testbook SmartBook

S. CHAND PUBLISHING

4000 BEST Smart Question Bank

Difficulty Level & Chapter Wise Questions

SSC

Quantitative Aptitude in English

Introduction

"Change is the Only Constant" - Heraclitus, Greek Philosopher

Are you a SSC aspirant who is confused with which questions to practice and from where to practice? Aspirants often face a lot of trouble in selecting the right question bank to practice for the exam. Therefore, to ease out the candidate's preparation journey we have launched the **SmartBook,** which is a **Next Generation Smart Question Bank.** This Smart Question Bank is a new way of learning, different from the conventional style of practicing questions.

This SmartBook contains the Best 4000 Questions selected from a pool of more than 1 Lakh questions. Question selection and its bifurcation across 3 different difficulty levels are based on the user's attempt & performance data on each question. Testbook's Data Science Team has extracted and processed tons of data points like the speed of answering, maximum time taken to answer, accuracy trend on each question, toppers & average student's performances, etc. from the students' responses on each question. They have then drawn amazing comparative insights for you.

Why Smart Question Bank?

The candidates will learn to emphasize on key details related to problem-solving with the help of this Smart Question Bank. Testbook has designed SmartBook to reform the approach of question-solving. The salient features of this SmartBook are as follows:

» Best 4000 questions included in this SmartBook have been shortlisted on the basis of performance data of students studying on Testbook's online platform.

» Machine Learning technology has been used to calculate the difficulty level and ideal Time To Answer (TTA) the questions.

» Smart Answer Key is provided to analyze the comparative performance data at each question.

» Free chapter-wise Video Lessons are provided to revise the concepts & tricks before starting the practice which can be accessed by scanning the QR code.

After Solving the Questions Check the Smart Answer Key to:

✓ Check question-wise difficulty level and percentage of students who attempted it correctly or skipped it.

✓ See the detailed & comprehensive solutions of all questions at the end of every chapter.

How to Use This Book?

1. Who among [illegible] following defeated the Mughals in the Battle of Karnal?

TTA : 26 Seconds

A) Ahmed Sh[illegible]odali
B) Nadir Shah
C) [illegible] Scindia
D) Peshwa Balaji

TTA : Ideal **'Time To Answer'** this question

Smart Answer Key

Correct% - Indicates percentage of students who answered the Question Correctly

Skipped% - Indicates percentage of students who Skipped the Question

Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped	Q.	Ans.	Correct / Skipped
1.	[illegible]	Skippe[illegible] 03% 89%		B	26% 63%	31.	B	71% 22%	46.	B	29% 34%		B	28% 23%	76.	B	62% 20%		B	80% 06%
2.	[illegible]	[illegible] 20%	17.	A	77% 19%	32.	A	50% 40%	47.	D	55% 39%	62.	B	54% 35%	77.	C	31% 54%	92.	C	40% 63%

Skipped : 89% of students visited but did not attempt Q1

Correct : 3% of students answered Q1 correctly

Free Video Lessons

The aspirants can access video lessons along with PDF notes, and practice questions for each chapter in this SmartBook. This can be done by scanning a QR code given at the beginning of each chapter.

SCAN QR
code for **FREE video** lessons on this chapter

Level 1 Questions: This level comprises questions from basic fundamental concepts. The students should start with level 1. The questions included in this level shall be based on the direct use of formulae. These types of questions can be solved quickly and shall be helpful for exams like **SSC CGL Tier I, SSC MTS, SSC GD Constable, SSC IMD (Part I), SSC Selection Post (Matric level), etc.**

Level 2 Questions: This level includes questions with moderate difficulty level. These questions shall consist of the applied nature of topics. The expertise in these types of questions will help candidates in exams like **SSC CHSL, SSC CPO, SSC Selection Post (Intermediate level), etc.**

Level 3 Questions: These questions are difficult both in terms of concept as well as calculation. This level of questions is useful for exams like **SSC Selection Post (Graduate level).** In order to enhance your skills in solving tricky and calculation-intensive questions.

Expert's Curated Quantitative Aptitude Preparation Tips for SSC Exams

Every year, lakhs of aspirants are drawn towards examinations that guarantee a job in the Government sector. They all tend to move towards Govt. exams that offer dignified jobs with lucrative salaries and a good lifestyle. Such a type of prodigious exam is conducted by the Staff Selection Commission of India. SSC exam is one the most prestigious exams which offer a plethora of jobs in various Ministries/Departments in the Government of India and Subordinate Offices. However, appearing for the SSC exam is no piece of cake as vacancies are limited, the competition is very high, and the exams are tough. First, have a look at the type of SSC exams and various posts you can apply for.

- One of the major SSC exams is SSC CGL which offers various posts like Assistant Section Officer, Inspector of Income Tax, etc. in different Ministries.
- Another such exam is SSC CHSL which is conducted to recruit eligible candidates for various posts such as Postal Assistant, Lower Divisional Clerks, Court Clerk, Sorting Assistants, Data Entry Operators, etc. in the various departments of Ministries.
- Apart from the above two major exams, some other important exams are SSC MTS Exam for Multitasking Staff, SSC Selection Post, SSC GD Constable, SSC CPO, etc.

The above-mentioned exam contains Quantitative Aptitude as an integral part of the syllabus. Quantitative Aptitude can become one of the high-scoring sections in all major SSC exams if practiced well. The competition level of these exams is already very intense, questions are now quite trickier and SSC has raised the difficulty level of the exam especially for the Quant section. A good preparation strategy combined with expert tips can help you to score good marks in this section. To score good marks in the Quantitative Aptitude section, accuracy combined with speed is an important element that the candidates must turn their attention towards.

Exam Difficulty Level: Matriculation

SSC CGL Tier I, SSC MTS, SSC GD Constable, SSC IMD (Part I) & SSC Selection Post

Have a look at the Expert's Preparation Tip for the SSC CGL Tier I, SSC MTS, SSC GD Constable, SSC IMD (Part I), SSC Selection Post (Matric level) Exams. In these exams, objective-type questions will be asked and the difficulty level of this exam will be of Matriculation level. To get command in this exam NCERT books from the 10th class can be referred, which will help you to know basic and important topics. Have a look at the important topics to cover for the exam.

- Practice basic questions of the 10th level for the Algebra, Geometry, and Mensuration section. Geometry and Mensuration are some of the most important topics to consider, over the years SSC has increased the number of questions asked from this topic. To master this section it is important to visualize the problem, the best way is to draw while you solve it. If you're asked questions on angles, it is advisable to draw them.

- Emphasis on the Number system and Number series. To master, these section candidates must have a good knowledge of number series questions based on numerical sequences that follow a logical rule/pattern based on elementary arithmetic concepts.
- A good number of questions will be asked from the Arithmetic section. The difficulty level of these questions will be easy to moderate. Questions asked from these topics will be Simple Interest-Compound Interest, Time Speed and Distance, etc. Inverse relation and direct relation between time, speed, and distance can help you a lot. Try to memorize formulas daily and try different questions from books and quizzes to know how questions can be twisted in multiple ways.
- The next topic which has good weightage is Data Interpretation, basic tabular or graph-based easy DI questions will be asked. For solving the DI questions you should be comfortable with numbers, calculations, fractions, and percentages. Try to develop shortcut tricks for cube, square and multiplication, etc to solve the questions.

Exam Difficulty Level: **Intermediate**

SSC CHSL, SSC CPO & SSC Selection Post

Exams like SSC CHSL, SSC CPO, and SSC Selection Post are the most desirable exams in which candidates from all across the country appear to try their luck. The difficulty level for these exams will be the Intermediate Level. Candidates who aspire to be a part of this exam can refer to the tips below.

- Questions on Fundamental Arithmetical Operations will be asked on topics like Percentages, Averages, Interest (Simple and Compound), etc. Simple formula-based questions will be asked, but the difficulty level also varies from shift to shift. While attempting these questions, attempt those topics first over which you have a good hold and have been practiced thoroughly.
- A good number of questions will be asked from Mensuration which will be of moderate level of difficulty and time-consuming. Questions will be based on topics like Triangles, Regular Polygon, etc. Learn basic formulas and try to attempt different types of questions to get a command in this section.
- The most important topic to focus on is Algebra and Geometry. From this section moderate to difficult levels of questions will be asked, if this section is prepared well, it will help you to gain good marks. The best way to learn this topic is by mugging up all the Trigonometric Identities and formulas to solve the questions.
- DI is an easy and scoring topic in these exams. Practice different difficulty levels of questions, it will give you a clear idea of different types of questions and also how much time you are investing to solve them.

Exam Difficulty Level: Graduation

SSC CGL Tier-II & SSC Selection Post

Once a candidate clears the SSC CGL Tier 1, he or she will be eligible for Tier II exam. The level of questions asked in SSC CGL Tier 2 and SSC Selection Post will be higher than Tier I. The difficulty level of the exam will be of Graduate Level. Below we have mentioned some important topics to focus on.

- Geometry and Mensuration collectively comprise 20-25 questions and can be called the most important section containing heavy weightage. It is important to have good knowledge of Euclid's five postulates of Geometry. Learn all important formulas like curved surface area, total surface area, and volume by heart.
- Number System, LCM, HCF and Simplification will have a great weightage. It has been observed that approx. 9-10 questions are asked from these topics. These topics are very important because it is the foundation for all other topics in the quant section. Avoid taking this section on a light note as the questions may be tricky sometimes.
- Inverse relation and direct relation between time, speed and distance will help a lot. The concept of relative velocity will help you in solving the problems of trains, boats and streams.
- The next important topic to focus on is Algebra. Memorize basic and functions to get a command in this section.
- DI is an important topic to consider and every year a good number of questions are observed. The golden rule to solve DI questions is to avoid using the calculator for the exam. To boost your calculation power try to solve the questions without the calculators. You should be comfortable with numbers, calculations, fractions and percentages.

Smart Tips for Quantitative Aptitude

Preparing for the Staff Service Commission Exam is one of the most enriching journeys that anyone can embark on. In the SSC Preparation Quant plays a very important role, if prepared well this section can help you score high in the exam.

Know the Exam Pattern & Syllabus and Create A Well Organised Study Plan

- The first step towards the preparation of the SSC exam is to have good knowledge about the exam pattern and syllabus.
- Without planning nothing can be accomplished, planning an effective study schedule will help you to discover ways and methods to study effectively. This schedule will also help you to complete your study over time rather than cramming a night before the exam.

» It is important to take a timely break in between and take some time for leisure activity, rest well or watch a movie or do whatever relaxes your mind. A calm mind is very important to absorb well at the time of the examination.

Build Your Basics Strong

» When you build your basics in Quant, then solving questions is a cakewalk.

» The Quant section of all SSC exams comprises a long list of important formulas and calculations. Good knowledge of important formulas and shortcuts can help you to solve all types of questions in less time.

» To master the Quant section of the examination, a few core skills need to be developed. These include a combination of accuracy and speed, learning important formulas, tricks and the ability to perform simple/complex calculations under pressure.

» Candidates can practice different levels of questions on basics. Once you are well acquainted with the basics switch to an advanced level by learning important formulas and short tricks.

Deliberate Practice and Time Management is Key to Success

» One of the key factors in attaining success in SSC exams is the age-old concept of "practice makes perfect." The better your practice the important Quant question, the more it helps you to attain accuracy and time management.

» It is a very important aspect of all SSC exams that candidates should take care of. If handled well, students will be able to score good marks in the exam. Meticulous preparation is very important for the SSC exam.

Practice Previous Year Papers and Attempt Mock Tests

» Attempting the previous year's paper and mock tests will help you acknowledge your strong and weak points and you will be able to score good marks in the exam. Focus more on your strong points and improve your weaknesses.

» Apart from attempting the previous year paper, practice the mock test to know the latest exam trend, and check your preparation level for the exam.

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FREE CHAPTER

Simplification

Scan QR code for Free Video Lessons on this Chapter.

LEVEL 1 — 1 - 62 Questions

1. If $\sqrt{12-2\sqrt{35}}+\sqrt{8+2\sqrt{15}}=\sqrt{a}+\sqrt{b}$, where a and b are positive integers, then the value of b − a is closest to:
TTA : **48 Seconds**
A) 4 B) 3
C) 2 D) 5

2. If $3\sqrt{3}\times 3^4\div 3^{\left(-\frac{3}{4}\right)}=3^{\left(x+\frac{1}{4}\right)}$, then what is the value of x?
TTA : **69 Seconds**
A) 5 B) 4
C) 6 D) 3

3. $9\frac{3}{4}\div\left[2\frac{1}{6}\div\left\{4\frac{1}{3}-\left(2\frac{1}{2}+\frac{3}{4}\right)\right\}\right]$ is equal to:
TTA : **72 Seconds**
A) 3 B) 39/8
C) 4 D) 15/4

4. Find the value of [(5 of 6) of (8 of 2 − 6) − 7 of (4 of 9 ÷ 3)]
TTA : **42 Seconds**
A) 216 B) 236
C) 108 D) 384

5. If A = 40 ÷ 8 + 5 × 2 − 4 + 5 of 3 and B = 24 ÷ 4 of (4 + 2) + 19 of 2, then what is the value of A − B?
TTA : **71 Seconds**
A) -11 B) 11
C) 13 D) -13

6. If $\sqrt{2x-1}-\sqrt{x-4}=2$, then find the values of 'x'.
TTA : **45 Seconds**
A) 13, 5 B) 6, -9
C) -13, -5 D) -13, 5

7. Select the correct answer of 4 + 4.44 + 4.04 + 44.4 + 444 = ?
TTA : **46 Seconds**
A) 472.88 B) 495.22
C) 577.2 D) None of these

8. Simplify $3\sqrt[4]{80}+4\sqrt[4]{405}-2\sqrt[4]{3125}$
TTA : **74 Seconds**
A) $\sqrt[4]{3}$ B) $8\sqrt[4]{5}$
C) $3\sqrt[4]{5}$ D) $4\sqrt[4]{5}$

