂದುವೇಳೆ ಅವನು ಅದರ ನಮೂದಿತ ಬೆಲೆಯ 99% ಗೆ ಅದನ್ನು ಮಾರಾಟ ಮಾಡಿದರೆ ಆಗುವ ಶೇಕಡಾವಾರು ಲಾಭ ಎಷ್ಟು?

A. $2\frac{2}{19}\%$

B. $4\frac{4}{19}\%$



C. $3\frac{3}{19}\%$

D. $1\frac{1}{19}\%$



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Q19 False weight profit

ಒಬ್ಬ ಅಂಗಡಿಯವನು ತನ್ನ ಸರಕುಗಳನ್ನು ಅಸಲು ಬೆಲೆಗೆ ಮಾರಾಟ ಮಾಡುತ್ತಾನೆ. ಒಂದುವೇಳೆ ತಪ್ಪಾದ ತೂಕದ ಬಟ್ಟುಗಳನ್ನು ಬಳಸಿಕೊಂಡು $3\frac{19}{27}\%$ ಲಾಭವನ್ನು ಗಳಿಸಿದರೆ, ಅವನು 1 kg ಬದಲಿಗೆ ಎಷ್ಟು ತೂಕವನ್ನು ಬಳಸುತ್ತಾನೆ (g ಗಳಲ್ಲಿ, 2 ದಶಮಾಂಶ ಸ್ಥಾನಗಳಿಗೆ ಸೀಮಿತಗೊಳಿಸಿ)?

A. 987.35

B. 954.79

C. 964.29

D. 938.99

**Q20 Gain loss books** **ENGLISH**

The selling price of 45 books is equal to the cost price of 18 books. Find the loss or gain percentage.

A. $\frac{100}{27}\%$ gainB. $\frac{100}{27}\%$ loss

C. 60 % gain

D. 60 % loss

**Q21 Profit and Loss**

ಒಬ್ಬ ವ್ಯಾಪಾರಿಯು ತಲಾ ₹4.50 ರಂತೆ 1,200 ಮೊಟ್ಟೆಗಳನ್ನು ಖರೀದಿಸುತ್ತಾರೆ. ಅವುಗಳನ್ನು ಸಾಗಿಸುವಾಗ, 8% ರಷ್ಟು ಮೊಟ್ಟೆಗಳು ಒಡೆದುಹೋಗುತ್ತವೆ. ಉಳಿದ ಮೊಟ್ಟೆಗಳನ್ನು ಅವರು ತಲಾ ₹6.00 ರಂತೆ ಮಾರಾಟ ಮಾಡುತ್ತಾರೆ. ಹಾಗಾದರೆ ಅವರಿಗೆ ಬಂದ ಒಟ್ಟಾರೆ ಲಾಭದ ಶೇಕಡಾವಾರು ಪ್ರಮಾಣವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. $22\frac{1}{3}\%$ B. $21\frac{2}{3}\%$ C. $21\frac{1}{3}\%$ D. $22\frac{2}{3}\%$ 

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Arithmetic

7 Questions • Answer Key

Q1 Simple interest **ENGLISH**

Mahesh has borrowed an amount of ₹4,40,000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 6% per annum after 4 years?

A. 1,03,600

B. 1,05,600 ✓

C. 1,04,600

D. 1,06,600

Q2 Simple interest **ENGLISH**

Rupesh has borrowed an amount of ₹4,40,000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 7% per annum after 3 years?

A. 91400

B. 92400 ✓

C. 93400

D. 94400

Q3 Simple interest

ಮಹೇಶ್ ಅವರು ಒಂದು ವ್ಯವಹಾರವನ್ನು ಪ್ರಾರಂಭಿಸಲು ಬ್ಯಾಂಕಿನಿಂದ ₹420000 ಸಾಲ ಪಡೆದಿದ್ದಾರೆ. 2 ವರ್ಷಗಳ ನಂತರ ಅವರು ವಾರ್ಷಿಕ 6% ದರದಲ್ಲಿ ಎಷ್ಟು ಸರಳ ಬಡ್ಡಿಯನ್ನು (₹ ಗಳಲ್ಲಿ) ಪಾವತಿಸುತ್ತಾರೆ?

A. 49400

B. 53400

C. 50400 ✓

D. 51400

Q4 Simple interest **ENGLISH**

David has borrowed an amount of ₹440000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 6% per annum after 2 years?

A. 51800

B. 54800

C. 53800

D. 52800 ✓

Q5 Simple interest amount **ENGLISH**

Kiran has borrowed an amount of ₹4,40,000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 7% per annum after 2 years?

A. 61600 ✓

B. 62600

C. 63600

D. 60600

Q6 Simple interest amount **ENGLISH**

Gopal has borrowed an amount of ₹420000 from a bank to start a business. How much simple interest (in ₹) will he pay at a rate of 5% per annum after 4 years?

A. 82000

B. 84000 ✓

C. 83000

D. 85000

Q7 Simple interest amount

ಅಕ್ಷಯ್ ಅವರು ವ್ಯವಹಾರವನ್ನು ಪ್ರಾರಂಭಿಸಲು ಬ್ಯಾಂಕಿನಿಂದ ₹440000 ಸಾಲ ಪಡೆದರು. 4 ವರ್ಷಗಳ ನಂತರ ಅವರು ವಾರ್ಷಿಕ 5% ದರದಲ್ಲಿ ಎಷ್ಟು ಸರಳ ಬಡ್ಡಿಯನ್ನು (₹ ಗಳಲ್ಲಿ) ಪಾವತಿಸುತ್ತಾರೆ?

A. 78000

B. 87000

C. 89000

D. 88000 ✓



Arithmetic

7 Questions • Answer Key

Q1 CI SI difference ENGLISH

The difference between compound interest, compounded annually, and simple interest for 3 years at a rate of 20% per annum is ₹256. What is the principal lent?

- A. ₹1,000
B. ₹3,000
C. ₹2,000
D. ₹4,000



Q2 Depreciation ENGLISH

Garima bought an original hardbound book for ₹56,000. Its value depreciates by 5% per year. What will be the price (in ₹) of the book after 3 years?

- A. 48,713
B. 47,052
C. 48,013
D. 48,512



Q3 Growth rate ENGLISH

The population of country is 10 crores at present and is expected to grow to 17.28 crores in the next three years. Neglecting the death rate, the uniform annual percentage rate of growth is:

- A. 10
B. 20
C. 12
D. 11



Q4 SI CI difference ENGLISH

The difference between simple interest and compound interest, compounded annually, on a certain sum of money for 2 years at 11% per annum is ₹371. Find the sum. [Give your answer rounded off to the nearest integer.]

- A. ₹30,672
B. ₹30,661
C. ₹30,669
D. ₹30,679



Q5 SI CI difference

ವಾರ್ಷಿಕವಾಗಿ ಚಕ್ರಬಡ್ಡಿಯನ್ನು ಲೆಕ್ಕಹಾಕುವ ವಿಧಾನದಲ್ಲಿ, ಅಮಿತ್ ಅವರು ಒಂದೇ ಮೊತ್ತದ ಹಣವನ್ನು ಸರಳಬಡ್ಡಿ ಮತ್ತು ಚಕ್ರಬಡ್ಡಿ ಎರಡರಲ್ಲೂ ಹೂಡಿಕೆ ಮಾಡಿದ್ದಾರೆ. ಎರಡೂ ಮೊತ್ತಗಳ ಅವಧಿಯು 2 ವರ್ಷಗಳು ಮತ್ತು ಬಡ್ಡಿದರವು ಸಹ ವಾರ್ಷಿಕ 10% ಆಗಿರುತ್ತದೆ. ಕೊನೆಯಲ್ಲಿ, ಅವರು ಪಡೆದ ಎರಡೂ ಬಡ್ಡಿಗಳಲ್ಲಿ ₹97 ರ ವ್ಯತ್ಯಾಸ ಕಂಡುಬರುತ್ತದೆ. ಹಾಗಾದರೆ ಹೂಡಿಕೆ ಮಾಡಲಾದ ಮೊತ್ತ (₹ ಗಳಲ್ಲಿ) ಎಷ್ಟು?

- A. 10,050
B. 8,950
C. 9,700
D. 8,800



Q6 SI and CI ENGLISH

If at the same rate of interest, in 2 years, the simple interest is ₹48 and compound interest, compounded annually, is ₹54, then what is the principal (in ₹)?

- A. 96
B. 91
C. 100
D. 89



Q7 SI and CI

ವಾರ್ಷಿಕವಾಗಿ ಚಕ್ರಬಡ್ಡಿಯನ್ನು ಲೆಕ್ಕ ಹಾಕುವ ವಿಧಾನದಲ್ಲಿ, ಒಂದೇ ಮೊತ್ತದ ಹಣವನ್ನು ಅಮಿತ್ ಅವರು ಸರಳಬಡ್ಡಿ ಮತ್ತು ಚಕ್ರಬಡ್ಡಿ ಎರಡರಲ್ಲೂ ಹೂಡಿಕೆ ಮಾಡಿದ್ದಾರೆ. ಎರಡೂ ಮೊತ್ತಗಳ ಕಾಲಾವಧಿಯು 2 ವರ್ಷಗಳು ಮತ್ತು ಬಡ್ಡಿದರ ಸಹ ವಾರ್ಷಿಕ 10% ರಷ್ಟು ಆಗಿರುತ್ತದೆ. ಕೊನೆಯಲ್ಲಿ, ಅವರು ಪಡೆದ ಎರಡೂ ಬಡ್ಡಿಗಳ ನಡುವೆ ₹45 ವ್ಯತ್ಯಾಸ ಕಂಡುಬರುತ್ತದೆ. ಹಾಗಾದರೆ ಪ್ರತಿ ಸಂದರ್ಭದಲ್ಲಿ ಹೂಡಿಕೆ ಮಾಡಿದ ಮೊತ್ತ (₹ ಗಳಲ್ಲಿ) ಎಷ್ಟು?