9. Find the simplified value of
$\sqrt{5+\sqrt{11+\sqrt{19+\sqrt{29+\sqrt{49}}}}}$
TTA : **21 Seconds**
A) 2 B) 3
C) 4 D) 6

10. One of the factors of (8^{2k} + 5^{2k}), where k is an odd number, is:
TTA : **29 Seconds**
A) 86 B) 89
C) 88 D) 84

11. What is the value of 3 ÷ 3 of 3 + 2 ÷ 4 + (4 × 2 -2) ÷ 12 + 4?
TTA : **49 Seconds**
A) $\frac{14}{3}$ B) $\frac{17}{6}$
C) $\frac{12}{5}$ D) $\frac{16}{3}$

12. The simplified value of
$\left[1\frac{1}{5}\ of\ \left\{\frac{3}{7}-\left(1\frac{4}{15}-\frac{13}{15}\right)\times\frac{5}{7}\right\}\right]\div\left(\frac{6}{7}\div 5\right)\ is:$
TTA : **88 Seconds**
A) 15 B) 215
C) 415 D) 1

13. The value of $-\frac{5}{2}+\frac{3}{2}\div 6\times\frac{1}{2}$ is equal to:
TTA : **41 Seconds**
A) − 1/3 B) − 1/12
C) − 19/8 D) − 9/8

14. If the difference between 62% and 80% of a number is 198, then the difference between 92% and 56% of the number will be:
TTA : **51 Seconds**
A) 360 B) 396
C) 1100 D) 3564

15. Kacita's attendance in her school for the academic session 2018-2019 was 216 days. On computing her attendance, it was observed that her attendance was 90%. The total working days of the school were:
TTA : **36 Seconds**
A) 250 B) 240
C) 194 D) 195

16. If '+' means '-', '-' means '+', '×' means '÷' and '÷' means '×', then the value of $\frac{42-12\times 3+8\div 2+15}{8\times 2-4+9\div 3}$ is:
TTA : **83 Seconds**
A) 15/19 B) 5/3
C) -15/19 D) -5/3

17. The value of 'm' for which $5^m \div 5^{-3} \times 5^{10} = 5^{15}$ is:
TTA : **33 Seconds**
A) 0 B) 1
C) 2 D) 4

18. What will come at the place of '?' in 5√3 × 4√8 × 6√27 × 2√2 = 32 × ?
TTA : **77 Seconds**
A) 220 B) 226
C) 250 D) 270

19. If $x^{2a} = y^{2b} = z^{2c} \neq 0$ and $x^2 = yz$, then the value of $\frac{ab+bc+ca}{bc}$ is:
TTA : **70 Seconds**
A) 3ac B) 3ab
C) 3bc D) 3

20. What will come at the place of k in 3,000 - (1,000 ÷ 5) + 200 - 2,500 = k
TTA : **29 Seconds**

A) 5000 B) 200
C) 50 D) 500

21. The value of $22.\bar{4} + 11.5\overline{67} - 33.5\bar{9}$ is:
TTA : **82 Seconds**
A) $0.\overline{412}$ B) $0.4\overline{12}$
C) $0.\overline{32}$ D) $0.3\bar{1}$

22. What is the difference between the largest and the smallest fractions among 2/3, 3/4, 4/5 and 5/6?
TTA : **46 Seconds**
A) 3/5 B) 1/7
C) 1/6 D) 2/5

23. Simplify:
√[4 + √(44 + √10000)]
TTA : **28 Seconds**
A) 8 B) 4
C) 6 D) 16

24. What is the value of the following?
- 15 + 90 ÷ [89 - { 9 × 8 + (33 - 3 × 7)}]
TTA : **47 Seconds**
A) 3 B) 5
C) 4 D) 2

25. What should come at the place of '?' in the following question? [3.5 × (2.3 + 4.9 − 1.8) ÷ 0.6] ÷ 7 × 0.02 = $?^2$ + 0.05
TTA : **128 Seconds**
A) 0.1 B) 0.2
C) 2 D) 0.3

26. If √X + 0.24 = √0.1296, then find X.
TTA : **57 Seconds**
A) 0.0144 B) 0.12
C) 1.44 D) 0.0012

27. Solve: $\frac{\left(\left(1+\frac{3}{4}-\frac{1}{2}\right)\times\frac{3}{5}\right)}{\left(2\frac{1}{3}-\frac{5}{4}\right)\times\frac{4}{13}}$
TTA : **60 Seconds**
A) 9/4 B) 4
C) 2 D) 1/4

28. If 0.139 + 0.75 + 2.105 − (1.001) × 1.1 = 2 − k, then the value of k is
TTA : **100 Seconds**
A) 0.1071 B) 0.1075
C) 0.8925 D) 0.982

29. The volume of the water in two tanks, A and B, is in the ratio of 6 : 5. The volume of water tank A is increased by 30%. By what percentage should the volume of water in tank B be increased so that both the tanks have the same volume of water?
TTA : **71 Seconds**
A) 18% B) 30%
C) 15% D) 56%

30. 68 is 25% of which of the following numbers ?
TTA : **23 Seconds**
A) 136 B) 285
C) 204 D) 272

31. The sum of two fractions is 5/6. One of them is 3/4. What is the other fraction?
TTA : **46 Seconds**
A) 2/5 B) 1/10
C) 2/2 D) 1/12

32. The value of $0.5\bar{6} - 0.7\overline{23} + 0.3\bar{9} \times 0.\bar{7}$ is:
TTA : **105 Seconds**
A) $0.1\overline{58}$ B) $0.\overline{158}$
C) $0.\overline{154}$ D) $0.1\overline{54}$

33. $3\frac{4}{5} \div \left[\frac{4}{5} \div \frac{65}{2} of \frac{4}{13} \times \left\{\frac{11}{16} \div \left(\frac{6}{5} - \frac{5}{6}\right)\right\}\right]$
TTA : **106 Seconds**
A) 76/3 B) 95/3
C) 13/5 D) 53/25

34. Sachin scored 120 runs, which included 6 boundaries and 4 sixes. What percentage of his total score did he make by running between the wickets?
TTA : **48 Seconds**
A) $46\frac{4}{9}\%$ B) $33\frac{1}{3}\%$
C) 45% D) 60%

35. Simplify: 0.004 × 0.5
TTA : **31 Seconds**
A) 0.02 B) 2
C) 0.2 D) 0.002

36. 0.04 × 0.0123 is equivalent to _____.
TTA : **36 Seconds**
A) 492×10^{-4} B) 4.92×10^{-6}
C) 4.92×10^{-4} D) 492×10^{-5}

37. If 80% of A = 50% of B and B = x% of A, then the value of x is.
TTA : **37 Seconds**
A) 400 B) 300
C) 160 D) 150

38. 21% of a number is 546. What will be 89% of that number?
TTA : **44 Seconds**
A) 900 B) 2116
C) 1200 D) 2314

39. Find the value of '?' in the following question
28.56% of 91 + 44.44% of 162 = 400% of ?
TTA : **93 Seconds**
A) 28.5 B) 24.5
C) 26.5 D) 29.5

40. The value of $0.4\bar{7} + 0.5\overline{03} - 0.3\bar{9} \times 0.\bar{8}$ is:
TTA : **91 Seconds**
A) $0.62\overline{5}$ B) $0.6\overline{15}$
C) $0.62\bar{5}$ D) $0.\overline{615}$

41. Which of the following fractions will divide the expression $\frac{\sqrt[3]{\frac{3}{10}+7\frac{1}{5}-80\% of \frac{4}{5}}}{\sqrt[3]{\frac{4}{50}\div\frac{1}{50}+\frac{4^2}{5}\times\frac{1}{10}}}$ to make it an integer?
TTA : **126 Seconds**
A) 3/4 B) 4/5
C) 5/6 D) 7/6

42. The simplified value of $\frac{\left(3\frac{1}{5}-\frac{3}{5}\right)\div\frac{8}{5}}{1\frac{1}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$

TTA : **59 Seconds**

A) 13/64 B) 13/7

C) 13/8 D) 13/16

43. Find the simplified value of

$\frac{5}{7}\div 2\times\left[\left\{2 \text{ of } \frac{11}{22}+\frac{2}{5}\right\}-\left\{\frac{3}{2} \text{ of } \frac{22}{15}-1\right\}\right]$

TTA : **60 Seconds**

A) 1/11 B) 1/12

C) 1/13 D) 1/14

44. The value of (72 + 34) ÷ 2 + [{(75 ÷ 15) + 6} × 2] is:

TTA : **37 Seconds**

A) 74 B) 75

C) 86 D) 78

45. A General of an Army wants to create a formation of the square from 36562 army men. After arrangement, he found some army men remained unused. Then the number of such army men remained unused was:

TTA : **102 Seconds**

A) 36 B) 65

C) 81 D) 97

46. Find the value of [8 + 3 × 10 − 8 ÷ 2 × 3 + 5 × 16 ÷ 4 − 9].

TTA : **43 Seconds**

A) 39 B) 37

C) 27 D) 47

47. If x = $5\frac{1}{5}+6\frac{2}{5}+7\frac{3}{5}+8\frac{4}{5}$ then find the value of 'x'.

TTA : **42 Seconds**

A) 32 B) 26

C) 29 D) 28

48. What will come at the place of ? in (51 + 51 + 51 + 51 + 51 + 51) × 5 × (51 + 51) × 6 ÷ (51 × 2) = 51 × ?

TTA : **68 Seconds**

A) 180 B) 190

C) 196 D) 168

49. Find the value of x in $\sqrt[3]{15625}-\sqrt{x}=4$

TTA : **47 Seconds**

A) 81 B) 625

C) 441 D) 343

50. If A = 2 then find the value of

$\frac{1}{\left(\sqrt{A}+\sqrt{A+1}-\sqrt{A-2}\right)}+\frac{1}{\sqrt{A+1}-\sqrt{A}+\sqrt{A-2}}$

TTA : **81 Seconds**

A) 1/√A B) 2 × √(A + 1)

C) √(A + 3) D) 1/A

51. If, $x=(125)^{1/6}$ and y = (√45 + √80 + √125)/√180, then find the value of $x^2 + y^2$

TTA : **67 Seconds**

A) 6 B) 7

C) 8 D) 9

52. The value of $9\frac{3}{4}+\left[2\frac{1}{6}\div\left\{4\frac{1}{3}-\left(2\frac{1}{2}+\frac{3}{4}\right)\right\}\right]$ is:

TTA : **80 Seconds**

A) 47/4 B) 15/4

C) 3 D) 4

53. The value of $\frac{33}{40}+\frac{1}{5}\left[\frac{4}{5}-\frac{1}{5}\times\left(\frac{7}{8}-\frac{5}{4}\right)\right]$ is:

TTA : **78 Seconds**

A) 10 B) 0

C) 1 D) 5

54. What will come in the place of the question mark '?' in the following question?

16% of 25 × 88 + 20% of 135 − 16 × (18 − 5% of 200) = ?

TTA : **94 Seconds**

A) 224 B) 169

C) 507 D) 251

55. Two numbers are respectively 25% and 65% more than a third number. The ratio of the two numbers is:

TTA : **36 Seconds**

A) 25 : 42 B) 25 : 33

C) 16 : 17 D) 16 : 19

56. If a/b is a fraction, where a = b - 3 and (a + 10)/b - (a/b) = 10/7, then find a/b.

TTA : **60 Seconds**

A) 4/7 B) 5/8

C) 2/5 D) 8/11

57. Find the value of 100 × 10 × 11 × 1.1 × 1

TTA : **23 Seconds**

A) 12100 B) 13100

C) 12000 D) 13000

58. [4 + 200 ÷ 50 + 3 / 2 of (1 / 5 − 1 / 4)]?

TTA : **77 Seconds**

A) 317 / 40 B) 323 / 40

C) 337 / 40 D) 329 / 40

59. Find the value of '?' in the following question

12.5% of 64 + 0.25 × 4 = $14\frac{2}{7}$ % of ?

TTA : **67 Seconds**

A) 63 B) 62

C) 26 D) 36

60. If $(5^{66}+5^{66}+5^{66}+5^{66}+5^{66})(3^{66}+3^{66}+3^{66})=15^{(x+7)}$, then the value of x/2 is-

TTA : **40 Seconds**

A) 31 B) 20

C) 30 D) 40

61. If $\frac{1}{x}=5+2\sqrt{6}$ and $\frac{1}{y}=1-\sqrt{\frac{2}{3}}$, then value of $\sqrt{x^2+y^2+14\sqrt{6}}$?

TTA : **125 Seconds**

A) 4 B) 12

C) 8 D) 16

62. What is the value of

$\frac{(0.6\times0.6\times0.6)+(0.5\times0.5\times0.5)}{(0.6\times0.6)+(0.5\times0.5)-0.3}$?