- A. 4,500
B. 3,600
C. 4,850
D. 3,750



Arithmetic

21 Questions • Answer Key

Q1 Coins ratio

ಒಂದು ವೆಂಡಿಂಗ್ ಮೆಷಿನ್ ₹1, 50 ಪೈಸೆ ಮತ್ತು 25 ಪೈಸೆ ನಾಣ್ಯಗಳನ್ನು ಹೊಂದಿರುತ್ತದೆ. ಒಂದು ಟ್ರೇನಲ್ಲಿ ಈ ಮುಖಬೆಲೆಯ ನಾಣ್ಯಗಳ ಸಂಖ್ಯೆಯು ನಡುವಿನ ಅನುಪಾತವು 2 : 3 : 4 ಆಗಿರುತ್ತದೆ ಮತ್ತು ಅವುಗಳ ಒಟ್ಟು ಮೌಲ್ಯವು ₹180 ಆಗಿರುತ್ತದೆ. ಇನ್ನೊಂದು ಟ್ರೇನಲ್ಲಿ, ₹1, 50 ಪೈಸೆ ಮತ್ತು 25 ಪೈಸೆ ಮೌಲ್ಯಗಳ ನಾಣ್ಯಗಳ ನಡುವಿನ ಅನುಪಾತವು 13 : 11 : 7 ಆಗಿರುತ್ತದೆ ಮತ್ತು ಈ ಟ್ರೇನಲ್ಲಿರುವ ಒಟ್ಟು ನಾಣ್ಯಗಳ ಸಂಖ್ಯೆಯು 378 ಆಗಿದೆ. ಹಾಗಾದರೆ ಎರಡೂ ಟ್ರೇಗಳಲ್ಲಿ ಒಟ್ಟು ಎಷ್ಟು 50-ಪೈಸೆ ನಾಣ್ಯಗಳಿವೆ?

A. 250

B. 253

C. 251

D. 252

Q2 Combined ratios ENGLISH

In a wallet containing gold, silver and bronze tokens, the ratio of gold to silver tokens was 5:17 while the ratio of bronze to gold tokens was 18:19. What was the ratio of bronze to silver tokens?

A. 98:328

B. 95:330

C. 90:323

D. 93:327

Q3 Direct variation ENGLISH

The height of a tree varies as the square root of its age. When the age of the tree is 324 years, its height is 19 feet. What will be the height of the tree (in feet) at the age of 81 years?

A. 9.14

B. 9.5

C. 8.39

D. 9.01

Q4 Earnings ratio ENGLISH

Suman's earnings in a month are five-sevenths of Meera's. In the next month, Meera's earnings become five-eighths of Suman's previous month earnings. By what percent are Meera's current earnings less than Suman's current earnings?

A. 25%

B. 20%

C. 35.5%

D. 37.5%

Q5 Fourth proportional ENGLISH

Find the ratio between the fourth proportional of 8, 12 and 4, and the third proportional of 6 and 9.

A. 7:11

B. 9:13

C. 5:11

D. 4:9

Q6 Fraction ratio sum ENGLISH

Rashmi and Varsha together have ₹22576. If $\frac{5}{16}$ of Rashmi's amount is equal to $\frac{3}{7}$ of Varsha's amount, how much money does Rashmi have?

A. ₹13052

B. ₹13054

C. ₹13050

D. ₹13056

Q7 Inverse proportion ENGLISH

If x is inversely proportional to y , and $y = 7$ when $x = 16$, find the value of x , when $y = 2$.

A. 55

B. 53

C. 56

D. 47



Q8 Inverse proportion **ENGLISH**

A camp has provisions for 51 persons for 12 days. If the number of persons is increased to 102, for how many days will the same provisions last?

A. 9

B. 5

C. 6

D. 4

Q9 Joint variation

ಒಂದುವೇಳೆ x ಎಂಬುದು y ಗೆ ನೇರವಾಗಿ ಮತ್ತು z ಗೆ ವಿಲೋಮವಾಗಿ ಬದಲಾದರೆ ಹಾಗೂ $y = 40$ ಮತ್ತು $z = 3$ ಆದಾಗ $x = 16$ ಆಗಿರುತ್ತದೆ. ಹಾಗಾದರೆ $y = 50$ ಮತ್ತು $z = 6$ ಆಗಿರುವಾಗ x ಅನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. 16

B. 12

C. 15

D. 10

Q10 Mean proportional **ENGLISH**

Find the mean proportional of 144 and 9.

A. 35

B. 37

C. 39

D. 36

Q11 Mean proportional

ಒಂದುವೇಳೆ $14.8 : x :: x : 3.7$ ಮತ್ತು $x > 0$ ಆಗಿದ್ದರೆ, x ನ ಮೌಲ್ಯ ಕಂಡುಹಿಡಿಯಿರಿ.

A. 4.1

B. 7.4

C. 11.4

D. 12.9

Q12 Partnership share **ENGLISH**

A and B jointly start a business. The investment of A is equal to three times the investment of B. Find the share of A in the annual profit of ₹55204.

A. ₹41,403

B. ₹42,403

C. ₹43,403

D. ₹40,403

Q13 Percentage ratio

A ಯ 15% ಭಾಗವು B ಯ 20% ಭಾಗಕ್ಕೆ ಸಮಾನವಾಗಿದ್ದರೆ ಮತ್ತು B ಯ 10% ಭಾಗವು C ಯ 25% ಭಾಗಕ್ಕೆ ಸಮಾನವಾಗಿದ್ದರೆ, A : B : C ಗಳ ನಡುವಿನ ಅನುಪಾತ ಎಷ್ಟು?

A. 20:15:6

B. 22:17:11

C. 12:9:7

D. 8:7:6

Q14 Profit sharing ratio **ENGLISH**

A total profit of ₹14,500 is to be distributed amongst A, B, and C such that $A : B = 16 : 3$ and $B : C = 6 : 20$. The share (in ₹) of C in the profit is:

A. 5,100

B. 5,000

C. 4,850

D. 4,950

Q15 Proportion **ENGLISH**

If $7 : 21 :: 2.2 : x$ and $7 : 49 :: 9 : y$, what is the ratio of x to y ?

A. 11 : 105

B. 15 : 115

C. 12 : 103

D. 9 : 106



Q16 Proportion **ENGLISH**

If $2 : 4 :: 4.6 : x$ and $4 : 16 :: 2 : y$, what is the ratio of x to y ?

A. 21 : 21

B. 27 : 30

C. 24 : 18

D. 23 : 20 ✓

Q17 Proportion

13, 19, 16 ಮತ್ತು 23 ಇವುಗಳಲ್ಲಿ ಪ್ರತಿಯೊಂದಕ್ಕೂ x ಅನ್ನು ಕೂಡಿಸಿದಾಗ, ಈ ಕ್ರಮದಲ್ಲಿ ಪಡೆದ ಸಂಖ್ಯೆಗಳು ಸಮಾನುಪಾತದಲ್ಲಿರುತ್ತವೆ. ಒಂದುವೇಳೆ $5x : y :: y : (8x-4)$, ಮತ್ತು $y > 0$ ಆಗಿದ್ದರೆ, y ನ ಮೌಲ್ಯ ಎಷ್ಟು?

A. 42

B. 41

C. 30 ✓

D. 37

Q18 Third proportional

ಒಂದು ವೇಳೆ 8 ಮತ್ತು 48 ರ ಮೂರನೇ ಸಮಾನುಪಾತವು x ಆಗಿದ್ದರೆ, x ನ ಮೌಲ್ಯ ಎಷ್ಟು?

A. 288 ✓

B. 286

C. 289

D. 291

Q19 Unitary method **ENGLISH**

9 identical cartons together weigh 72 kg. How many cartons of the same type would be needed to make up a total 168 kg?

A. 21 ✓

B. 20

C. 24

D. 18

Q20 Ratio fare passengers **ENGLISH**

The ratio of fare of a person between Auto and Bus is $2 : 3.5$ and the ratio of number of passengers travelled, on a particular day, by Auto and Bus is $4 : 7$. By what fraction the total fare collected by Auto on that particular day is less than the total fare collected by Bus?

A. $\frac{1}{3}$ B. $\frac{33}{49}$ ✓C. $\frac{2}{5}$ D. $\frac{3}{5}$ **Q21 Ratio sharing** **ENGLISH**

A sum of money is divided among X, Y and Z in the ratio $4:3:6$. If the share of Z is ₹3300 more than Y, then how much amount will X get more than Y?