TTA : **41 Seconds**

A) 0.1 B) 1.1

C) 0.9 D) 1.2

LEVEL 2 63 - 149 Questions

63. What will come in the place of ? in 323 ÷ 17 × √841 + 12^2 = ?
TTA : **89 Seconds**
A) 784 B) 695
C) 896 D) 986

64. What should come at the place of '?' in the following question?
$\left[\frac{8\frac{2}{5} \times 2\frac{6}{7}}{5}\right] + \left[\frac{\frac{3}{5}+\frac{4}{3}}{\frac{1}{3}}\right] - \left[1\frac{1}{5} \times 3\frac{1}{2}\right] = ?$
TTA : **94 Seconds**
A) 29/5 B) 21/5
C) 6 D) 32/5

65. (3.4 × 3.4) + (2.4 × 2.4) − 16.32 = [(2.8 × 2.8) + (2.2 × 2.2) + 12.32] × x/100, find the value of x?
TTA : **82 Seconds**
A) 5 B) 2
C) 3 D) 4

66. What will come in the place of the question mark '?' in the following question?
$\frac{\sqrt{?}}{3} + 6 \times 2 - 7 = 7$
TTA : **34 Seconds**
A) 25 B) 36
C) 9 D) 64

67. The value of
$\left(18 \div 2\ of\frac{1}{4}\right) \times \left(\frac{2}{3} \div \frac{3}{4} \times \frac{5}{8}\right) \div \left(\frac{2}{3} \div \frac{3}{4} of \frac{3}{4}\right)$ is :
TTA : **116 Seconds**
A) $2\frac{7}{64}$ B) $16\frac{7}{8}$
C) $10\frac{2}{3}$ D) $8\frac{5}{8}$

68. The simplified value of $\frac{3}{4}\ of \frac{4}{15} \times 11\frac{2}{3} - \left(3\frac{1}{2} - 2\frac{1}{6}\right)$ is:
TTA : **65 Seconds**
A) 1/3 B) 2/3
C) 2 D) 1

69. The simplified value of 15 of 8 + 6 + [(27 - 3) ÷ 6 + 4] is:
TTA : **35 Seconds**
A) 136 B) 128
C) 134 D) 130

70. Find the value of '?' in the following question
$\frac{\left(1\frac{3}{5}+1\frac{1}{3}\right) \div \left(1\frac{1}{2}+\frac{1}{3}\right)}{\left(26\%\ of\ 1\frac{7}{13}\right) + \left(\frac{4}{10} \times 1\frac{2}{4} \div \frac{1}{2}\right)} = ?$
TTA : **133 Seconds**
A) 15/13 B) 13
C) 1 D) 2/5

71. What should be come at the place of '?' in the following question? [15 × 2 + 65 ÷ 13 − 216 ÷ 18] + [7 × 9 − 90 ÷ 18] = $3^?$
TTA : **70 Seconds**
A) 4 B) 5
C) 9 D) 7

72. The value of 3 × 2 ÷ 3 of 12 − 3 ÷ 2 × (2 − 3) × 2 + 3 ÷ 2 of 3 is:
TTA : **94 Seconds**
A) $2\frac{1}{3}$ B) $-2\frac{1}{3}$
C) $-3\frac{2}{3}$ D) $3\frac{2}{3}$

73. The value of $\frac{1}{(9-4\sqrt{5})^2} + \frac{1}{(9+4\sqrt{5})^2}$ is:
TTA : **75 Seconds**
A) 322 B) 286
C) 424 D) 246

74. The value of
$4\frac{1}{5} \div \left(2\frac{4}{5} \div \frac{2}{5} of\ 1\frac{2}{3}\right) \times \left[\left(2\frac{3}{4} of\ 1\frac{1}{11} \div \frac{3}{5}\right) \times \frac{2}{5}\right]$ is:
TTA : **93 Seconds**
A) 4 B) 1/23
C) 2 D) 1/4

75. The value of $\frac{(0.03)^2 + (0.75)^2 + (0.091)^2}{(0.003)^2 + (0.075)^2 + (0.0091)^2} = ?$
TTA : **59 Seconds**
A) 10 B) 100
C) 1000 D) 10000

76. 29% of 450 + ? = 2^{12}
TTA : **101 Seconds**
A) 3255.5 B) 4856.5
C) 4386.5 D) 3965.5

77. If 22% of x = 30% of y, then y : x is equal to:
TTA : **25 Seconds**
A) 15 : 11 B) 11 : 15
C) 17 : 16 D) 15 : 14

78. What is to be added to 15% of 180 so that the sum is equal to 20% of 360?
TTA : **46 Seconds**
A) 60 B) 50
C) 45 D) 40

79. 4 + (1/6) [{-10 × (25 − 13 − 3)} ÷ (-5)] = ?
TTA : **54 Seconds**
A) 8 B) 6
C) 7 D) 9

80. If $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$, then what will be the value of a^2 + b^2?
TTA : **49 Seconds**
A) 7 B) 6
C) $\sqrt{8}$ D) 5

81. Find the value of: [(1.569 × 1.569 × 0.431) + (1.569 × 0.431 × 0.431)] / [$(1.569 + 0.431)^2$ − $(1.569 - 0.431)^2$].
TTA : **75 Seconds**
A) 1.5 B) 2
C) 0.5 D) 1

82. What will come in the place of the question mark 'p' in the following question?
√625 ÷ 5 × 3 + 15 - 25 = p + $(9{,}261)^{1/3}$
TTA : **61 Seconds**

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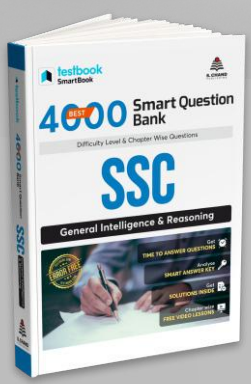

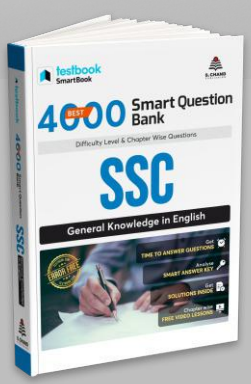

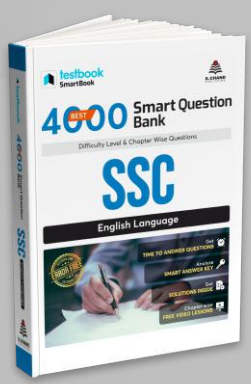

A) 16 B) -16
C) 4 D) -4

83. Find the value of 'x' such that:
(40% of x − 12% of 2x = 15% of 80% of x + 51.4)
TTA : **100 Seconds**
A) 1225 B) 1285
C) 1345 D) 1395

84. Find the value of given expression.
$\frac{3}{1+\frac{1}{1+\frac{2}{7}}} + \frac{9}{1+\frac{2}{1+\frac{3}{7}}} + 31$
TTA : **122 Seconds**
A) 538/16 B) 583/16
C) 538/17 D) 583/17

85. Find the value of 25 × 3/15 + 2 × 25/5 × 3/15 + 12 × 5
TTA : **45 Seconds**
A) 67 B) 61
C) 65 D) 63

86. The value of {400% of 28 ÷ 21 × 12 - $(3)^3$ + 63 - 30 ÷ 3 + 10} is
TTA : **104 Seconds**
A) 0 B) 25
C) 50 D) 100

87. 38% of 250 is equal to:
TTA : **30 Seconds**
A) 76 B) 95
C) 104.5 D) 114

88. The value of 16 ÷ 4 of 4 × [3 ÷ 4 of {4 × 3 ÷ (3 + 3)}] ÷ (2 ÷ 4 of 8) is:
TTA : **85 Seconds**
A) 16 B) 48
C) 9 D) 6

89. The simplified value of $\frac{\left(3\frac{1}{5}+\frac{3}{5}\right)\div\frac{8}{5}}{1\frac{1}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$
TTA : **61 Seconds**
A) 19/8 B) 19/7
C) 19/16 D) 19/64

90. If P = $0.\overline{35}$ and Q = $0.\overline{64}$, then find the value of $(P + Q)^3$?
TTA : **30 Seconds**
A) 0 B) 1
C) 4 D) 5

91. What will come in place of question mark (?) in the following question? $8^{(4x+3)} = 64^{(3x+1)}$, then (2x + 3) = ?
TTA : **49 Seconds**
A) 3 B) 4
C) 6 D) 5

92. If $x = 0.\overline{4}$, $y = 0.\overline{3}$ and $z = 0.\overline{2}$, then find the value of x + y + z.
TTA : **30 Seconds**
A) 1 B) 0
C) 2 D) 3

93. Find x if √(10 + √1521) = 25% of x + √(720 + √81)
TTA : **103 Seconds**
A) -40 B) 40
C) -80 D) 80

94. Find the value of 46 ÷ [25 − {70 ÷ (335 − 150 ÷ 3 × 2 of 3)}].
TTA : **54 Seconds**
A) 0 B) 1
C) 2 D) 5

95. What will come in the place of the question mark '?' in the following question? [√? + 50] = [(25 × 75) − (50 × 35)]
TTA : **83 Seconds**
A) 2575 B) 5625
C) 6525 D) 7525

96. If $3^{\sqrt[3]{x}} + 4^{\sqrt[3]{x}} = 5^{\sqrt[3]{x}}$, then the value of x is:
TTA : **32 Seconds**
A) 2 B) 1
C) 8 D) 4

97. Find the value of $4 + \frac{1}{3+\frac{1}{2+\frac{1}{1+\frac{1}{3}}}}$
TTA : **58 Seconds**
A) 37/159 B) 1
C) 159/37 D) 84/11

98. What will come at the place of ? in √961 ÷ 35 × 630 + ? = 32^2
TTA : **87 Seconds**
A) 325 B) 466
C) 468 D) 390

99. If $x = \frac{2}{1+\frac{2}{3+\frac{1}{4}}}$ and $y = \frac{1}{1+\frac{1}{3+\frac{5}{2}}}$ then find the value of 21x − 13y.
TTA : **80 Seconds**
A) 8 B) 15
C) 25 D) 37

100. If $32^{\frac{1}{3}} \times \left(\frac{1}{2}\right)^{\frac{2}{3}} = 4^k$, then the value of k is:
TTA : **65 Seconds**
A) 1 / 3 B) 3 / 5
C) 1 / 2 D) 1 / 4

101. The simplified value of 20 − [2.8 × 5 + 6 − 3 ÷ 0.9 × 1.5 + 2] is equal to:
TTA : **64 Seconds**
A) 3.6 B) 3.4
C) 3 D) 3.8

102. The value of $1 \div \left[1\frac{1}{8} \div \frac{\left(3\frac{1}{5}+\frac{3}{5}\right)\div\frac{8}{5}}{\left\{\frac{5}{8}+\left(\frac{1}{8}\div\frac{1}{3}\right)\right\}}\right]$ is:
TTA : **75 Seconds**
A) 19/16 B) 19/7
C) 19/9 D) 19/64

103. Find the value of given expression.
$\sqrt{151-\sqrt{882+\sqrt{320+\sqrt[3]{59+5}}}} + \sqrt[3]{214+\sqrt[4]{15+\sqrt{881-900+20}}}$
TTA : **51 Seconds**

A) 21 B) 15
C) 11 D) 17

104. The values of x in $3^{2x^2-7x-7} = 9$ is:
TTA : **77 Seconds**
A) $-\frac{9}{2}$, 1 B) $\frac{9}{2}$, 1
C) $-\frac{9}{2}$, -1 D) $\frac{9}{2}$, -1

105. $3\frac{1}{5} - \left[2\frac{1}{2} - \left\{\frac{5}{6} - \left(\frac{2}{5} + \frac{3}{10} - \frac{4}{15}\right)\right\}\right] = ?$
TTA : **98 Seconds**
A) 11/10 B) 9/10
C) 13/5 D) 6/5

106. What would come at the place of '?' in the following question? (1181 × 2 −324 ÷ 2) + (45 × 4 + 15 × 8) = 343 × ? + 33 × 3
TTA : **91 Seconds**
A) 3 B) 9
C) 11 D) 7

107. Find the value of x?
$(483 + 217) \times \frac{27}{189} + 32 \div 8 \times 12 + 2 = x$
TTA : **51 Seconds**
A) 150 B) 250
C) 245 D) 260

108. The value of [0.9 - {2.3 - 3.2 - (7.1 - 5.4 - 3.5)}] is:
TTA : **68 Seconds**
A) 1.8 B) 2.6
C) 0 D) 0.18

109. The value of $\frac{\frac{1}{3} + \left[4\frac{3}{4} - \left(3\frac{1}{6} - 2\frac{1}{3}\right)\right]}{\left(\frac{1}{5} \text{ of } \frac{1}{5} \div \frac{1}{5}\right) \div \left(\frac{1}{5} \div \frac{1}{5} \times \frac{1}{5}\right)}$ lies between:
TTA : **103 Seconds**
A) 8.2 and 8.8 B) 0.4 and 0.9
C) 4.2 and 4.4 D) 10.2 and 10.8

110. Find the value of x in the following expression: $[(5^2)^{x+2} \times (5^{-x})^4 = (5)^{x-5}]$
TTA : **53 Seconds**
A) 1 B) 2
C) 3 D) 4

111. If then the $12^{\sqrt[4]{x}} + 5^{\sqrt[4]{x}} = 13^{\sqrt[4]{x}}$ value of x is:
TTA : **30 Seconds**
A) 2 B) 4
C) 8 D) 16

112. The value of $2\frac{3}{10} \div \left[3\frac{5}{6} \div \left\{5\frac{2}{3} - \left(1\frac{1}{2} + \frac{5}{2}\right)\right\}\right]$ is:
TTA : **65 Seconds**
A) 0 B) 1
C) 3 D) 4

113. Find the value of 2.1 + 2.25 ÷ [63 - {7.5 × 8 + (13 - 2.5 × 5)}]
TTA : **92 Seconds**
A) 2.8 B) 2.9
C) 3.0 D) 3.1

114. If $93\frac{1}{3}$% of y is 280 and $26\frac{2}{3}$% of y is z. Find, 20% of (y + z)?
TTA : **82 Seconds**
A) 76 B) 74
C) 75 D) 80

115. 25% of 2700 + 18% of 1900 = ?% of 3051
TTA : **90 Seconds**
A) 33.33% B) 66.67%
C) 37.5% D) 50.5%

116. In a school, 12% of the total number of students are good in sports. Other 3/4th of the total number of students are interested in co-curricular activities, other 10% of the total number like music. The remaining 15 students do not want to participate in the above activities. What is the total number of students?
TTA : **92 Seconds**
A) 500 B) 400
C) 600 D) 450

117. The simplified value of
$\left\{1\frac{1}{4} \text{ of } \left(2\frac{1}{3} \div 1\frac{2}{5}\right) - 1\frac{5}{12}\right\} + \frac{1}{9} \div 2\frac{1}{3} + \frac{2}{7} + \frac{1}{6}$ is:
TTA : **141 Seconds**
A) 7/6 B) 3/2
C) 1 D) 7/3

118. Amit's salary in 2018 is Rs. 1,26,500. His salary for 2016 has risen annually by 10% and 15% respectively to reach 2018 salary figures. What was his salary in 2016?
TTA : **70 Seconds**
A) Rs. 95,000 B) Rs. 1,25,000
C) Rs. 1,15,000 D) Rs. 1,00,000