A. ₹1000

B. ₹1300

C. ₹1100 ✓

D. ₹1200



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Arithmetic

4 Questions • Answer Key

Q1 Alligation mixture **ENGLISH**

A grocer wishes to sell a mixture of two varieties of rice worth ₹56 per kg. In what ratio must he mix the rice to reach this selling price, when cost of one variety of rice is ₹54 per kg and the other is ₹64 per kg?

A. 3 : 1

B. 3 : 2

C. 4 : 1



D. 2 : 3

Q2 Alligation mixture

kg ಗೆ ₹34 ಬೆಲೆಯ ಮತ್ತು kg ಗೆ ₹58 ಬೆಲೆಯ ಎರಡು ಬಗೆಯ ಸಕ್ಕರೆಗಳನ್ನು ಮಿಶ್ರಣ ಮಾಡಿ, ಆ ಮಿಶ್ರಣವನ್ನು kg ಗೆ ₹52.80 ಬೆಲೆಯಲ್ಲಿ ಮಾರಾಟ ಮಾಡಿ, 32% ಲಾಭವನ್ನು ಗಳಿಸಬೇಕಾದರೆ, ಆ ಎರಡು ಬಗೆಯ ಸಕ್ಕರೆಗಳನ್ನು ಯಾವ ಅನುಪಾತದಲ್ಲಿ ಮಿಶ್ರಣ ಮಾಡಬೇಕು?

A. 5 : 2

B. 5 : 3

C. 7 : 3

D. 3 : 1

Q3 Mixture alligation **ENGLISH**

In what ratio should sugar costing ₹38 per kg be mixed with sugar costing ₹55 per kg so that by selling the mixture at ₹57.20 per kg, there is a profit of 10%?

A. 12 : 1

B. 3 : 14



C. 12 : 5

D. 15 : 1

Q4 Mixture alligation

ಒಬ್ಬ ಹಣ್ಣಿನ ಮಾರಾಟಗಾರನು ₹60/kg ಮತ್ತು ₹68.40/kg ಬೆಲೆಯ ಎರಡು ತಳಿಯ ಮಾವಿನ ಹಣ್ಣುಗಳನ್ನು ಮಿಶ್ರಣ ಮಾಡಿ, ಆ ಮಿಶ್ರ ವಿಧದ ಮಾವಿನ ಹಣ್ಣುಗಳನ್ನು ₹79.80/kg ಗೆ ಮಾರಾಟ ಮಾಡಿ 18.75% ಲಾಭ ಗಳಿಸಬೇಕಾದರೆ, ಆ ಎರಡು ತಳಿಯ ಮಾವಿನ ಹಣ್ಣುಗಳನ್ನು ಯಾವ ಅನುಪಾತದಲ್ಲಿ ಮಿಶ್ರಣ ಮಾಡಬೇಕು?

A. 3 : 7

B. 7 : 3

C. 1 : 6



D. 6 : 1



Arithmetic

10 Questions • Answer Key

Q1 Average multiples ENGLISH

The average of the first 18 positive multiples of 10 is:

A. 18

B. 10

C. 95



D. 90

Q2 Average multiples ENGLISH

The average of the first 18 positive multiples of 9 is:

A. 9

B. 85.5



C. 18

D. 81

Q3 Average multiples

8 ರ ಮೊದಲ 18 ಧನಾತ್ಮಕ ಗುಣಕಗಳ ಸರಾಸರಿ ಎಷ್ಟು?

A. 76



B. 8

C. 18

D. 72

Q4 Average multiples ENGLISH

The average of the first 18 positive multiples of 14 is:

A. 14

B. 133



C. 18

D. 126

Q5 Average of multiples ENGLISH

The average of the first 18 positive multiples of 15 is:

A. 142.5



B. 15

C. 135

D. 18

Q6 Average of multiples ENGLISH

The average of the first 18 positive multiples of 7 is:

A. 66.5



B. 18

C. 63

D. 7

Q7 Average of multiples ENGLISH

The average of the first 18 positive multiples of 11 is:

A. 18

B. 11

C. 104.5



D. 99

Q8 Weighted average ENGLISH

In a factory, the average daily wage of 12 skilled workers and 18 unskilled workers is ₹604. If the average wage of the skilled workers is ₹754, then find the average wage of the unskilled workers.

A. ₹524

B. ₹514

C. ₹504



D. ₹534

Q9 Weighted average ENGLISH

The average sale of cars by a dealer per day in the month of March, other than on Saturdays and Sundays, is 151. The average sale of cars per day on Sundays is 129. What is the average sale of cars per day on Saturdays, if the first Saturday is on the 3rd of March and average sale of cars per day for the whole month is 148?

A. 145

B. 155

C. 150



D. 153



Q10 Weighted average **ENGLISH**

In a seminar, 5 teachers and 7 students spent money on books. The average spending of all of them together was ₹260. The average spending of the teachers alone was ₹400. Find the average spending amount of the students.

A. ₹120

B. ₹160



C. ₹140

D. ₹180

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Arithmetic

7 Questions • Answer Key

Q1 Alternate-hour work **ENGLISH**

Anirudh and Brahmaji are assigned the work of constructing a wall. Anirudh can do the job in 60 hours alone where as Brahmaji can do the job three times faster. Anirudh starts the work during the first hour and Brahmaji does the work during the second hour. During the third hour both do the job simultaneously. If they continue in this fashion, how long it will take for them to complete the job?

A. 21.5 hours

B. 22.5 hours

C. 23 hours

D. 7.5 hours

Q2 Men days absent **ENGLISH**

X people were given a contract for doing a piece of work in 32 days. 8 people did not turn up to work due to sickness, and the rest of the people completed the work in 40 days. What is the value of X?

A. 42

B. 40

C. 38

D. 44

Q3 Men days absent **ENGLISH**

X people were given a contract for doing a piece of work in 18 days. 2 people did not turn up to work due to sickness, and the rest of the people completed the work in 27 days. What is the value of X?

A. 2

B. 10

C. 14

D. 6

Q4 Men hours days **ENGLISH**

If 25 people, working for 10 hours a day, can complete 2 units of work in 5 days, then how many days will be required for 15 people to complete 18 units of work, if each person works for 10 hours a day?

A. 70

B. 75

C. 60

D. 85

Q5 Work and days

A ಮತ್ತು B ಎಂಬ ಇಬ್ಬರು ಕ್ರಮವಾಗಿ 15 ದಿನಗಳು ಮತ್ತು 10 ದಿನಗಳಲ್ಲಿ ಒಂದು ಕೆಲಸವನ್ನು ಪೂರ್ಣಗೊಳಿಸಬಲ್ಲರು. ಅವರಿಬ್ಬರು ಒಟ್ಟಿಗೆ ಕೆಲಸ ಮಾಡಲು ಪ್ರಾರಂಭಿಸಿದರು. ಆದರೆ 4 ದಿನಗಳ ನಂತರ, B ಅವರು ಕೆಲಸ ಬಿಟ್ಟು ಹೊರಡಬೇಕಾಯಿತು. ಉಳಿದ ಕೆಲಸವನ್ನು A ಅವರು ಒಬ್ಬಂಟಿಯಾಗಿ ಮಾಡಿ ಮುಗಿಸಿದರು. ಹಾಗಾದರೆ ಸಂಪೂರ್ಣ ಕೆಲಸವು _____ ದಿನಗಳಲ್ಲಿ ಪೂರ್ಣಗೊಂಡಿತು.

A. 5

B. 10

C. 6

D. 9

Q6 Work and leaving **ENGLISH**

A and B can complete a work in 15 days and 10 days, respectively. They started doing the work together but after 2 days, B had to leave, and A completed the remaining work alone. The whole work was completed in _____ days.

A. 10

B. 13

C. 11

D. 12



Q7 Time and Work

ಒಂದು ಕೆಲಸವನ್ನು A ಅವರು 9 ದಿನಗಳಲ್ಲಿ ಮತ್ತು B ಅವರು 12 ದಿನಗಳಲ್ಲಿ ಮಾಡಬಲ್ಲರು. ಅವರು B ಅವರಿಂದ ಪ್ರಾರಂಭಿಸಿ ಪರ್ಯಾಯ ದಿನಗಳಲ್ಲಿ ಕೆಲಸ ಮಾಡುತ್ತಾರೆ. ಹಾಗಾದರೆ ಎಷ್ಟು ದಿನಗಳಲ್ಲಿ ಆ ಕೆಲಸವನ್ನು ಪೂರ್ಣಗೊಳಿಸುತ್ತಾರೆ?

A. $8\frac{1}{3}$

B. $12\frac{1}{3}$

C. $10\frac{1}{3}$



D. $9\frac{1}{3}$



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Arithmetic

6 Questions • Answer Key

Q1 Fill and empty

ಒಂದು ನಲ್ಲಿಯು ಒಂದು ತೊಟ್ಟಿಯನ್ನು 32 ಗಂಟೆಗಳಲ್ಲಿ ತುಂಬಿಸಬಲ್ಲದು. ಇನ್ನೊಂದು ನಲ್ಲಿಯು ಸಂಪೂರ್ಣವಾಗಿ ತುಂಬಿರುವ ಅದೇ ತೊಟ್ಟಿಯನ್ನು 64 ಗಂಟೆಗಳಲ್ಲಿ ಖಾಲಿ ಮಾಡಬಲ್ಲದು. ಒಂದು ವೇಳೆ ಆರಂಭದಲ್ಲಿ ತೊಟ್ಟಿಯು ಖಾಲಿಯಾಗಿದ್ದರೆ ಮತ್ತು ಎರಡೂ ನಲ್ಲಿಗಳನ್ನು ಒಟ್ಟಿಗೆ ತೆರೆದರೆ, ತೊಟ್ಟಿಯು ನಾಲ್ಕನೇ ಒಂದು ಭಾಗ ತುಂಬಲು ಎಷ್ಟು ಸಮಯ (ಗಂಟೆಗಳಲ್ಲಿ) ಬೇಕಾಗಬಹುದು?

A. 32

B. 48

C. 64

D. 16

Q2 Filling and emptying ENGLISH

A tap can fill a cistern in 27 hours, while another tap can empty the full cistern in 36 hours. If the cistern is initially empty and both taps are opened together, find the time (in hours) required to fill one-fourth of the cistern.

A. 108

B. 54

C. 81

D. 27

Q3 Pipes cistern

P ಮತ್ತು Q ಕೊಳವೆಗಳು ಒಟ್ಟಾಗಿ ಒಂದು ತೊಟ್ಟಿಯನ್ನು 24 ಗಂಟೆಗಳಲ್ಲಿ ನೀರಿನಿಂದ ತುಂಬಿಸಬಲ್ಲವು. P ಕೊಳವೆಯೊಂದೇ 96 ಗಂಟೆಗಳಲ್ಲಿ ತೊಟ್ಟಿಯನ್ನು ತುಂಬಿಸಬಹುದಾದರೆ, Q ಕೊಳವೆಯೊಂದೇ ಎಷ್ಟು ಗಂಟೆಗಳಲ್ಲಿ ಅದೇ ತೊಟ್ಟಿಯು ನಾಲ್ಕನೇ ಮೂರು ಭಾಗವನ್ನು ತುಂಬಿಸಬಲ್ಲದು?

A. 49

B. 48

C. 24

D. 25

Q4 Pipes cistern ENGLISH

P and Q together can fill a cistern with water in 24 hours. If P alone can fill the cistern with water in 72 hours, then in how many hours will Q alone fill three-fourth of the same cistern with water?

A. 28

B. 54

C. 55

D. 27

Q5 Pipes with outlet ENGLISH

Two water supply lines A and B can fill a reservoir individually in 10 hours and 12 hours, respectively. A discharge outlet D can empty the reservoir completely in 6 hours. If all three are opened together at 7:00 A.M., at what time will one-fourth of the reservoir be filled?

A. 11 A.M.

B. 11 P.M.

C. 10 P.M.

D. 10 A.M.



Q6 Pipe and Cistern ENGLISH

Two inlet pipes A and B and one outlet pipe O are attached to a cistern. Pipe A fills the cistern in 8 hours, pipe B in 12 hours, and the outlet O can empty a full cistern in 24 hours. If all three pipes are opened simultaneously, how long will it take to fill the cistern?

A. 6 hours



B. 6.8 hours

C. 6.5 hours

D. 5.5 hours



Arithmetic

17 Questions • Answer Key

Q1 Average speed **ENGLISH**

During a round-trip journey where a person walks to a location at 5 km/h and returns at 3 km/h, which statement about average speed is correct?

- A. Average speed is 3 km/h.
- B. Average speed equals the arithmetic mean of 5 km/h and 3 km/h.
- C. Average speed will be less than the arithmetic mean of 5 km/h and 3 km/h. ✓
- D. Average speed is 5 km/h.

Q2 Average speed **ENGLISH**

A train moves 120 km at 60 km/h and then another 60 km at 30 km/h. What is the average speed for the entire journey?

- A. 40 km/h
- B. 50 km/h
- C. 45 km/h ✓
- D. 30 km/h

Q3 Boat and stream **ENGLISH**

Ajay can row at 4.5 km/h in still water. It takes him twice the time to row up as it takes for him to row down the same distance. Find the speed of the stream (in km/h).

- A. 0.5
- B. 2
- C. 3
- D. 1.5 ✓

Q4 Boat and stream

ಚಂದು ಅವರು ದೋಣಿಯಲ್ಲಿ 285 km ದೂರವನ್ನು ಪ್ರವಾಹದ ವಿರುದ್ಧ ದಿಕ್ಕಿನಲ್ಲಿ 45 ಗಂಟೆಗಳಲ್ಲಿ ಕ್ರಮಿಸುತ್ತಾರೆ ಮತ್ತು ಅದೇ ದೂರವನ್ನು ಪ್ರವಾಹದ ದಿಕ್ಕಿನಲ್ಲಿ 18 ಗಂಟೆಗಳಲ್ಲಿ ಕ್ರಮಿಸುತ್ತಾರೆ. ಹಾಗಾದರೆ ಪ್ರವಾಹದ ವೇಗವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

- A. 5.16 km/h
- B. 4.75 km/h ✓
- C. 1.39 km/h
- D. 5.78 km/h

Q5 Boat and stream

ಒಂದು ದೋಣಿಯು ಪ್ರವಾಹದ ದಿಕ್ಕಿನಲ್ಲಿ 3 ಗಂಟೆಗಳಲ್ಲಿ 36 km ಅನ್ನು ಕ್ರಮಿಸುತ್ತದೆ ಮತ್ತು ಪ್ರವಾಹದ ವಿರುದ್ಧದ ದಿಕ್ಕಿನಲ್ಲಿ ಅದೇ ದೂರವನ್ನು 5 ಗಂಟೆಗಳಲ್ಲಿ ಕ್ರಮಿಸಿ ಹಿಂತಿರುಗುತ್ತದೆ. ಹಾಗಾದರೆ ನಿಂತ ನೀರಿನಲ್ಲಿ ದೋಣಿಯ ವೇಗ ಎಷ್ಟು?

- A. ಗಂಟೆಗೆ 11.7 km
- B. ಗಂಟೆಗೆ 8.5 km
- C. ಗಂಟೆಗೆ 9.6 km ✓
- D. ಗಂಟೆಗೆ 10.2 km

Q6 Race head start **ENGLISH**

In a 100-meter race, X runs at 5 m/s and Y at 4 m/s. How much head start should X give Y (in meters) so that the race ends in a tie?

- A. 25
- B. 20 ✓
- C. 15
- D. 10

Q7 Race head start **ENGLISH**

P gives Q a head-start of 10 seconds in a 600 m race, but both finish the race at the same time. Find the time taken by P to finish the race if the speed of Q is 4 m/sec.

- A. 142 Seconds
- B. 144 Seconds
- C. 146 Seconds
- D. 140 Seconds ✓

Q8 Race start **ENGLISH**

Three persons, A, B and C, took part in a 2000 m race. To reach the finish line at the same time, A can give to B a start of 500 m and to C a start of 300 m. How many metres of start can C give to B in a 3400 m race?

- A. 200
- B. 400 ✓
- C. 800
- D. 600



Q9 Race start ENGLISH

A is faster than B. In a 2500 m race, A gives B a start of 200 meters. A runs at 25 m/s. Who wins and by how much if B runs at 23 m/s?

A. They finish together



B. B wins by 100 meters

C. A wins by 50 meters

D. A wins by 100 meters

Q10 Relative speed cars ENGLISH

If two cars start at the same point and move along a straight road, Car X at a constant speed of 40 km/h and Car Y at a constant speed of 60 km/h, which statement correctly compares their motions after 2 hours?

A. Both cars will have traveled the same distance after 2 hours.

B. Car Y will be 40 km ahead of Car X after 2 hours.



C. Car Y will be 20 km ahead of Car X after 2 hours.

D. Car X will be 40 km ahead of Car Y after 2 hours.

Q11 Speed time distance ENGLISH

In covering a distance of 130 km, Amit takes 4 hours more than Vinay. If Amit doubles his speed, then he would take 9 hour less than Vinay. Amit's original speed is:

A. 5 km/h



B. 9 km/h

C. 6 km/h

D. 14 km/h

Q12 Train crossing ENGLISH

Two trains having lengths of 430 m and 120 m are running at speeds of 70 km/h and 100 km/h, respectively, in the same direction. The time taken (in minutes) by the faster train, coming from behind, to completely cross the other train is:

A. 3.2

B. 4.1

C. 1.1



D. 1.6

Q13 Train relative speed ENGLISH

A 200 m long train crosses a man walking at a speed of 6.6 km/h in the opposite direction in 15 seconds. What is the speed (in km/h) of the train?

A. 42.2

B. 37.2

C. 41.4



D. 46.3

Q14 Average speed

Y ಅವರು 438 km, 820 km ಮತ್ತು 972 km ದೂರಗಳನ್ನು ಕ್ರಮವಾಗಿ 6 km/hr, 20 km/hr ಮತ್ತು 27 km/hr ವೇಗಗಳಲ್ಲಿ ಕ್ರಮಿಸುತ್ತಾರೆ. ಹಾಗಾದರೆ ಅವರ ಸರಾಸರಿ ವೇಗವನ್ನು (km/hr ಗಳಲ್ಲಿ) ಕಂಡುಹಿಡಿಯಿರಿ.