119. Simplify the following expression: 2/3 ÷ (8/3 × 6/5 ÷ 4/5) + 7/8 × (3/5 − 4/9 ÷ 5/3) − (3/7 × 1/4 ÷ 2/7)
TTA : **119 Seconds**
A) 1/3 B) 1/4
C) 1/12 D) 1/24

120. If 25% of 960 + 55% of 740 = x, then find the value of x.
TTA : **51 Seconds**
A) 640 B) 650
C) 647 D) 649

121. If x = [1/(10 × 11)] + 1/[(11 × 12] + ... + [1/(29 × 30)] and y = [1/(20 × 21)] + 1/[(21 × 22] + ... + [1/(39 × 40)], What is the ratio of x : y?
TTA : **69 Seconds**
A) 7 : 9 B) 4 : 5
C) 5 : 4 D) 8 : 3

122. If A = $\left[\frac{3}{7} \text{ of } 4\frac{1}{5} \div \frac{18}{25} + \frac{17}{24}\right] \text{ of } \left[\frac{289}{16} \div \left(\frac{3}{4} + \frac{2}{3}\right)^2\right]$ then the value of 8A is:
TTA : **123 Seconds**
A) 231 B) 213
C) 321 D) 132

123. Find the value of
$\frac{8}{9}\text{of}\left(5\frac{1}{4} \div 2\frac{1}{3}\text{of } 4\right) \div \left(8 \div \frac{2}{3}\text{of}\frac{4}{5}\right) \text{ of } \left(8 \times \frac{2}{3} \div \frac{4}{5}\right)$
TTA : **116 Seconds**
A) 1/200 B) 11/8
C) 1/100 D) 4/15

124. Find the value of '?' in the following question
[1/{1 + 2/(3 + 4/?)}] = (19/29)
TTA : **88 Seconds**
A) 4 B) 3
C) 5 D) 2

125. The product of two decimals is 0.768. If one of the decimal number is 1.6, find the other.
TTA : **48 Seconds**
A) 0.48 B) 0.47
C) 0.42 D) 0.37

126. What is the value of $\frac{72\div9+3-6-(2\times3)+5\ of\ 3-(1+5\times2-2)}{8\div4+2-(6\times8\div2)+(7\times4-2\times2)}$ = ?
TTA : **102 Seconds**
A) 11/4 B) 5/4
C) 0 D) 15/4

127. x = 60 + 40 ÷ (25 - 15) × (40% of 100) - (28.56% of 49), then x is how much less than the square value of 15?
TTA : **90 Seconds**
A) 19 B) 10
C) 11 D) 12

128. If A = 0.131131131…..∞ and B = 0.232232232….. ∞, then what is the value of (A + B)?
TTA : **59 Seconds**
A) 121/333 B) 223/333
C) 125/333 D) 121/999

129. Find the value of (0.72 × 0.26 + 0.18 × 0.52) ÷ (0.13 × 0.9)
TTA : **144 Seconds**
A) 3.4 B) 0.024
C) 2.4 D) 0.034

130. $\frac{0.72\times0.72\times0.72-0.39\times0.39\times0.39}{0.72\times0.72+0.72\times0.39+0.39\times0.39}$ is equal to:
TTA : **33 Seconds**
A) 0.39 B) 0.36
C) 0.33 D) 0.45

131. B is 20% more than A and C is 25% more than B. If C = 330, then what will be the value of A?
TTA : **107 Seconds**
A) 198 B) 214
C) 250 D) 220

132. A number is 50% less than X and another number is 20% less than X. What is the ratio of the two numbers?
TTA : **50 Seconds**
A) 3 : 8 B) 5 : 8
C) 3 : 5 D) 2 : 3

133. Simplify the given expression:
$14\frac{2}{7}\%\ of\ 1400-\{(10\times9)\div(8-2)\times13\}-\frac{25^2}{5^3}$
TTA : **83 Seconds**
A) 2520/13 B) 0
C) 1 D) 13/2520

134. (√77 + √35 - √22 - √10)(√77 - √35 + √22 - √10) = ?
TTA : **107 Seconds**
A) 10 B) 20
C) 30 D) 40

135. If $5^{\sqrt[3]{x}}+12^{\sqrt[3]{x}}=13^{\sqrt[3]{x}}$, then the value of x is:
TTA : **33 Seconds**
A) 2 B) 4
C) 8 D) 1

136. Find the value of
$\left[8-\left\{6-\left(3-\overline{5-3}\right)\right\}\right]\ of\ \frac{1+\frac{1}{4}}{1-\frac{1}{4}}\div\frac{\frac{1}{3}+\frac{1}{4}}{\frac{1}{3}-\frac{1}{4}}$
TTA : **58 Seconds**
A) 1 B) 7/5
C) 5/7 D) 5

137. The value of $\frac{3\div\{5-5\div(6-7)\times8+9\}}{4+4\times4\div4\ of\ 4}$ is:
TTA : **83 Seconds**
A) 1/3 B) 1/18
C) 1/90 D) 1/45

138. Evaluate 45 - 5 of (6.3 ÷ 9) + 7 × 0.5.
TTA : **39 Seconds**
A) 40 B) 42
C) 50 D) 45

139. $36\div4\ of\frac{1}{2}+\frac{3}{4}\times\frac{3}{2}=?$
TTA : **61 Seconds**
A) $19\frac{1}{8}$ B) $17\frac{1}{8}$
C) $18\frac{2}{3}$ D) $16\frac{6}{7}$

140. The value of $\frac{36\div42\ of\ 6\times7+24\times6\div18+3\div(2-6)-(4+3\times2)\div8}{21\div3\ of\ 7}$ is:
TTA : **116 Seconds**
A) $8\frac{1}{2}$ B) 1/7
C) 7 D) $7\frac{1}{2}$

141. What should come at the place of '?' in the following question. ? = 7/8 of 16/49 of 21/50 of 5/18 of 1830
TTA : **68 Seconds**
A) 59 B) 61
C) 135 D) 54

142. What will come in place of question mark (?) in the following question? 11 + 11 ÷ 11 × 11 − 11 + 11 ÷ 11 × 11 − 11 + 11 = ?
TTA : **39 Seconds**
A) 0 B) 1
C) 11 D) 22

143. The value of 2 × 3 ÷ 2 of 3 × 2 ÷ (4 + 4 × 4 ÷ 4 of 4 − 4 ÷ 4 × 4) is:
TTA : **68 Seconds**
A) 2 B) 8
C) 1 D) 4

144. The square root of 3249 is:
TTA : **42 Seconds**
A) 63 B) 59
C) 57 D) 67

145. Find the sum of (37.5% of 1,608) + (11.11% of 9,900)?
TTA : **74 Seconds**
A) 1,700 B) 1,703
C) 1,603 D) 1,503

146. If $\frac{10}{7}\left(1-2.43\times10^{-3}\right)$ = 1.417 + x, then x is equal to:
TTA : **135 Seconds**
A) 0.0417 B) 0.417
C) 0.0081 D) 0.81

147. What is the value of $\left(\frac{2}{5}\right)^{-\frac{1}{2}}\times\left(\frac{5}{2}\right)^{\frac{1}{2}}$?
TTA : **32 Seconds**

A) 2/5 B) 3/5
C) $\frac{5}{2}\sqrt{\frac{2}{5}}$ D) 5/2

148. Resolve: $2^3 \div 2^{-2} + \sqrt{36} + \sqrt{144} = ?$
TTA : **42 Seconds**
A) 66 B) 33
C) 50 D) 55

149. What will come in place of question mark in the following question?
$\left[\frac{9^{x+8} - 81 \times 3^{2x-5}}{3^3 \times 9^{x+2}}\right] \div 3^{-5} = ?$
TTA : **125 Seconds**
A) $3^{14} - 3^{-3}$ B) $3^7 - 3^{-2}$
C) $3^5 - 3$ D) $3^5 - 3^{-8}$

LEVEL 3 150 - 200 Questions

150. The population of a village is 4800. If the male population is increased by 8% and the female population is decreased by 5%, then it will become 5028 after 1 year. Find the male populations at present?
TTA : **159 Seconds**
A) 3888 B) 3600
C) 1200 D) 4560

151. What will come in place of question mark in the following question?
223.3 + 22.33 + 2.233 + 0.2233 = ?
TTA : **67 Seconds**
A) 238.7863 B) 248.0863
C) 258.0783 D) 249.0863

152. The value of (5 + 5 ÷ 5 × 5) ÷ (5 ÷ 5 of 5) of (5 × 5 ÷ 5 of 5 + 5 ÷ 5 × 5) is:
TTA : **93 Seconds**
A) 27/4 B) 23/3
C) 12/5 D) 25/3

153. What should come at the place of '?' in the following question? 3/4 ÷ 4/5 × 8/5 ÷ 4/3 × 16/27 + ? = 3
TTA : **78 Seconds**
A) 7/3 B) 10/9
C) 1/3 D) 1/9

154. What will come in place of question mark (?) in the following question? $(2.43 \times 10^7) \div (2.7 \times 10^{-5}) = (0.3^2 \times 10^{-5}) \times (0.05 \times 10^{20}) \times (?)$
TTA : **132 Seconds**
A) 0.5 B) 0.1
C) 0.02 D) 0.2

155. The value of 5 ÷ 5 of 5 × 2 + 2 ÷ 2 of 2 × 5 − (5 − 2) ÷ 6 × 2 is:
TTA : **81 Seconds**
A) 19/10 B) 23/2
C) 9/5 D) 19

156. Find the value of $\sqrt{\frac{1.96 \times 0.64}{1.6 \times 4.9}}$
TTA : **53 Seconds**
A) 4 B) 0.4
C) 0.2 D) 2

157. What should come at the place of '?' in the following question? [{36.4 + 153.6} ÷ {185.6 − 175.6}] × 15.5 + 35.5 = ? × 82.5
TTA : **119 Seconds**
A) 1.2 B) 4
C) 0.5 D) 6

158. What should be come at the place of '?' in the following question? [(4/5 + 1/4) × 2(7/6 + 1/7)] − 2/3 + 5/4 = 3 + ?
TTA : **120 Seconds**
A) 0 B) 1
C) 2/3 D) 1/3

159. The value of the following expression:
150% of 15 + 75% of 75 is
TTA : **68 Seconds**
A) 135 B) 78.75
C) 138 D) 75.75

160.
$21.45 - \left[3.18 + \left\{9.87 \times \left(10.74 \div \overline{6.25 - 0.88}\right)\right\}\right] = ?$
TTA : **83 Seconds**
A) 2.97 B) -2.97
C) 1.47 D) -1.47

161. What is the value of
$\left[121 \div \left\{\left(\frac{1}{5}of25 + 3of2\right) \div 5 \div 55\right\}\right]?$
TTA : **77 Seconds**
A) 0 B) 3025
C) 3 D) 6

162. If 10% of m is the same as the 20% of n, then m : n is equal to
TTA : **23 Seconds**
A) 2 : 1 B) 1 : 2
C) 1 : 10 D) 1 : 20

163. Select the option that can replace the question mark (?) in the following equation $\frac{(0.3)^3 + (0.2)^3}{(0.3 - 0.2)^2} = ?$
TTA : **119 Seconds**
A) 2 B) 3/2
C) 5/2 D) 7/2

164. Find the value of '?' in the following question 500 + 600% of 100 − 600 + (20 × 5 + 500 − 200) = ?
TTA : **54 Seconds**
A) 200 B) 900
C) 800 D) 700

165. Solve the following expression:
$5 \div 5 \div 5 \div \overline{5\ of\ 5} = ?$
TTA : **63 Seconds**
A) $\frac{1}{125}$ B) $\frac{1}{625}$
C) 25 D) 125

166. When a student score 40% marks then he is failed by 50 marks. But when he scored 50% marks then he scored 180 marks less than the highest marks scored by the student which is 70% of the total marks. Find the passing percentage? (approx.)
TTA : **119 Seconds**

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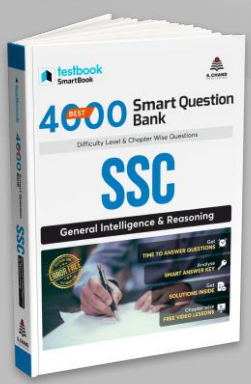

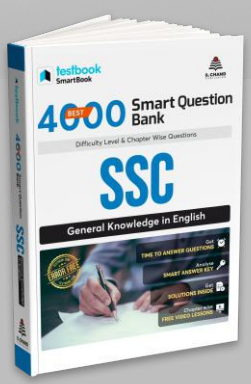

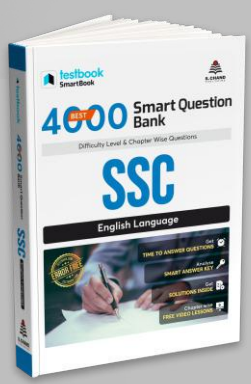

A) 33.33% B) 42.33%
C) 45.56% D) 50%

167. Find the value of (√2.89 ÷ 0.17 + √1.44 ÷ 0.3 of 0.4 – 1/20 of 200).
TTA : **85 Seconds**
A) 0 B) 10
C) 20 D) 30

168. If $a^b = 343$, find the value of b^a.
TTA : **50 Seconds**
A) 1729 B) 2403
C) 2187 D) 243

169. $55\frac{1}{11} + 55\frac{2}{11} + 55\frac{3}{11} + \ldots + 55\frac{10}{11} = ?$
TTA : **70 Seconds**
A) 555 B) 550
C) 565 D) 655

170. Simplify: $\sqrt{176 + \sqrt{2401}}$
TTA : **72 Seconds**
A) 14 B) 25
C) 18 D) 15

171. Evaluate: $\sqrt{93 + \sqrt{32 + \sqrt{274 + \sqrt{225}}}}$
TTA : **46 Seconds**
A) 9 B) 11
C) 12 D) 10

172. What is the simplified value of:
$7\frac{1}{3} \div 2\frac{1}{2}\ of\ 1\frac{3}{5} - \left(\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4}\right) - \frac{5}{24}$
TTA : **98 Seconds**
A) 1/12 B) 1/24
C) 1 D) 2