A. $14\frac{11}{15}$

B. $14\frac{13}{15}$



C. $14\frac{14}{15}$

D. $14\frac{8}{15}$



Q15 Average speed

W ಅವರು 425 km, 946 km ಮತ್ತು 340 km ದೂರಗಳನ್ನು ಕ್ರಮವಾಗಿ 5 km/hr, 43 km/hr ಮತ್ತು 34 km/hr ವೇಗದಲ್ಲಿ ಪ್ರಯಾಣಿಸಿದರು. ಹಾಗಾದರೆ ಅವರ ಸರಾಸರಿ ವೇಗವನ್ನು (km/hr ಗಳಲ್ಲಿ) ಕಂಡುಹಿಡಿಯಿರಿ.

A. $14\frac{75}{117}$

B. $14\frac{73}{117}$ ✓

C. $14\frac{71}{117}$

D. $14\frac{70}{117}$

Q16 Circular track meeting ENGLISH

Two men A and B walk round a circle 1300 metres in circumference. A walks at the rate of 150 metres per minute and B at the rate 80 metres per minute. If they both start at the same time from the same point and walk in the same direction, after how much time will they meet each other?

A. $15\frac{4}{7}$ min

B. $16\frac{5}{7}$ min

C. $17\frac{8}{7}$ min

D. $18\frac{4}{7}$ min ✓

Q17 Time, Speed and Distance ENGLISH

While covering a distance of 36 km, a man noticed that after cycling for 2 hour 5 minutes, the distance covered by him was $\frac{6}{7}$ of the remaining distance. What was his approximate speed in km/h?

A. 8.7

B. 8 ✓

C. 6.7

D. 7.4



Q1 Age ratio

ಐದು ವರ್ಷಗಳ ಹಿಂದೆ, ಅಮಿತ್ ಮತ್ತು ಭಾನು ಅವರ ವಯಸ್ಸುಗಳ ನಡುವಿನ ಅನುಪಾತ 2: 3 ಆಗಿತ್ತು. ಈಗಿನಿಂದ ಹದಿನೈದು ವರ್ಷಗಳ ನಂತರ, ಅವರ ವಯಸ್ಸುಗಳು 5: 6 ರ ಅನುಪಾತದಲ್ಲಿರುತ್ತದೆ. ಅವರ ಪ್ರಸ್ತುತ ವಯಸ್ಸುಗಳ ಮೊತ್ತವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ. (ಒಂದುವೇಳೆ ಅಗತ್ಯವಿದ್ದರೆ, ನಿಮ್ಮ ಉತ್ತರವನ್ನು ವರ್ಷಗಳು ಮತ್ತು ತಿಂಗಳುಗಳಲ್ಲಿ ನೀಡಿ.)

A. 43 ವರ್ಷಗಳು, 4 ತಿಂಗಳುಗಳು ✓

B. 43 ವರ್ಷಗಳು, 3 ತಿಂಗಳುಗಳು

C. 43 ವರ್ಷಗಳು

D. 80 ವರ್ಷಗಳು

Q2 Family ages ENGLISH

Sujit is three times as old as his son, and his daughter is 3 years younger than the son. If the sum of the ages of these three people 3 years ago from now was 88 years, then Sujit's present age (in years) is

A. 48

B. 60 ✓

C. 56

D. 66



Algebra

15 Questions • Answer Key

Q1 Consecutive numbers **ENGLISH**

The product of two consecutive natural numbers is 506.
The greater of the two numbers is:

A. 17

B. 23

C. 18

D. 21

Q2 Consecutive numbers **ENGLISH**

The sum of the squares of two consecutive even natural numbers is 3700. The sum of the numbers is:

A. 72

B. 86

C. 96

D. 80

Q3 Consecutive odd numbers

ಎರಡು ಕ್ರಮಾನುಗತ ಸ್ವಾಭಾವಿಕ ಬೆಸ ಸಂಖ್ಯೆಗಳ ವರ್ಗಗಳ ಮೊತ್ತವು 3530 ಆಗಿದೆ. ಹಾಗಾದರೆ ಆ ಸಂಖ್ಯೆಗಳ ಮೊತ್ತ ಎಷ್ಟು?

A. 84

B. 100

C. 98

D. 80

Q4 Polynomial remainder

$(x^2 - 4x + 7)$ ಅನ್ನು $(x - 2)$ ನಿಂದ ಭಾಗಿಸಿದಾಗ ಉಳಿಯುವ ಶೇಷ ಎಷ್ಟು?

A. -1

B. 3

C. 7

D. 1

Q5 Quadratic common root **ENGLISH**

The equations $x^2 - 5x + 6 = 0$ and $x^2 + ax + b = 0$, have exactly one common root, and the other root of the second equation is -4. Among the following, which are the possible values of a and b?

A. $a=2, b=-8$ B. $a=5, b=-20$ C. $a=3, b=-6$ D. $a=1, b=12$ Q6 Rectangle area equation **ENGLISH**

The length of a rectangular field is 34 m more than its breadth. Its area is 5040 m^2 . Its breadth (in m) is:

A. 54

B. 44

C. 56

D. 37

Q7 Equations **ENGLISH**

The quadratic equation whose roots are $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ is:

A. $2x^2 - (4\sqrt{2})x - 1 = 0$

B. $3x^2 - (2\sqrt{2})x - 1 = 0$

C. $2x^2 + (2\sqrt{5})x + 1 = 0$

D. $2x^2 - (2\sqrt{2})x + 1 = 0$



Q8 Equations **ENGLISH**

Solve the following linear equations.

$$x + y - 2z = 10, \quad 3x + y - z = 12, \quad x + 2y - z = 5$$

A. $x = -3, y = 1, z = 4$

B. $x = 4, y = -1, z = -3$

C. $x = 3, y = -1, z = -4$ ✓

D. $x = -4, y = 1, z = 3$

Q9 Equations

$$\frac{x-3}{x-4} + \frac{x-6}{x-5} = \frac{5}{2}$$
 ಈ ಸಮೀಕರಣದ ಶೋಧಕವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. -6

B. -7 ✓

C. 6

D. 7

Q10 Equations

$$ax^3 - 24x^2 + 188x - 480 = 0$$
 ಈ ಸಮೀಕರಣದ ಮೂಲಗಳು ಮೂರು ಕ್ರಮಾನುಗತ ಸಮ ಸ್ವಾಭಾವಿಕ ಸಂಖ್ಯೆಗಳಾಗಿವೆ. ಹಾಗಾದರೆ a ಯ ಮೌಲ್ಯ ಎಷ್ಟು?

A. 3

B. 4

C. 2

D. 1 ✓

Q11 Linear equations **ENGLISH**

Solve the following linear equations.

$$2x + 3y - 5z = 4,$$

$$x + 3y - 2z = 12,$$

$$2x + y - 3z = 5$$

A. $x = \frac{43}{8}, y = \frac{-65}{8}, z = \frac{-39}{8}$

B. $x = \frac{43}{8}, y = \frac{65}{8}, z = \frac{39}{8}$

C. $x = \frac{-43}{8}, y = \frac{-65}{8}, z = \frac{39}{8}$

D. $x = \frac{65}{8}, y = \frac{39}{8}, z = \frac{43}{8}$ ✓



Q12 Quadratic equations ENGLISH

Consider a quadratic equation $3x^2 + 4x - 8 = 0$. Which of the following quadratic equations will have both roots common with the given quadratic equation?

A. $-1.5x^2 - 2x + 4 = 0$ ✓

B. $3x^2 + 4x + 8 = 0$

C. $3x^2 - 4x + 8 = 0$

D. $-1.5x^2 + 2x + 4 = 0$

Q13 Quadratic roots ENGLISH

One root of the quadratic equation $2x^2 + (k+3)x + 2k = 0$ is reciprocal of the other. Find the roots.

A. -1 and 1

B. 1 and 1

C. $\frac{1}{2}$ and 2

D. -1 and -1 ✓

Q14 Quadratic roots ENGLISH

Let a and b be roots of the equation $x^2 - 7x + c = 0$, and the roots of the equation $x^2 - dx + 216 = 0$ are a^2b and b^2a . The value of d is ____.

A. 45

B. 42 ✓

C. 48

D. 40

Q15 Quadratic roots

$15x^2 - x - 2 = 0$ ಈ ವರ್ಗ ಸಮೀಕರಣದ ಮೂಲಗಳನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. $x = \frac{1}{3}$ $x = \frac{-2}{5}$

B. $x = \frac{-1}{3}$ $x = \frac{-2}{5}$

C. $x = \frac{-1}{3}$ $x = \frac{2}{5}$ ✓

D. $x = \frac{1}{3}$ $x = \frac{2}{5}$



Algebra

3 Questions • Answer Key

Q1 Algebraic identities ENGLISH

If $\frac{x}{x^2 - 4x + 1} = \frac{1}{9}$, then the value of $x^3 + \frac{1}{x^3}$ is:

A. 2158



B. 1256

C. 1839

D. 729

Q2 Algebraic identities ENGLISH

If $(5x + 1)^3 + (x + 3)^3 + 8(3x - 4)^3 = 6(5x + 1)(x + 3)(3x - 4)$, then the value of x is:

A. $\frac{2}{3}$ B. $\frac{1}{3}$ C. $\frac{1}{4}$ D. $\frac{1}{2}$

Q3 Algebraic identities ENGLISH

If $x + \frac{1}{17x} = 3$, then the value of $17x^3 + \frac{1}{289x^3}$ is:

A. 345

B. 435

C. 534

D. 450



Algebra

6 Questions • Answer Key

Q1 Roots and surds ENGLISH

If $x = \sqrt[3]{512}$, $y = \sqrt[6]{64}$ and $z = 6^3 - 2 \times 10^2$, then $\sqrt[3]{10(x^2 + y^3 + z + 12)}$ is equal to:

- A. 20
B. 30
C. 40
D. 10



Q2 Roots and surds ENGLISH

The value of $\sqrt{\left(42 + \sqrt{\left(46 + \sqrt{\left(3 + \sqrt{\left(34 + \sqrt{(4)}\right)}\right)}\right)}\right)}$ is:

- A. 9
B. 11
C. 8
D. 7



Q3 Roots and surds

ಇದರ ಮೌಲ್ಯ ಎಷ್ಟು?