173. Find the value of (0.027 of 0.00027% of 0.0008% of 0.64 of 27)$^{1/9}$
TTA : **92 Seconds**
A) 0.06 B) 0.05
C) 0.08 D) 0.03

174. Find the value of
$25\%\ of\ 20\%\ of\ 5 + 999\frac{391}{392} \times [15\%\ of\ 653\frac{1}{3}]?$
TTA : **120 Seconds**
A) 99000 B) 98000
C) 97000 D) 96000

175. What will come in the place of question mark (?) in the following question? 345.86 + 321.86 + 123.14 + 189.14 = ?
TTA : **45 Seconds**
A) 768 B) 980
C) 1048 D) 1145

176. Simplify: $1 + \frac{2}{1+\frac{3}{1+\frac{4}{5}}} = ?$
TTA : **52 Seconds**
A) $\frac{3}{7}$ B) $\frac{7}{5}$
C) $\frac{4}{7}$ D) $\frac{7}{4}$

177. Which of the following is at third place when the numbers are arranged in ascending order? 7.07, 7.70, 7.707, 7.007, 0.77
TTA : **39 Seconds**
A) 7.70 B) 7.007
C) 7.07 D) 7.707

178. What should come at the place of '?' in the following equation? {(8.6 × 2.5) + (1.6 × 4.5)} ÷ 0.7 = 14.5 × 4 – ?
TTA : **80 Seconds**
A) 20 B) 7
C) 23 D) 17

179. What will come in place of the question mark '?' in the following question? (0.15 × 4.4 + 0.33 × 0.75 – 0.055 × 0.5) = ?
TTA : **100 Seconds**
A) 0.088 B) 0.08
C) 0.88 D) 8.08

180. Which of the following statement is/are true?
$(I)\ \sqrt{256} + \sqrt{0.0256} + \sqrt{121} + \sqrt{0.0121} = 27.27$
$(II)\ \sqrt{12321} + \sqrt{123.21} + \sqrt{1234321} + \sqrt{123.4321} = 1244.21$
$(III)\ \sqrt{9801} + \sqrt{102.01} + \sqrt{1.2321} + \sqrt{0.0025} = 120.26$
TTA : **105 Seconds**
A) Both (I) and (III) B) Both (II) and (III)
C) Both (I) and (II) D) All (I), (II) and (III)

181. If [√(62.72/2) + √(35.28/2) – √(1.28/2)]/∛(11.664/2) = 12.5% of p, then find the value of 'p'.
TTA : **156 Seconds**
A) 32 B) 40
C) 50 D) 48

182. Given 17 × 29 = 493, then 170 × 0.029 = ?
TTA : **42 Seconds**
A) 0.493 B) 4.93
C) 49.3 D) 0.0493

183. What will come in place of question mark '?' in the following equation? {35% of (90% of 800)}% of 500 = ?
TTA : **69 Seconds**
A) 180 B) 540
C) 720 D) 1260

184. 2000 employees are assigned to complete a project. At the end of the first year, 15% of the number of employees are decreased and at the end of the second year again 10% of the number of employees are decreased. However, to complete the project in time, the number of employees are increased by 10% at the end of the third year. What was the number of employees working during the fourth year?
TTA : **72 Seconds**
A) 1786 B) 1685
C) 1683 D) 1783

185. What will come in place of '?' in the following equation. 56% of 700 – 60% of 280 + 25% of 400 + 72% of 950 – 66% of 150 = ?
TTA : **120 Seconds**
A) 909 B) 809
C) 1009 D) 999

186. In a test consisting of 120 questions, Anuradha answered 65% of the first 60 questions correctly. What percentage of the remaining questions does she need to answer correctly to score 75% in the test?
TTA : **78 Seconds**

A) 80 B) 85
C) 84 D) 90

187. 20.05 – [3.06 – {3.57 + (6.24 × $\overline{4.09 - 1.59}$)}] = ?
TTA : **88 Seconds**
A) 16.11 B) 3.94
C) 36.16 D) 39.4

188. If 60% of (x - y) = 45% (x + y) and y = k% of x, then 21% of k is equal to:
TTA : **78 Seconds**
A) 1 B) 7
C) 3 D) 6

189. What is $(0.08\% \text{ of } 0.008\% \text{ of } 8)^{1/9}$?
TTA : **55 Seconds**
A) 0.8 B) 0.08
C) 0.2 D) 0.64

190. Numerator of a fraction in increased by 60% and at the same time its denominator is decreased by 60% The new fraction is
TTA : **51 Seconds**
A) 2.56 times the older fraction B) Equal to the older fraction
C) 4 times the older fraction D) 0.36 times the older fraction

191. If $2^{9y} = 64$, then find the value of $(125)^{y}$.
TTA : **52 Seconds**
A) 1/25 B) 25
C) 1/5 D) 5

192. If $\left(\sqrt{3}^{5}\right) \times 9^{2} = 3^{n} \times 3\sqrt{3}$, then the value of n is
TTA : **51 Seconds**
A) 3 B) 2
C) 5 D) 6

193. Which value should come in place of '?' in the following question? $3^4 \times 2^6 \div 4^2 + 5^2 \times 7^1 + 1 = 5^3 \times 2^?$
TTA : **105 Seconds**
A) 1 B) 2
C) 3 D) 5

194. Solve: $\frac{(0.3266 \times 1.544 \times 117.5)}{(163.3 \times 0.7720 \times 4.70)}$
TTA : **80 Seconds**
A) 0.1 B) 100
C) 1 D) 0.01

195. Find the value of $12\frac{3}{4} + 27\frac{1}{2} - 6\frac{2}{5} - 3\frac{7}{10}$
TTA : **90 Seconds**
A) 603/20 B) 641/20
C) 603/10 D) None of these

196. Find the value of x in the following expression.
33.33% of 342 + 12.5% of 800 + x = 40% of 900
TTA : **79 Seconds**
A) 242 B) 118
C) 146 D) 150

197. Find the value of $\left(\frac{5}{4} of \frac{8}{3} of\ 48\right) \div \left(\frac{11}{7} + 17\ of \frac{1}{7}\right)$
TTA : **59 Seconds**
A) 25 B) 30
C) 35 D) 40

198. Which is the greatest number among 8/13, 7/15, 5/11 and 0.27?
TTA : **52 Seconds**
A) 8/13 B) 7/15
C) 5/11 D) 0.27

199. The value of $(0.00032)^{0.6}$ is
TTA : **49 Seconds**
A) 0.08 B) 0.008
C) 0.8 D) 8

200. If P is 40% less than Q, then Q is how much percentage more than P?
TTA : **45 Seconds**
A) 40% B) 66.66%
C) 60% D) 33.33%

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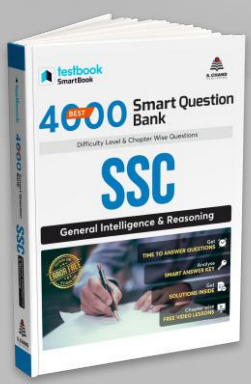

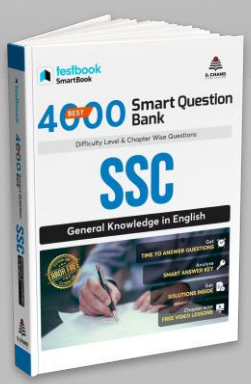

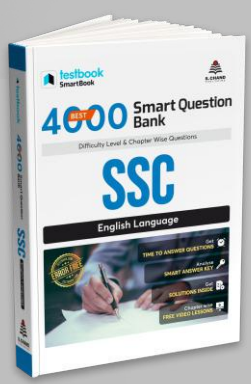

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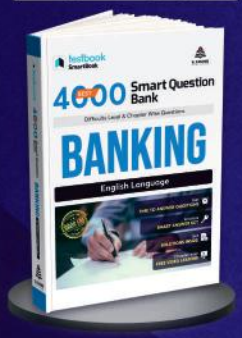

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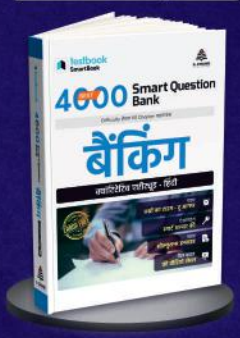

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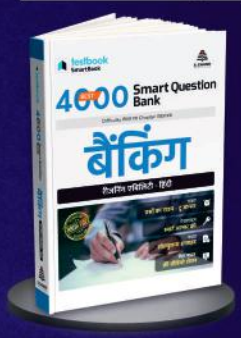

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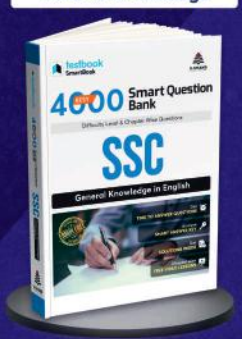

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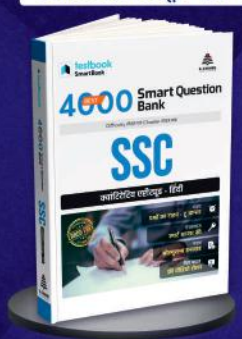

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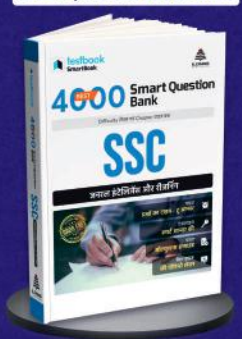

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Q.	Ans	Correct	Skipped
1	A	86%	7 %
2	C	83%	8 %
3	B	79%	16 %
4	A	90%	7 %
5	D	81%	13 %
6	A	86%	12 %
7	D	69%	8 %
8	B	81%	14 %
9	B	90%	6 %
10	B	79%	18 %
11	D	92%	6 %
12	D	77%	19 %
13	C	91%	5 %
14	B	92%	6 %
15	B	87%	11 %
16	C	76%	14 %
17	C	78%	16 %
18	D	78%	19 %
19	D	52%	45 %
20	D	86%	11 %
21	B	57%	33 %
22	C	97%	2 %
23	B	84%	9 %
24	A	87%	10 %
25	B	58%	30 %
26	A	78%	9 %
27	A	85%	8 %
28	A	58%	32 %
29	D	74%	17 %
30	D	97%	2 %
31	D	91%	6 %
32	D	36%	54 %
33	A	64%	26 %
34	D	87%	9 %
35	D	87%	3 %
36	C	89%	1 %
37	C	86%	11 %
38	D	95%	3 %
39	B	33%	57 %
40	A	37%	49 %
41	D	5%	42 %
42	A	84%	10 %
43	D	93%	6 %
44	B	93%	4 %
45	C	65%	26 %
46	B	85%	9 %
47	D	79%	9 %
48	A	77%	21 %
49	C	76%	17 %
50	B	62%	31 %
51	D	67%	21 %
52	A	90%	9 %
53	C	68%	27 %
54	D	70%	16 %
55	B	94%	5 %
56	A	83%	14 %
57	A	97%	2%
58	A	73%	22%
59	A	74%	20%
60	C	84%	14%
61	C	59%	36%
62	B	60%	24%
63	B	75%	21%
64	D	56%	35%
65	D	40%	50%
66	B	94%	4%
67	B	54%	34%
68	D	85%	7%
69	C	86%	8%
70	C	58%	32%
71	A	79%	17%
72	D	44%	42%
73	A	58%	40%
74	C	56%	36%
75	B	62%	16%
76	D	64%	28%
77	B	80%	4%
78	C	90%	6%
79	C	84%	11%
80	D	65%	26%
81	C	47%	35%
82	B	72%	21%
83	B	70%	26%
84	B	62%	30%
85	A	81 %	12%
86	D	58 %	30%
87	B	96 %	3%
88	D	62 %	26%
89	D	81 %	10%
90	B	72 %	24%
91	B	68 %	18%
92	A	79 %	16%
93	C	50 %	38%
94	C	74 %	22%
95	B	69 %	23%
96	C	64 %	25%
97	C	81 %	13%
98	B	79 %	16%
99	B	63 %	29%
100	C	49 %	38%
101	C	79 %	16%
102	C	81 %	14%
103	D	84 %	11%
104	D	64 %	23%
105	A	70 %	17%
106	D	54 %	41%
107	A	86 %	12%
108	C	61 %	19%
109	C	67 %	25%
110	C	63 %	26%
111	D	77 %	10%
112	B	81 %	14%
113	C	59 %	25%
114	A	66 %	27%
115	A	81 %	11%
116	A	46 %	47%
117	A	62 %	27%
118	D	64 %	20%
119	C	66 %	23%
120	C	79 %	14%
121	D	71 %	25%
122	A	49 %	44%
123	A	45 %	41%
124	C	54 %	38%
125	A	83 %	12%
126	B	54 %	34%
127	A	36 %	48%
128	A	64 %	30%
129	C	60 %	25%
130	C	88 %	10%
131	D	63 %	15%
132	B	83 %	12%
133	B	77 %	13%
134	C	53 %	34%
135	C	64 %	21%
136	C	52 %	42%
137	C	44 %	46%
138	D	84 %	11%
139	A	76 %	13%
140	C	53 %	35%
141	B	83%	15%
142	D	84%	2%
143	A	55%	32%
144	C	90%	4%
145	B	58%	28%
146	C	40%	47%
147	D	67%	21%
148	C	83%	14%
149	A	31%	60%
150	B	36%	50%
151	B	56%	18%
152	D	33%	52%
153	A	75%	15%
154	D	23%	56%
155	A	56%	23%
156	B	47%	15%
157	B	39%	45%
158	D	42%	44%
159	B	61%	14%
160	D	56%	34%
161	B	34%	50%
162	A	78%	8%
163	D	44%	35%
164	B	76%	14%
165	A	49%	25%
166	C	46%	42%
167	B	53%	33%
168	C	71%	17%
169	A	62%	17%
170	D	69%	19%
171	D	59%	12%
172	C	55%	30%
173	A	62%	28%
174	B	19%	71%
175	B	89%	8%
176	D	39%	24%
177	C	58%	14%
178	D	34%	40%
179	C	47%	39%
180	C	24%	50%
181	B	16%	75%
182	B	64%	12%
183	D	52%	27%
184	C	65%	32%
185	A	40%	32%
186	B	77%	15%
187	C	33%	44%
188	C	72%	23%
189	C	67%	22%
190	C	71%	18%
191	B	64%	23%
192	C	73%	12%
193	B	58%	29%
194	A	35%	37%
195	A	69%	7%
196	C	42%	27%

Q.	Ans	Correct	Skipped	Q.	Ans	Correct	Skipped	Q.	Ans	Correct	Skipped	Q.	Ans	Correct	Skipped	Q.	Ans	Correct	Skipped	Q.	Ans	Correct	Skipped
197	D	50%	19 %																				
198	A	83%	5 %																				
199	B	50%	31 %																				
200	B	55%	12 %																				

testbook

LEVEL 1 1 - 62 Questions

Sol 1.