$\sqrt{\left(77 + \sqrt{\left(12 + \sqrt{\left(10 + \sqrt{\left(32 + \sqrt{(16)}\right)}\right)}\right)}\right)}$

- A. 8
B. 9
C. 13
D. 11



Q4 Roots and surds ENGLISH

Simplify : $\frac{\sqrt[3]{5832}}{\sqrt[4]{1296}} \times \frac{3}{54} \times 168$

A. 25

B. 18

C. 36

D. 28



Q5 Roots and surds ENGLISH

The value of $\sqrt{\left(17 + \sqrt{\left(57 + \sqrt{\left(45 + \sqrt{\left(7 + \sqrt{(81)}\right)}\right)}\right)}\right)}$ is:

A. 1

B. 2

C. 7

D. 5



Q6 Roots and surds ENGLISH

The value of $\sqrt{\left(90 + \sqrt{\left(97 + \sqrt{\left(4 + \sqrt{\left(19 + \sqrt{(36)}\right)}\right)}\right)}\right)}$ is:

A. 9

B. 10

C. 12

D. 7



Algebra

9 Questions • Answer Key

Q1 BODMAS simplification

178 - 7 x (3 + 17) + 22 ಇದರ ಸರಳೀಕೃತ ಮೌಲ್ಯ ಎಷ್ಟು?

A. 67

B. 66

C. 60



D. 58

Q2 BODMAS simplification ENGLISH

Simplify the following.

 $294 \div [10 \div 5 \times \{11 + 12 - (8 + 5 - (10 + 1))\}]$

A. 2

B. 15

C. 7



D. 4

Q3 Bracket simplification ENGLISH

Simplify the following.

 $112 \div [16 \div 8 \times \{18 + 12 - (3 + 10 - (4 + 7))\}]$

A. 4

B. 3

C. 11

D. 2



Q4 Bracket simplification ENGLISH

Simplify: $23 - [3 - \{9 - (4 + 5)\}]$

A. 24

B. 27

C. 20



D. 17

Q5 Bracket simplification ENGLISH

Simplify: $52 - \{38 \div (4 \times 7 - 9)\}$

A. 46

B. 50



C. 55

D. 57

Q6 Simplification ENGLISH

*[Question text / figure not saved in the source paper record. Options and official answer as released.]*A. $\frac{31}{40}$ B. $\frac{41}{40}$ C. $\frac{37}{40}$ D. $\frac{47}{40}$ 

Q7 Simplification **ENGLISH**

Simplify: $88 - 1 \times (5 + 12) - 19$

A. 60

B. 52



C. 62

D. 54

Q8 Simplification

ಈ ಗಣಿತೋಕ್ತಿಯ ಮೌಲ್ಯ ಎಷ್ಟು?

$$4^3 - 7^2 + \left(\frac{16}{4}\right)^2 - 4 + 9 \times 1 = \underline{\hspace{2cm}}$$

A. 36



B. 44

C. 33

D. 42

Q9 Simplification

ಸರಳೀಕರಿಸಿ: $110 - 42 \times (5 + 6) - 6$

A. -363

B. -350

C. -348

D. -358



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Geometry

3 Questions • Answer Key

Q1 Incircle area ENGLISH

The lengths of the three sides of a triangle are 13 cm, 14 cm and 15 cm, respectively. Find the area (in cm^2) of the incircle of this triangle. [Use $\pi = 3.14$]

A. 50.24



B. 56.52

C. 53.38

D. 47.10

Q2 Triangle centres ENGLISH

O and C are respectively the orthocentre and the circumcentre of an acute angled triangle ΔPQR . $\angle QCR = 138^\circ$. A perpendicular PM is dropped from P on side QR. If $\angle PQR = 52^\circ$, what is the degree measure of $\angle RPM$?

A. 69

B. 42

C. 31



D. 38

Q3 Triangle properties ENGLISH

Choose the correct statements about triangles from the ones given below:

A. A triangle can be formed with sides 9 cm, 13 cm, 3 cm.

B. In ΔPQR , if $\angle P = 50^\circ$, $\angle Q = 30^\circ$, then QR is the longest side of the triangle.

C. Area of an equilateral triangle of side 6 cm is $18\sqrt{3} \text{ cm}^2$.

D. In ΔDEF and ΔPQR , $\angle D = \angle P$, $\angle E = \angle Q$ and $DF = PR$. Then ΔDEF is congruent to ΔPQR .

A. Only A, B, C

B. Only B, C, D

C. Only D



D. Only A



Geometry

3 Questions • Answer Key

Q1 Tangents to circle ENGLISH

Let C be a circle with center O. Let AB be a tangent to C, such that AB touches the circle at P. Let X and Y be any two points on C. If $\angle APX = 60^\circ$ and $\angle BPY = 30^\circ$, find $\angle PYX$ and $\angle PXY$, respectively.

A. $60^\circ, 30^\circ$ ✓B. $30^\circ, 60^\circ$ C. $90^\circ, 30^\circ$ D. $90^\circ, 60^\circ$

Q2 Tangents to circle ENGLISH

Let C be a circle with centre O, and R be an external point to C. Let RP and RQ be two tangents to circle C with P and Q being the points of tangency, respectively. If $\angle PRQ = 60^\circ$, then find $\angle POQ$.

A. 100° B. 60° C. 80° D. 120° ✓

Q3 Tangents to circles

A ಮತ್ತು B ಕೇಂದ್ರಗಳನ್ನು ಹೊಂದಿರುವ ಎರಡು ವೃತ್ತಗಳು M ಬಿಂದುವಿನಲ್ಲಿ ಬಾಹ್ಯವಾಗಿ ಸ್ಪರ್ಶಿಸುತ್ತವೆ. M ನಲ್ಲಿರುವ ಸ್ಪರ್ಶಕದ ಮೇಲಿನ P ಬಿಂದುವಿನಿಂದ, PQ ಮತ್ತು PR ಸ್ಪರ್ಶಕಗಳನ್ನು ಕ್ರಮವಾಗಿ Q ಮತ್ತು R ಸಂಪರ್ಕ ಬಿಂದುಗಳನ್ನು ಹೊಂದಿರುವ ವೃತ್ತಗಳಿಗೆ ಎಳೆಯಲಾಗುತ್ತದೆ. ಒಂದುವೇಳೆ $AP = 13 \text{ cm}$ ಮತ್ತು $AM = 5 \text{ cm}$ ಆಗಿದ್ದರೆ, $PQ + PR - PM$ ನ ಮೌಲ್ಯವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. 13 cm

B. 14 cm

C. 10 cm

D. 12 cm ✓



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Q1 Hexagon in circle ENGLISH

A regular hexagon is inscribed in a circle. If the length of the shortest diagonal of the hexagon is 12 cm, find one-sixth of the area (in cm^2) of the region lying between the circle and the hexagon.

A. $6(2\pi - 3\sqrt{3})$

B. $4(3\pi - 2\sqrt{3})$

C. $6(3\pi - 2\sqrt{3})$

D. $4(2\pi - 3\sqrt{3})$



Mensuration

2 Questions • Answer Key

Q1 Parallelogram area ENGLISH

The base and the corresponding height of a parallelogram are 93 cm and 29 cm, respectively. The area of the parallelogram (in cm^2) is:

A. 2697



B. 2696

C. 2701

D. 2714

Q2 Rectangle area ENGLISH

The length of a rectangular ground is 21 m more than its breadth. Its area is $31,042 \text{ m}^2$. Its breadth (in m) is:

A. 166



B. 151

C. 161

D. 182



Mensuration

14 Questions • Answer Key

Q1 Cone filling from pipe

6 mm ವ್ಯಾಸದ ಸಿಲಿಂಡರಾಕಾರದ ಕೊಳವೆಯಿಂದ 10 m/min ದರದಲ್ಲಿ ನೀರು ಹರಿಯುತ್ತಿದೆ. ಹಾಗಾದರೆ ಪಾದದಲ್ಲಿ 60 cm ವ್ಯಾಸ ಮತ್ತು 21 cm ಆಳವಿರುವ ಶಂಕುವಿನಾಕಾರದ ಪಾತ್ರೆಯನ್ನು ತುಂಬಲು ಎಷ್ಟು ಸಮಯ ಬೇಕಾಗುತ್ತದೆ?