$\sqrt{12-2\sqrt{35}}+\sqrt{8+2\sqrt{15}}=\sqrt{a}+\sqrt{b}$

$\Rightarrow \sqrt{\left(\sqrt{7}\right)^2+\left(\sqrt{5}\right)^2-2\times\sqrt{7}\times\sqrt{5}}+$

$\sqrt{\left(\sqrt{5}\right)^2+\left(\sqrt{3}\right)^2+2\times\sqrt{5}\times\sqrt{3}}=\sqrt{a}+\sqrt{b}$

$\Rightarrow \sqrt{\left(\sqrt{7}-\sqrt{5}\right)^2}+\sqrt{\left(\sqrt{5}+\sqrt{3}\right)^2}=\sqrt{a}+\sqrt{b}$

⇒ (√7 - √5) + (√5 + √3) = √a + √b
⇒ √7 + √3 = √a + √b
Comparing on
a = 3 and b = 7
∴ b – a = 7 – 3 = 4

Sol 2.

$3\sqrt{3}\times 3^4\div 3^{\left(-\frac{3}{4}\right)}=3^{\left(x+\frac{1}{4}\right)},$

$\Rightarrow 3^{\left(\frac{3}{2}\right)}\times 3^4\div 3^{\left(-\frac{3}{4}\right)}=3^{\left(x+\frac{1}{4}\right)}$

$\Rightarrow 3^{\left(\frac{3}{2}+4+\frac{3}{4}\right)}=3^{\left(x+\frac{1}{4}\right)}$

⇒ (3/2) + 4 + (3/4) = x + (1/4)
⇒ x = (3/2) + 4 + (3/4) - (1/4)
⇒ x = 6

Sol 3.

$9\frac{3}{4}\div\left[2\frac{1}{6}\div\left\{4\frac{1}{3}-\left(2\frac{1}{2}+\frac{3}{4}\right)\right\}\right]$

$\Rightarrow \frac{39}{4}\div\left[\frac{13}{6}\div\left\{\frac{13}{3}-\left(\frac{5}{2}+\frac{3}{4}\right)\right\}\right]$

$\Rightarrow \frac{39}{4}\div\left[\frac{13}{6}\div\left\{\frac{13}{3}-\frac{13}{4}\right\}\right]$

$\Rightarrow \frac{39}{4}\div\left[\frac{13}{6}\div\frac{13}{12}\right]$

$\Rightarrow \frac{39}{4}\div\left[\frac{13}{6}\times\frac{12}{13}\right]$

⇒ 39/4÷2
⇒ 39/8

Sol 4.

Calculation:
[(5 of 6) of (8 of 2 – 6) – 7 of (4 of 9 ÷ 3)]
⇒ [30 of (16 – 6) – 7 of (36 ÷ 3)]
⇒ [30 of 10 – 7 of 12]
⇒ [300 – 84]
⇒ 216

Sol 5.

A = 40 ÷ 8 + 5 × 2 – 4 + 5 of 3
⇒ A = 5 + 10 – 4 + 15
⇒ A = 26
⇒ B = 24 ÷ 4 of (4 + 2) + 19 of 2
⇒ B = 24 ÷ 4 × 6 + 38
⇒ B = 24 ÷ 24 + 38
⇒ B = 1 + 38
⇒ B = 39
Now,
A – B
⇒ 26 – 39
⇒ (-13)

Sol 6.

$\sqrt{2x-1}-\sqrt{x-4}=2,$

With the help of option, put x = 13.
⇒ √(2 × 13 - 1) - √(13 - 4) = 2
⇒ √(26 - 1) - √9 = 2
⇒ √25 - √9 = 2
⇒ 5 - 3 = 2
⇒ 2 = 2 (satisfied)
Again, Put x = 5.
√(2 × 5 - 1) - √(5 - 4) = 2
⇒ √(10 - 1) - √1 = 2
⇒ √9 - 1 = 2
⇒ 3 - 1 = 2
⇒ 2 = 2 (satisfied)
So, the value of x are 13 and 5.

Sol 7.

4 + 4.44 + 4.04 + 44.4 + 444
Adding decimals first:
0.44 + 0.04 + 0.4 = 0.88
Now adding 4 + 4 + 4 + 44 + 444 = 500
⇒ 500 + 0.88 = 500.88

Sol 8.

$3\sqrt[4]{80}+4\sqrt[4]{405}-2\sqrt[4]{3125}$

$\Rightarrow 3\times 2\sqrt[4]{5}+4\times 3\times\sqrt[4]{5}-2\times 5\sqrt[4]{5}$

$\Rightarrow 6\sqrt[4]{5}+12\sqrt[4]{5}-10\sqrt[4]{5}$

$\Rightarrow 8\sqrt[4]{5}$

Sol 9.

Given- We have to find the simplified value of

$\sqrt{5+\sqrt{11+\sqrt{19+\sqrt{29+\sqrt{49}}}}}$

Calculation-
Considering the given equation -

$\sqrt{5+\sqrt{11+\sqrt{19+\sqrt{29+\sqrt{49}}}}}$

$\Rightarrow \sqrt{5+\sqrt{11+\sqrt{19+\sqrt{29+7}}}}$

$\Rightarrow \sqrt{5+\sqrt{11+\sqrt{19+\sqrt{36}}}}$

$\Rightarrow \sqrt{5+\sqrt{11+\sqrt{19+6}}}$

$\Rightarrow \sqrt{5+\sqrt{11+5}}$

$\Rightarrow \sqrt{5+4}$

⇒ √9
⇒ 3
∴ The simplified value is 3.

Sol 10.

⇒ $(8^{2k}+5^{2k})$
Given, k is an odd number so, Let k = 1 (smallest odd number)
⇒ (8^2+5^2)
⇒ (64 + 25)
⇒ 89
∴ One of the factors of $(8^{2k}+5^{2k})$ is 89.

Sol 11.

3 ÷ 3 of 3 + 2 ÷ 4 + (4 × 2 -2) ÷ 12 + 4
⇒ 3 ÷ 9 + 2 ÷ 4 + (8 - 2) ÷ 12 + 4
⇒ 3 ÷ 9 + 2 ÷ 4 + 6 ÷ 12 + 4

⇒ 1/3 + 1/2 + 1/2 + 4
⇒ 1/3 + 5
⇒ $\frac{16}{3}$

Sol 12.

$\left[1\frac{1}{5}\ of\ \left\{\frac{3}{7}-\left(1\frac{4}{15}-\frac{13}{15}\right)\times\frac{5}{7}\right\}\right]\div\left(\frac{6}{7}\div 5\right)$
$\Rightarrow\left[\frac{6}{5}\ of\ \left\{\frac{3}{7}-\left(\frac{19}{15}-\frac{13}{15}\right)\times\frac{5}{7}\right\}\right]\div\left(\frac{6}{7}\times\frac{1}{5}\right)$
$\Rightarrow\left[\frac{6}{5}\ of\ \left\{\frac{3}{7}-\frac{6}{15}\times\frac{5}{7}\right\}\div\frac{6}{35}\right]$
$\Rightarrow\left[\frac{6}{5}\ of\ \left\{\frac{3}{7}-\frac{2}{7}\right\}\times\frac{35}{6}\right]$
$\Rightarrow\left[\frac{6}{5}\times\frac{1}{7}\times\frac{35}{6}\right]$
⇒ 1

Sol 13.

$-\frac{5}{2}+\frac{3}{2}\div 6\times\frac{1}{2}$
⇒ (− 5/2) + 3/2 × 1/6 × 1/2
⇒ (− 5/2) + 1/8
⇒ (− 20 + 1)/8
⇒ (− 19)/8

Sol 14.

Let the number be x, then
According to the question
x × (80/100) − (62/100) = 198
⇒ 18x/100 = 198
⇒ x = 198 × (100/18)
⇒ x = 1100
⇒ 1100 × (92/100) − 1100 × (56/100)
⇒ 11 (92 − 56)
⇒ 11 × 36
⇒ 396
Short Trick:
⇒ 80% − 62% = 18%
⇒ 92% − 56% = 36%
⇒ 18% = 198
⇒ 36% = 198 × 2 = 396

Sol 15.

Formula:
x as a percentage of y = (x/y) × 100
Calculation:
Let total working days of the school were x days, then
x × (90/100) = 216
⇒ x = 216 × (100/90)
⇒ x = 240 days.
∴ Total working days of the school were 240 days.

Sol 16.

Calculation:
According to the question
$\frac{42+12\div 3-8\times 2-15}{8\div 2+4-9\times 3}$
$\Rightarrow\frac{42+4-16-15}{4+4-27}$
⇒ -(15/19)

Sol 17.

Formula
$a^x \times a^y = a^{(x+y)}$
$a^x \div a^y = a^{(x-y)}$
Calculation
$5^m \div 5^{-3} \times 5^{10} = 5^{15}$
$= 5^{m-(-3)+10} = 5^{15}$
$= 5^{m+13} = 5^{15}$
Comparing Powers, we get
m + 13 = 15
∴ m is 2

Sol 18.

Calculation
5√3 × 4√8 × 6√27 × 2√2 = 32 × ?
⇒ 32 × ? = 5√3 × 4√8 × 6√27 × 2√2
⇒ 2^5 × ? = 5√3 × 4 × 2√2 × 6 × 3√3 × 2√2
⇒ 2^5 × ? = 5 × √3 × 2^2 × 2 × √2 × 2 × 3 × 3 × √3 × 2 × √2
⇒ 2^5 × ? = 5 × 2^5 × 3 × 3 × √3 × √3 × √2 × √2
⇒ ? = 5 × 3 × 3 × 3 × 2
⇒ ? = 270
∴ The value of ? is 270.

Sol 19.

$x^{2a} = y^{2b} = z^{2c} \neq 0$
Let $x^{2a} = y^{2b} = z^{2c} = k$, then
$x = k^{1/2a}$, $y = k^{1/2b}$, $z = k^{1/2c}$
Now,
$x^2 = yz$
x × x = y × z
$k^{1/2a} \times k^{1/2a} = k^{1/2b} \times k^{1/2c}$
$k^{(1/2a + 1/2a)} = k^{(1/2b + 1/2c)}$
Comparing on power
1/2a + 1/2a = 1/2b + 1/2c
⇒ 2/2a = (c + b)/2bc
⇒ 1/a = (c + b)/2bc
⇒ 2bc = ac + ab
Now,
$\frac{ab+bc+ca}{bc}$
⇒ (2bc + bc)/bc
⇒ 3bc/bc
⇒ 3

Sol 20.

Calculation:
3,000 - (1,000 ÷ 5) + 200 - 2,500 = k
⇒ 3,000 - 200 + 200 - 2,500 = k
⇒ k = 3,200 - 200 - 2,500
⇒ k = 3,200 - 2,700
⇒ k = 500

Sol 21.

$22.\bar{4}+11.5\overline{67}-33.5\bar{9}$
We can write
$\Rightarrow 22+0.\bar{4}+11+0.5\overline{67}-33-0.5\bar{9}$
$\Rightarrow 0.\bar{4}+0.5\overline{67}-0.5\bar{9}$
⇒ 4/9 + [(567 - 5)/990] - [(59 - 5)/90]
⇒ 4/9 + 562/990 - 54/90
⇒ 408/990
⇒ (412 - 4)/990
$\Rightarrow 0.4\overline{12}$
Short Trick:

```
  0.44444444
+ 0.56767676
- 0.59999999
  0.41212121
```

$22+0.\bar{4}+11+0.5\overline{67}-33-0.5\bar{9}$
$\Rightarrow 0.\bar{4}+0.5\overline{67}-0.5\bar{9}$
We can write, 0.4121211.....
$\Rightarrow 0.4\overline{12}$

Sol 22.
2/3, 3/4, 4/5, 5/6
⇒ 2/3 × (20/20) = 40/60
⇒ 3/4 × (15/15) = 45/60
⇒ 4/5 × (12/12) = 48/60
⇒ 5/6 × (10/10) = 50/60
So, the largest fraction is = 50/60 (5/6), and the smallest fraction is = 40/60 (2/3).
Required difference = 5/6 − 2/3 = (5 − 4)/6 = 1/6

Sol 23.
√[4 + √(44 + √10000)]
= √[4 + √(44 + 100)]
= √[4 + √144]
= √[4 + 12]
= √[16]
= 4

Sol 24.
Follow BODMAS rule to solve this question,
-15 + 90 ÷ [89 - { 9 × 8 + (33 - 3 × 7)}]
⇒ -15 + 90 ÷ [89 - {72 + (33 - 21)}]
⇒ -15 + 90 ÷ [89 - {72 + 12}]
⇒ -15 + 90 ÷ [89 - 84]
⇒ -15 + 90 ÷ 5
⇒ -15 + 18
⇒ 3

Sol 25.
Calculation:
The given expression is:
[3.5 × (2.3 + 4.9 − 1.8) ÷ 0.6] ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ [3.5 × (2.3 + 4.9 − 1.8) ÷ 0.6] ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ [3.5 × (7.2 − 1.8) ÷ 0.6] ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ [3.5 × (5.4) ÷ 0.6] ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ [3.5 × 9] ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ 31.5 ÷ 7 × 0.02 = $?^2$ + 0.05
⇒ 4.5 × 0.02 = $?^2$ + 0.05
⇒ 0.09 = $?^2$ + 0.05
⇒ $?^2$ = 0.04
∴ ? = 0.2

Sol 26.

⇒ √X + 0.24 = √0.1296
⇒√X = (0.36 − 0.24)
⇒ (√X)^2 = (0.12)^2
⇒ X = 0.0144
∴ The value of X is 0.0144.

Sol 27.
Given,
$$\Rightarrow ? = \frac{\left(\left(1+\frac{3}{4}-\frac{1}{2}\right)\times\frac{3}{5}\right)}{\left(2\frac{1}{3}-\frac{5}{4}\right)\times\frac{4}{13}}$$
⇒ ? = [(7/4 − 1/2) × 3/5] / [(7/3 − 5/4) × 4/13]
⇒ ? = (10/8 × 3/5) / (13/12 × 4/13)
⇒ ? = (3/4) / (1/3)
⇒ ? = 3/4 × 3
⇒ ? = 9/4

Sol 28.
The given expression is 0.139 + 0.75 + 2.105 − (1.001) × 1.1 = 2 − k
⇒ 0.139 + 0.75 + 2.105 − 1.1011 = 2 − k
⇒ 2.994 − 1.1011 = 2 − k
⇒ 1.8929 = 2 − k
⇒ k = 2 − 1.8929
⇒ k = 0.1071
∴ The required value of k is 0.1071

Sol 29.

Let the volume of A, B be 60, 50
New volume of A = 60(1 + 30/100) = 78
Difference between the volumes of A, B is 78 − 50 = 28
∴ Percentage Increase in volume = 100 × 28/50 = 56%

Sol 30.
Let the number be x
Then,
x × 25/100 = 68
⇒ x = 68 × 4 [25/100 = 1/4]
∴ The number is 272

Sol 31.
Let other fraction be M.
⇒ M + 3/4 = 5/6
⇒ 24M + 18 = 20
⇒ 24M = 2
⇒ M = 1/12

Sol 32.
$0.5\bar{6} - 0.\overline{723} + 0.3\bar{9} \times 0.\bar{7}$
$\Rightarrow 0.5\bar{6} - 0.\overline{723} + \frac{39-3}{90} \times \frac{7}{9}$
$\Rightarrow 0.5\bar{6} - 0.\overline{723} + \frac{36}{90} \times \frac{7}{9}$
$\Rightarrow 0.5\bar{6} - 0.\overline{723} + \frac{28}{90}$
$\Rightarrow 0.5\bar{6} - 0.\overline{723} + 0.3\bar{1}$ (see figure)

0.56666 ·····∞
+0.31111 ·····∞
-0.72323 ·····∞
0.15454 ·····∞

$\therefore 0.\overline{154}$
Or we can solve it with another method
$\Rightarrow 0.5\bar{6} - 0.\overline{723} + 0.3\bar{9} \times 0.\bar{7}$
$\Rightarrow \frac{56-5}{90} - \frac{723-7}{990} + \frac{39-3}{90} \times \frac{7}{9}$
$\Rightarrow \frac{51}{90} - \frac{716}{990} + \frac{36}{90} \times \frac{7}{9}$
$\Rightarrow \frac{51}{90} - \frac{716}{990} + \frac{28}{90}$
⇒ (561 − 716 + 308) /990
⇒ 153/990
$\Rightarrow 0.\overline{154}$

Sol 33.

$\Rightarrow 3\frac{4}{5} \div \left[\frac{4}{5} \div \frac{65}{2} \text{ of } \frac{4}{13} \times \left\{\frac{11}{16} \div \left(\frac{6}{5} - \frac{5}{6}\right)\right\}\right]$
$\Rightarrow 3\frac{4}{5} \div \left[\frac{4}{5} \div \frac{65}{2} \text{ of } \frac{4}{13} \times \left\{\frac{15}{8}\right\}\right]$
$\Rightarrow 3\frac{4}{5} \div \left[\frac{4}{5} \div 10 \times \left\{\frac{15}{8}\right\}\right]$
$\Rightarrow 3\frac{4}{5} \div \left[\frac{2}{25} \times \left\{\frac{15}{8}\right\}\right]$
$\Rightarrow \frac{19}{5} \div \frac{3}{20}$
⇒ 76/3

Sol 34.
Formula:
x as a percentage y = (x/y) × 100
Calculation:
Number of runs score made by running between the wickets = 120 - 4 × 6 - 6 × 4 = 120 - 48 = 72
∴ Required percentage = (72/120) × 100 = 60%

Sol 35.
0.004 × 0.5
= 4/1000 × 5/10
= 20/10000
= 2/1000
= 0.002

Sol 36.
⇒ 0.04 × 0.0123
⇒ 0.000492
⇒ 4.92×10^{-4}

Sol 37.
Given:
80% of A = 50% of B and B = x% of A
Calculation:
⇒ A × 80 / 100 = B × 50 / 100
⇒ B = (A × 80) / 50 = 1.6A
⇒ B = 160% of A
∴ required value of x = 160

Sol 38.
Given:
21% of a number is 546
Calculation:
Let the number be x
21% of x = 546
⇒ (21/100) of x = 546
⇒ x = (546 × 100)/21 = 2600
89% of 2600 = (89/100) × 2600 = 2314
∴ The Value of 89% of the number is 2314

Sol 39.
Concept Used:
14.28% = 1/7, 28.56% = 2/7
11.11% = 1/9, 44.44% = 4/9
Calculation:
28.56% of 91 + 44.44% of 162 = 400% of ?
⇒ 91 × (2/7) + 162 × (4/9) = (400/100) × ?
⇒ 26 + 72 = 4 × ?
⇒ ? = 98/4 = 24.5
∴ The value of ? is 24.5

Sol 40.
$0.4\overline{7} + 0.5\overline{03} - 0.3\overline{9} \times 0.\overline{8}$
$\Rightarrow \frac{47-4}{90} + \frac{503-5}{990} - \frac{39-3}{90} \times \frac{8}{9}$
$\Rightarrow \frac{43}{90} + \frac{498}{990} - \frac{36}{90} \times \frac{8}{9}$
$\Rightarrow \frac{43}{90} + \frac{498}{990} - \frac{32}{90}$
⇒ (473 + 498 − 352)/990
⇒ 619/990
$\Rightarrow 0.\overline{625}$

Sol 41.
$\frac{\sqrt[3]{\frac{3}{10}+7\frac{1}{5}-80\%of\frac{4}{5}}}{\sqrt[3]{\frac{4}{50}\div\frac{1}{50}+\frac{4^2}{5}\times\frac{1}{10}}}$
$\Rightarrow \frac{\sqrt[3]{\frac{3}{10}+\frac{36}{5}-\frac{4}{5}\times\frac{80}{100}}}{\sqrt[3]{\frac{4}{50}\div\frac{1}{50}+\frac{16}{5}\times\frac{1}{10}}}$
$\Rightarrow \frac{\sqrt[3]{\frac{3+72}{10}-\frac{4}{5}\times\frac{4}{5}}}{\sqrt[3]{\frac{200}{50}+\frac{16}{50}}}$
$\Rightarrow \frac{\sqrt[3]{\frac{75}{10}-\frac{16}{25}}}{\sqrt[3]{\frac{200}{50}+\frac{16}{50}}}$
$\Rightarrow \frac{\sqrt[3]{\frac{375-32}{50}}}{\sqrt[3]{\frac{216}{50}}}$
$\Rightarrow \frac{\sqrt[3]{\frac{343}{50}}}{\sqrt[3]{\frac{216}{50}}}$
$\Rightarrow \frac{\sqrt[3]{343}}{\sqrt[3]{216}} = \frac{7}{6}$

Sol 42.
$\frac{\left(3\frac{1}{5}-\frac{3}{5}\right)\div\frac{8}{5}}{1\frac{1}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$
$\Rightarrow \frac{\left(\frac{16}{5}-\frac{3}{5}\right)\times\frac{5}{8}}{\frac{8}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\times\frac{5}{1}\right)\right\}}$
$\Rightarrow \frac{\left(\frac{13}{5}\right)\times\frac{5}{8}}{\frac{8}{7}\div\left\{\frac{6}{7}-\left(\frac{5}{7}\right)\right\}}$
$\Rightarrow \frac{\left(\frac{13}{8}\right)}{\frac{8}{7}\div\frac{1}{7}}$
$\Rightarrow \frac{\left(\frac{13}{8}\right)}{\frac{8}{7}\times\frac{7}{1}}$
$\Rightarrow \frac{\left(\frac{13}{8}\right)}{8}$
⇒ 13/64

Sol 43.
$= \frac{5}{7} \div 2 \times \left[\left\{2 \text{ of } \frac{11}{22}+\frac{2}{5}\right\} - \left\{\frac{3}{2} \text{ of } \frac{22}{15}-1\right\}\right]$
$= \frac{5}{7} \times \frac{1}{2} \times \left[\left\{2 \times \frac{11}{22}+\frac{2}{5}\right\} - \left\{\frac{3}{2} \times \frac{22}{15}-1\right\}\right]$
$= \frac{5}{14} \times \left[\left\{1+\frac{2}{5}\right\} - \left\{\frac{11}{5}-1\right\}\right]$
$= \frac{5}{14} \times \left[\frac{7}{5} - \frac{6}{5}\right]$
$= \frac{5}{14} \times \frac{1}{5}$
$= \frac{1}{14}$

Sol 44.
(72 + 34) ÷ 2 + [{(75 ÷ 15) + 6} × 2]
⇒ 106 ÷ 2 + [{5 + 6} × 2]
⇒ 53 + [11 × 2]
⇒ 53 + 22
⇒ 75

Sol 45.

	191
1	365 62
+1	1
29	265
+9	261
381	462
	381
	-81

the number of such army men remained unused was 81.

Sol 46.
Given, [8 + 3 × 10 − 8 ÷ 2 × 3 + 5 × 16 ÷ 4 − 9]
⇒ [8 + 3 × 10 − 4 × 3 + 5 × 4 − 9]
⇒ [8 + 30 − 12 + 20 − 9]
⇒ [58 − 21]
⇒ 37

Sol 47.
Solution:
x = $5\frac{1}{5} + 6\frac{2}{5} + 7\frac{3}{5} + 8\frac{4}{5}$
⇒ 26/5 + 32/5 + 38/5 + 44/5
⇒ (26 + 32 + 38 + 44)/5
⇒ 140/5
⇒ 28
∴ The required value of 'x' is 28

Sol 48.
Calculation
(51 + 51 + 51 + 51 + 51 + 51) × 5 × (51 + 51) × 6 ÷ (51 × 2) = 51 × ?
51 × 6 × 5 × 51 × 2 × 6 ÷ (51 × 2) = 51 × ?
51 × 6 × 5 × 6 = 51 × ?
? = 180

Sol 49.

Calculation
∛15625 - √x = 4
⇒ 25 - √x = 4
⇒ √x = 25 - 4
⇒ √x = 21
Squaring on both sides
∴ x = 441

Sol 50.
$\Rightarrow \frac{1}{\left(\sqrt{A}+\sqrt{A+1}-\sqrt{A-2}\right)} + \frac{1}{\sqrt{A+1}-\sqrt{A}+\sqrt{A-2}}$
put A = 2
$\Rightarrow \frac{1}{\left(\sqrt{2}+\sqrt{3}-\sqrt{2-2}\right)} + \frac{1}{\left(\sqrt{3}-\sqrt{2}+\sqrt{2-2}\right)}$
$\Rightarrow \frac{1}{\left(\sqrt{2}+\sqrt{3}\right)} + \frac{1}{\sqrt{3}-\sqrt{2}}$
$\Rightarrow \frac{\sqrt{3}-\sqrt{2}+\sqrt{3}+\sqrt{2}}{(3-2)} = 2\sqrt{3} = 2\sqrt{A+1}$

Sol 51.
We have, x = $(125)^{1/6}$ = √5
and, y = (√45 + √80 + √125)/√180 = (3√5 + 4√5 + 5√5)/6√5 = 12√5/6√5 = 2
Hence, $x^2 + y^2 = (\sqrt{5})^2 + 2^2 = 5 + 4 = 9$

Sol 52.
39/4 + [13/6 ÷ {13/3 - (5/2 + 3/4)}]
⇒ 39/4 + [13/6 ÷ {13/3 - 13/4}]
⇒ 39/4 + [13/6 ÷ 13/12]
⇒ 39/4 + [13/6 × 12/13]
⇒ 39/4 + 2
⇒ 47/4

Sol 53.
(33/40) + (1/5)[(4/5) − (1/5)(7/8 − 5/4)]
⇒ 33/40 + (1/5)[(4/5) − (1/5){(7 − 10)/8}]
⇒ 33/40 + (1/5)[4/5 + 3/40]
⇒ 33/40 + (1/5) × 35/40
⇒ 40/40 = 1
∴ The value of $\frac{33}{40} + \frac{1}{5}\left[\frac{4}{5} - \frac{1}{5} \times \left(\frac{7}{8} - \frac{5}{4}\right)\right]$ is 1.

Sol 54.

Calculation:
16% of 25 × 88 + 20% of 135 - 16 × (18 - 5% of 200) = ?
⇒ 16% of 25 × 88 + 20% of 135 - 16 × (18 − 10) = ?
⇒ (16/100) × 25 × 88 + (20/100) × 135 - 16 × (18 − 10) = ?
⇒ 4 × 88 + 27 − 16 × 8 = ?
⇒ 352 + 27 − 128 = ?
⇒ 379 − 128 = ?
⇒ 251 = ?
∴ The value of ? is 251

Sol 55.