- A. 1 ಗಂಟೆ, 20 ನಿಮಿಷಗಳು
B. 1 ಗಂಟೆ, 6 ನಿಮಿಷಗಳು
C. 1 ಗಂಟೆ, 12 ನಿಮಿಷಗಳು
D. 1 ಗಂಟೆ, 10 ನಿಮಿಷಗಳು

Q2 Cone surface area ENGLISH

The radius of a solid right circular cone is 24 cm and its height is 32 cm. The total surface area of the cone is:

- A. $960\pi \text{ cm}^2$
B. $1536\pi \text{ cm}^2$
C. $576\pi \text{ cm}^2$
D. $1728\pi \text{ cm}^2$

Q3 Cube surface area ENGLISH

A cubical gift box has each side measuring 12.4 cm. It is to be wrapped all over with a gift paper. Find the area to be wrapped.

- A. 1022.45 cm²
B. 822.75 cm²
C. 922.56 cm²
D. 1082.50 cm²

Q4 Cube surface area ENGLISH

The total surface area (in m²) of a cube, each of whose edges measures 285 m, is:

- A. 487344
B. 487350
C. 487362
D. 487308



Q5 Cuboid dimensions

ಒಂದು ಘನಾಭದ ಉದ್ದವು ಅದರ ಎತ್ತರದ ಮೂರು ಪಟ್ಟು ಇದೆ ಮತ್ತು ಅಗಲವು ಎತ್ತರದ ಎರಡು ಪಟ್ಟು ಇದೆ. ಒಂದುವೇಳೆ ಎತ್ತರವು $(x^2 + 2)$ cm ಆಗಿದ್ದರೆ, $x = 2$ ರಲ್ಲಿ ಘನಾಭದ ಪಾರ್ಶ್ವ ಮೇಲ್ಮೈ ವಿಸ್ತೀರ್ಣವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

- A. 240 cm²
B. 360 cm²
C. 300 cm²
D. 420 cm²

Q6 Cuboid surface area ENGLISH

The internal surface area (in m²) of an open cuboidal tank whose internal length, internal breadth and internal height are given as 3 m, 11 m, and 9 m, respectively, is:

- A. 285
B. 314
C. 303
D. 295

Q7 Sphere to cones ENGLISH

A solid sphere is melted and recast into 18 identical cones, each having a base radius of 3 cm and height of 18 cm. Find the radius of the sphere.

- A. 9 cm
B. 8 cm
C. 7 cm
D. 10 cm



Q8 3D Mensuration **ENGLISH**

Find the volume of a hemisphere, the circumference of whose base is 35.2 cm

(rounded off to two places of decimals; use $\pi = \frac{22}{7}$).

A. 363.56 cm³

B. 369.34 cm³

C. 367.96 cm³

D. 361.25 cm³

**Q9** Cone surface area

ಒಂದು ಶಂಕುವಿನ ತ್ರಿಜ್ಯ ಮತ್ತು ಓರೆ ಎತ್ತರ ಕ್ರಮವಾಗಿ 59.5 cm ಮತ್ತು 85 cm ಆಗಿದ್ದರೆ, ಅದರ ಒಟ್ಟು ಮೇಲ್ಮೈ ವಿಸ್ತೀರ್ಣವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

$\pi = \frac{22}{7}$ ಬಳಸಿ.

A. 27,021.5 cm²

B. 27,000.5 cm²

C. 30,021.5 cm²

D. 28,021.5 cm²

**Q10** Cone tent cloth

ಪಾದದ ವ್ಯಾಸ 14 ಮೀಟರ್ ಇರುವ ಮತ್ತು 9.5 ಮೀಟರ್ ಓರೆ ಎತ್ತರವಿರುವ ಒಂದು ಶಂಕುವಿನಾಕಾರದ ಡೇರೆಯನ್ನು ನಿರ್ಮಿಸಲು 2 ಮೀಟರ್ ಅಗಲದ ಎಷ್ಟು ಮೀಟರ್ ಬಟ್ಟೆ ಬೇಕಾಗುತ್ತದೆ?

($\pi = \frac{22}{7}$ ಬಳಸಿ)

A. 114.5

B. 109.5

C. 104.5

D. 124.5

**Q11** Cone toy volume **ENGLISH**

A toy manufacturer originally makes a conical toy with a base radius of 3 cm and a height of 7 cm. Due to customer demand, he now wants to produce a similar toy that has 75% of the original volume, while keeping the same base radius as before. What should be the height of the new toy? (Take $\pi = \frac{22}{7}$)

A. 5.25 cm

B. 5.5 cm

C. 5.75 cm

D. 5.125 cm



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Q12 Cylinder rolling **ENGLISH**

A road roller of diameter 2.24 m and length 1 m has to press a ground of area 880 m². How many revolutions does it make to complete the work?

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

A. 109

B. 100

C. 114

D. 125

**Q13** Cylinder volume **ENGLISH**

A cylindrical vessel contains 154 litres of water. If the radius of the base is 14 cm, the height (in cm) of the water column in the vessel is:

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

A. 250 cm

B. 260 cm

C. 240 cm

D. 275 cm

**Q14** Sphere volume

2.1 cm ತ್ರಿಜ್ಯವನ್ನು ಹೊಂದಿರುವ ಘನ ಗೋಳದ ಘನಫಲ (cm³ ಗಳಲ್ಲಿ) ಎಷ್ಟು (ಎರಡು ದಶಮಾಂಶ ಸ್ಥಳಗಳಿಗೆ ಸರಿಹೊಂದಿಸಿ)? ($\pi = \frac{22}{7}$ ಬಳಸಿ)

A. 36.80

B. 34.81

C. 32.80

D. 38.81



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Trigonometry

2 Questions • Answer Key

Q1 Trig identities ENGLISH

If $\operatorname{cosec}^2\theta + 4\sin^2\theta = 4$, where $0^\circ \leq \theta \leq 90^\circ$, then find the value of θ .

A. 60° B. 45° ✓C. 90° D. 30°

Q2 Trig identities ENGLISH

[Question text / figure not saved in the source paper record. Options and official answer as released.]

A. $\frac{-6 - \sqrt{5}}{31}$ ✓B. $\frac{-7 - \sqrt{5}}{31}$ C. $\frac{-6 - \sqrt{5}}{36}$ D. $\frac{-6 - \sqrt{5}}{41}$ 

Trigonometry

3 Questions • Answer Key

Q1 Angle of depression ENGLISH

From the top of a cliff the angle of depression of a point on the ground 240 feet away from the bottom of the cliff is 30° . Find the height of the cliff (in feet, rounded off to the nearest integer).

(Use $\sqrt{3} = 1.732$)

A. 146

B. 124

C. 130

D. 139

Q2 Height of tower ENGLISH

A person standing 20 meters away from the base of a tower observes that the angle of elevation to the top of the tower is 60° . Find the height of the tower. (Rounded off to two decimal places)

A. 36.67 m

B. 34.64 m

C. 32.60 m

D. 38.38 m

Q3 Height and Distance ENGLISH

A man, 1.8 m tall, is standing on a 1.0 m high platform near its edge, to observe the top of a building.

The building is at distance of $25\sqrt{3}$ m away from the platform. The angle of elevation from his eye to the top of the building is 30° . The height (in m) of the building is:

A. 26.8

B. 27.8

C. 25.8

D. 28.8



Number System

2 Questions • Answer Key

Q1 Consecutive numbers ENGLISH

The product of two consecutive natural numbers is 12.
The greater of the two numbers is:

A. 6

B. 3

C. 2

D. 4



Q2 HCF rows

ಒಬ್ಬ ರೈತನು 95 ಮಾವಿನ ಗಿಡಗಳು, 171 ಆಲದ ಗಿಡಗಳು ಮತ್ತು 152 ಬಾಳೆ ಗಿಡಗಳನ್ನು ಸಮಾನ ಸಾಲುಗಳಲ್ಲಿ (ಗಿಡಗಳ ಸಂಖ್ಯೆಯ ಪ್ರಕಾರ) ನೆಡಲು ಬಯಸುತ್ತಾನೆ. ಅಲ್ಲದೆ ಅವನು ಪ್ರತಿ ಸಾಲಿನಲ್ಲಿ ಒಂದೇ ಪ್ರಕಾರದ ಗಿಡಗಳನ್ನು ಹೊಂದಿರುವ ವಿಭಿನ್ನ ಸಾಲುಗಳನ್ನು ರಚಿಸಲು ಬಯಸುತ್ತಾನೆ. ಹಾಗಾದರೆ ಅಗತ್ಯವಿರುವ ಕನಿಷ್ಠ ಸಾಲುಗಳ ಸಂಖ್ಯೆಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A. 22



B. 23

C. 19

D. 18



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Number System

10 Questions • Answer Key

Q1 Divisibility by 9 ENGLISH

The 7-digit number 93A562B is divisible by 9, What is the minimum value of (A + B)?

A. 5

B. 7

C. 4

D. 2

Q2 Divisibility by 9 ENGLISH

The 7-digit number 57A001B is divisible by 9. What is the minimum value of (A + B)?

A. 8

B. 2

C. 3

D. 5

Q3 Divisibility rules ENGLISH

The number 343264 is divisible by:

A. 27

B. 43

C. 29

D. 32

Q4 Divisibility tests ENGLISH

Which of the following numbers is divisible by both 9 and 43?

A. 7095

B. 8901



C. 7230

D. 10710

Q5 LCM ENGLISH

Find the LCM of 8, 12, and 20.

A. 180

B. 120



C. 60

D. 150

Q6 LCM of intervals ENGLISH

Three bells ring at intervals of 4, 6, and 9 minutes, respectively. If they all ring together at 9:00 a.m., at what time will they ring together again?

A. 9:54 a.m.

B. 9:36 a.m.



C. 9:42 a.m.

D. 9:48 a.m.

Q7 LCM of products ENGLISH

The LCM of $2^3 \times 6^2 \times 11$, $2^2 \times 11^2 \times 17$ and $6^3 \times 11^2 \times 17^2$ is:

A. $25 \times 33 \times 112 \times 172$ B. $24 \times 34 \times 112 \times 172$ C. $24 \times 33 \times 112 \times 172$ D. $25 \times 34 \times 112 \times 172$

Q8 LCM of products

$5^3 \times 8^2 \times 12$, $5^2 \times 12^2 \times 16$ ಮತ್ತು $8^3 \times 12^2 \times 16^2$ ಗಳ ಲ.ಸಾ.ಅ. ಎಷ್ಟು?

A. $222 \times 32 \times 53$ B. $219 \times 32 \times 53$ C. $220 \times 32 \times 53$ D. $221 \times 32 \times 53$ 

Q9 LCM remainder **ENGLISH**

Find the least number which when divided by 5, 6, 3 and 4 leaves a remainder 2, but when divided by 7 leaves no remainder.

A. 147

B. 198

C. 182



D. 168

Q10 Remainder power **ENGLISH**

What is the remainder when 3^{939} is divided by 8?

A. 3



B. 5

C. 0

D. 2



Number System

8 Questions • Answer Key

Q1 Number series ENGLISH

What should come in place of '?' in the given series?

23 34 45 56 67 ?

A. 75

B. 76

C. 78



D. 77

Q2 Number series ENGLISH

What should come in place of the question mark (?) in the given series?

7 10 16 25 37 ?

A. 52



B. 50

C. 51

D. 53

Q3 Number series ENGLISH

What should come in place of '?' in the given series?

3 8 6 11 9 14 ?

A. 17

B. 16

C. 12



D. 15

Q4 Number series ENGLISH

What should come in place of the question mark (?) in the given series?

10 13 19 28 40 ?

A. 53

B. 52

C. 55



D. 54

Q5 Number series

ಕೆಳಗೆ ಕೊಟ್ಟಿರುವ ಸರಣಿಯಲ್ಲಿ ಪ್ರಶ್ನಾರ್ಥಕ ಚಿಹ್ನೆಯ (?) ಜಾಗದಲ್ಲಿ ಯಾವುದು ಸರಿಹೊಂದುತ್ತದೆ?

115, 119, 127, 139, 155, ?

A. 171

B. 175



C. 173

D. 177

Q6 Number series

ಕೊಟ್ಟಿರುವ ಸರಣಿಯಲ್ಲಿನ ಪ್ರಶ್ನಾರ್ಥಕ ಚಿಹ್ನೆಯ '?' ಜಾಗದಲ್ಲಿ ಯಾವ ಆಯ್ಕೆ ಬರಬೇಕು?

250 200 160 130 ?

A. 110



B. 90

C. 100

D. 120

Q7 Number series ENGLISH

What should come in place of the question mark (?) in the given series?

6 19 45 97 201 ?

A. 403

B. 400

C. 406

D. 409



Q8 Number series ENGLISH

What should come in place of '?' in the given series?

145 129 113 97 81 ?

A. 64

B. 63

C. 65



D. 61



Number System

1 Question • Answer Key

Q1 Number System ENGLISH

The HCF and the LCM of two numbers are 15 and 300, respectively. If one of the numbers is $\frac{5}{4}$ times of the other, what is the larger number?

A. 110

B. 84

C. 75



D. 88



Statistics

12 Questions • Answer Key

Q1 Assumed mean **ENGLISH**

In the Assumed Mean Method, if the assumed mean (A) = 55 and an observed value $x = 40$, what is the deviation d ?

A. 1.5

B. -15

C. -1.5

D. 15

Q2 Data central tendency **ENGLISH**

The following data represents the number of goals scored by a football team in 10 matches.

2, 3, 1, 4, 2, 5, 2, 3, 2, 4

The mode of the above data is x . If one more match is played, and the team scores 3 goals, what will be the difference between the previous mode and the new mode?

A. 2

B. 0

C. 3

D. 1

Q3 Harmonic mean **ENGLISH**

The harmonic mean of 4, 8 and 16 is (Rounded off to four decimal places)

A. 6.8517

B. 6.5817

C. 6.5871

D. 6.8571

Q7 Mean median mode **ENGLISH**

If the mode and median of a certain data are 24 and 18, respectively, then the mean of the data is:

A. 15

B. 20

C. 22

D. 24

Q4 Median **ENGLISH**

Find the median of the following data.

7, 19, 88, 20, 19, 26, 90, 81, 44, 34.

A. 30

B. 28

C. 32

D. 34

Q5 Mode

10 ವಿದ್ಯಾರ್ಥಿಗಳು ಗಳಿಸಿದ ಅಂಕಗಳನ್ನು ಈ ಕೆಳಗೆ ನೀಡಲಾಗಿದೆ.

12, 12, 20, 12, 12, 17, 17, 18, 18, 13

ಈ ದತ್ತಾಂಶದ ರೂಢಿಬೆಲೆ ಎಷ್ಟು?

A. 20

B. 17

C. 15

D. 12

Q6 Weighted mean **ENGLISH**

A student scored 60, 70, and 80 in three subjects with weights 2, 3, and 5, respectively. What is the weighted mean score?

A. 71

B. 77

C. 73

D. 75



Q8 Mean median mode ENGLISH

Find the median from the following data.

Age in years	15-25	25-35	35-45	45-55	55-65	65-75	75-85
No. of patients	10	17	22	26	30	24	21

A. 70 years

B. 55 years

C. 47 years

D. 65 years

Q9 Mean median mode ENGLISH

What is the mean of the following distribution?

Marks	10	28	48	69	87
No. of Students	15	34	37	44	12

A. 78

B. 34

C. 49

D. 71

Q10 Mean median mode

ಸಮರ್ಥನೆ (A) : ಕೊಟ್ಟಿರುವ ದತ್ತಾಂಶ (ಏರಿಕೆ ಕ್ರಮದಲ್ಲಿ ನೀಡಲಾಗಿದೆ) : 26, 29, 42, 53, x , $x + 2$, 70, 75, 82, 93 ರ ಮಧ್ಯಾಂಕವು 60 ಆಗಿದ್ದರೆ, x ನ ಮೌಲ್ಯವು 59 ಆಗಿರುತ್ತದೆ.

ಕಾರಣ (R) : ಕೊಟ್ಟಿರುವ ವೀಕ್ಷಣೆಗಳ ಸಂಖ್ಯೆಯು (n) ಸಮಸಂಖ್ಯೆಯಾಗಿದ್ದರೆ, ಮಧ್ಯಾಂಕವು $\frac{1}{2}$ (ಮಧ್ಯಮ ಪದಗಳ ಮೊತ್ತ) ಮೌಲ್ಯವನ್ನು ಹೊಂದಿರುತ್ತದೆ.

ಕೊಟ್ಟಿರುವ ದತ್ತಾಂಶವು ಏರಿಕೆ ಕ್ರಮದಲ್ಲಿದೆ.

A. ಸಮರ್ಥನೆ (A) ಸರಿಯಾಗಿದೆ ಆದರೆ ಕಾರಣ (R) ತಪ್ಪಾಗಿದೆ

B. ಸಮರ್ಥನೆ (A) ಮತ್ತು ಕಾರಣ ಎರಡೂ ಸರಿಯಾಗಿವೆ ಮತ್ತು R ಎಂಬುದು A ಗೆ ಸರಿಯಾದ ವಿವರಣೆಯಲ್ಲ

C. ಸಮರ್ಥನೆ (A) ಮತ್ತು ಕಾರಣ ಎರಡೂ ಸರಿಯಾಗಿವೆ ಮತ್ತು R ಎಂಬುದು A ಗೆ ಸರಿಯಾದ ವಿವರಣೆಯಾಗಿದೆ

D. ಸಮರ್ಥನೆ (A) ತಪ್ಪಾಗಿದೆ ಆದರೆ ಕಾರಣ (R) ಸರಿಯಾಗಿದೆ



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Q11 Mean median mode **ENGLISH**

The mean marks of the following distribution is:

Marks Obtained	No. of Students
36	12
35	11
93	18
17	5

A. 56



B. 75

C. 60

D. 72

Q12 Mode grouped data **ENGLISH**

Find the mode of the given data (correct to two places of decimal).

Class interval	0-6	6-12	12-18	18-24	24-30
Frequency	8	7	5	9	4

A. 20.67



B. 22.45

C. 19.24

D. 21.36



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Q1 Standard deviation ENGLISH

Standard deviation of 10, 12, 9, 8, 21 is (correct to two decimals):

A. 4.69



B. 4.89

C. 4.59

D. 4.79

Q2 Standard deviation ENGLISH

Calculate the population standard deviation of the data 13, 17, 23, 26, 31, 28, 15, 34, 17, and 26.

(Round off your answer to two decimal places.)

A. 6.81



B. 7.18

C. 6.19

D. 7.26