Formula:
x% more a number = Actual number × (100 + x)/100
Calculation:
Let third number be 100, then
First number = 100 × (125/100) = 125
Second number = 100 × (165/100) = 165
∴ Ratio of the two numbers = 125 : 165 = 25 : 33

Sol 56.
a = b - 3 --- (1)
⇒ (a + 10)/b - a/b = 10/7
⇒ (a + 10 - a)/b = 10/7
⇒ 10/b = 10/7
⇒ b = 7
Put b = 7 in equation (1)
a = 7 - 3 = 4
So, the fraction is 4/7

Sol 57.
Calculation:
100 × 10 × 11 × 1.1 × 1
⇒ 1000 × 11 × 1.1
⇒ 12100
∴ The required answer is 12100

Sol 58.
Calculation:
LCM of 5, 4 = 20
⇒ [(4 − 5) / 20]
⇒ -1 / 20
⇒ (3 / 2) × (-1 / 20)
⇒ (-3 / 40)
⇒ {4 + 200 ÷ 50 − (3 / 40)}
⇒ {4 + 4 − (3 / 40)}
⇒ (160 + 160 − 3) / 40
⇒ (320 − 3) / 40
⇒ 317 / 40

Sol 59.
Calculations:
Considering the given equation
12.5% of 64 + 0.25 × 4 = $14\frac{2}{7}$% of ?
⇒ 1/8 × 64 + (//4) × 4 = 1/7 × ?
⇒ 8 + 1 = 1/7 × ?
⇒ 9 = 1/7 × ?

⇒ ? = 7 × 9
⇒ ? = 63
∴ The value of ? is 63.

Sol 60.
Calculation:
Let N = (5^{66} + 5^{66} + 5^{66} + 5^{66}) (3^{66} + 3^{66} + 3^{66})
⇒ N = 5 × 5^{66} × 3 × 3^{66}
⇒ N = 5^{67} × 3^{67}
⇒ N = 15^{67}
According to question,
15^{67} = $15^{(x + 7)}$
⇒ 67 = x + 7
⇒ x = 67 − 7
⇒ x = 60
∴ The value of (x/2) = 60/2 = 30

Sol 61.
$\frac{1}{x} = 5 + 2\sqrt{6}$

$x = \frac{1}{5+2\sqrt{6}} = \frac{5-2\sqrt{6}}{\left(5+2\sqrt{6}\right)\left(5-2\sqrt{6}\right)} = \frac{5-2\sqrt{6}}{25-24} = 5 - 2\sqrt{6}$

$x^2 = \left(5 - 2\sqrt{6}\right)^2 = 25 + 24 - 20\sqrt{6} = 49 - 20\sqrt{6}$

$\frac{1}{y} = 1 - \sqrt{\frac{2}{3}} = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}} = \frac{3-\sqrt{6}}{3}$

$y = \frac{3}{3-\sqrt{6}} = \frac{3\left(3+\sqrt{6}\right)}{\left(3-\sqrt{6}\right)\left(3+\sqrt{6}\right)} = \frac{3\left(3+\sqrt{6}\right)}{9-6} = 3 + \sqrt{6}$

$y^2 = (3 + \sqrt{6})^2 = 9 + 6 + 6\sqrt{6} = 15 + 6\sqrt{6}$

$= \sqrt{x^2 + y^2 + 14\sqrt{6}}$

$= \sqrt{49 - 20\sqrt{6} + 15 + 6\sqrt{6} + 14\sqrt{6}}$

$= \sqrt{64}$

= 8

Sol 62.
CALCULATION:
$$\frac{(0.6 \times 0.6 \times 0.6) + (0.5 \times 0.5 \times 0.5)}{(0.6 \times 0.6) + (0.5 \times 0.5) - 0.3}$$
$$\Rightarrow \frac{(0.216) + (0.125)}{(0.36) + (0.25) - 0.3}$$
$$\Rightarrow \frac{0.341}{0.31} = 1.1$$

LEVEL 2 63 - 149 Questions

Sol 63.
Calculation
323 ÷ 17 × √841 + 12^2
= 19 × 29 + 12^2
= 551 + 144
= 695

Sol 64.
$$\Rightarrow \left[\frac{8\frac{2}{5} \times 2\frac{6}{7}}{5}\right] + \left[\frac{\frac{3}{5} + \frac{4}{3}}{\frac{1}{3}}\right] - \left[1\frac{1}{5} \times 3\frac{1}{2}\right] = ?$$
⇒ [(42/5 × 20/7)/5] + [(29/15)/(1/3)] − [6/5 × 7/2] = ?
⇒ ? = (24/5) + (29/5) − (21/5)
⇒ ? = 32/5

Sol 65.
(3.4 × 3.4) + (2.4 × 2.4) − 16.32 = [(2.8 × 2.8) + (2.2 × 2.2) + 12.32] × x/100
(3.4 × 3.4) + (2.4 × 2.4) − 2 × 3.4 × 2.4 = [(2.8 × 2.8) + (2.2 × 2.2) + 2 × 2.8 × 2.2] × x/100
$(3.4 - 2.4)^2 = (2.8 + 2.2)^2$ × x/100
$(1)^2 = (5)^2$ × x/100
x = 4

Sol 66.
The given equation is:
$$\frac{\sqrt{?}}{3} + 6 \times 2 - 7 = 7$$
$$\frac{\sqrt{?}}{3} = 7 - 6 \times 2 + 7$$
$$\frac{\sqrt{?}}{3} = 7 - 12 + 7$$
$$\frac{\sqrt{?}}{3} = 2$$
√? = 6
? = 6^2
? = 36
∴ The required value of "?" in the given equation is 36

Sol 67.
$$\left(18 \div 2 \; of \frac{1}{4}\right) \times \left(\frac{2}{3} \div \frac{3}{4} \times \frac{5}{8}\right) \div \left(\frac{2}{3} \div \frac{3}{4} of \frac{3}{4}\right)$$
$$\Rightarrow \left(18 \div \frac{1}{2}\right) \times \left(\frac{2}{3} \times \frac{4}{3} \times \frac{5}{8}\right) \div \left(\frac{2}{3} \div \frac{9}{16}\right)$$
$$\Rightarrow (18 \times 2) \times \frac{5}{9} \div \left(\frac{2}{3} \times \frac{16}{9}\right)$$
⇒ 36 × 5/9 × 27/32
⇒ 135/8
$\Rightarrow 16\frac{7}{8}$

Sol 68.
$$\frac{3}{4} \; of \frac{4}{15} \times 11\frac{2}{3} - \left(3\frac{1}{2} - 2\frac{1}{6}\right)$$
⇒ 3/15 × 35/3 − (7/2 − 13/6)
⇒ 7/3 − 4/3 = 1

Sol 69.
15 of 8 + 6 + [(27 - 3) ÷ 6 + 4]
⇒ 15 of 8 + 6 + [24 ÷ 6 + 4]
⇒ 15 of 8 + 6 + [4 + 4]
⇒ 15 of 8 + 6 + 8
⇒ 15 × 8 + 6 + 8
⇒ 120 + 6 + 8 = 134

Sol 70.
Calculation:
Considering the given equation
$$\frac{\left(1\frac{3}{5}+1\frac{1}{3}\right) \div \left(1\frac{1}{2}+\frac{1}{3}\right)}{\left(26\% \; of \; 1\frac{7}{13}\right) + \left(\frac{4}{10} \times 1\frac{2}{4} \div \frac{1}{2}\right)} = ?$$
$$\Rightarrow \frac{\left(\frac{24+20}{15}\right) \div \left(\frac{9+2}{6}\right)}{\left(\frac{26}{100} \times \frac{20}{13}\right) + \left(\frac{4}{10} \times \frac{6}{4} \times 2\right)} = ?$$
$$\Rightarrow \frac{\frac{44}{15} \times \frac{6}{11}}{\frac{2}{5} + \frac{6}{5}} = ?$$
$$\Rightarrow \frac{\frac{8}{5}}{\frac{8}{5}} = ?$$
⇒ ? = 1
∴ The value of ? is 1.

Sol 71.
Given,
⇒ [15 × 2 + 65 ÷ 13 − 216 ÷ 18] + [7 × 9 − 90 ÷ 18] = $3^?$

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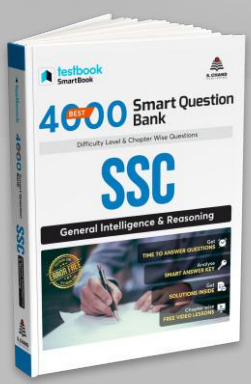

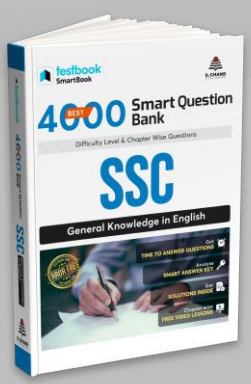

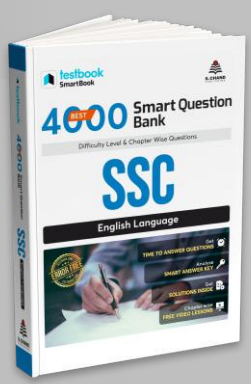

⇒ [15 × 2 + 5 − 12] + [7 × 9 − 5] = $3^?$
⇒ [30 + 5 − 12] + [63 − 5] = $3^?$
⇒ [35 − 12] + [63 − 5] = $3^?$
⇒ 23 + 58 = $3^?$
⇒ 81 = $3^?$
⇒ $3^4 = 3^?$
Using laws of indices,
⇒ ? = 4

Sol 72.
Calculation:
3 × 2 ÷ 3 of 12 − 3 ÷ 2 × (2 − 3) × 2 + 3 ÷ 2 of 3
⇒ 3 × 2 ÷ 3 of 12 − 3 ÷ 2 × -1 × 2 + 3 ÷ 2 of 3
⇒ 3 × 2 ÷ 36 − 3 ÷ 2 × -1 × 2 + 3 ÷ 6
⇒ 3 × (2/36) − (3/2) × -1 × 2 + 3/6
⇒ 1/6 + 3 + 1/2
⇒ $3\frac{2}{3}$

Sol 73.
Calculation:
$1/(9 - 4\sqrt{5})^2 + 1/(9 + 4\sqrt{5})^2$
⇒ $[(9 + 4\sqrt{5})^2 + (9 - 4\sqrt{5})^2]/[(9 - 4\sqrt{5})^2 (9 + 4\sqrt{5})^2]$
⇒ $(81 + 80 + 72\sqrt{5} + 81 + 80 - 72\sqrt{5})/(81 - 80)$
⇒ 322

Sol 74.

$$\Rightarrow 4\frac{1}{5} \div \left(2\frac{4}{5} \div \frac{2}{5}\text{of } 1\frac{2}{3}\right) \times \left[\left(2\frac{3}{4}\text{of } 1\frac{1}{11} \div \frac{3}{5}\right) \times \frac{2}{5}\right]$$
$$\Rightarrow \frac{21}{5} \div \left(\frac{14}{5} \div \frac{2}{5} \times \frac{5}{3}\right) \times \left[\left(\frac{11}{4} \times \frac{12}{11} \div \frac{3}{5}\right) \times \frac{2}{5}\right]$$
$$\Rightarrow \frac{21}{5} \div \left(\frac{14}{5} \div \frac{2}{3}\right) \times \left[\left(3 \div \frac{3}{5}\right) \times \frac{2}{5}\right]$$
$$\Rightarrow \frac{21}{5} \div \left(\frac{14}{5} \times \frac{3}{2}\right) \times \left[\left(3 \times \frac{5}{3}\right) \times \frac{2}{5}\right]$$

⇒ 21/5 ÷ 21/5 × 2
⇒ 1 × 2
⇒ 2

Sol 75.

$$\Rightarrow \frac{(0.03)^2 + (0.75)^2 + (0.091)^2}{(0.003)^2 + (0.075)^2 + (0.0091)^2} = \frac{(0.03)^2 + (0.75)^2 + (0.091)^2}{\left(\frac{1}{10^2}\right)[(0.03)^2 + (0.75)^2 + (0.091)^2]} =$$

100

Sol 76.
29% of 450 + ? = 2^{12}
⇒ 29 × 4.50 + ? = 4096
⇒ 130.5 + ? = 4096
∴ ? = 3965

Sol 77.
Given:
22% of x = 30% of y
Formula:
x% of y = y × (x/100)
Calculation:
22% of x = 30% of y
⇒ x × (22/100) = y × (30/100)
⇒ x/y = 30/22
⇒ y/x = 22/30
∴ y : x = 11 : 15

Sol 78.
Calculations:
Let the number added be x.
15% of 180 + x = 20% of 360
⇒ 180 × (15/100) + x = 360 × (20/100)
⇒ 27 + x = 72
⇒ x = 72 - 27 = 45
∴ The number to be added is 45.

Sol 79.
CALCULATION:
? = 4 + (1/6) [{-10 × (25 − 13 − 3)} ÷ (-5)]
⇒ ? = 4 + (1/6) [{-10 × (9} ÷ (-5)]
⇒ ? = 4 + (1/6) [-90/-5]
⇒ ? = 4 + (1/6) × 18
⇒ ? = 4 + 3
⇒ ? = 7

Sol 80.
Concept used:
Rationalization method and comparing method used.
Calculation:

$$\frac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$$
$$\Rightarrow \frac{(\sqrt{3}\ -1\ )}{(\sqrt{3}+1\ )} \times \frac{(\sqrt{3}\ -1\ )}{(\sqrt{3}\ -1\ )} = a + b\sqrt{3}$$
$$\Rightarrow \frac{(\sqrt{3}\ -1\ )^2}{(3\ -1\ )} = a + b\sqrt{3}$$
$$\Rightarrow \frac{3+1-2\sqrt{3}}{2} = a + b\sqrt{3}$$
$$\Rightarrow \frac{4-2\sqrt{3}}{2} = a + b\sqrt{3}$$
$$\Rightarrow 2 - \sqrt{3} = a + b\sqrt{3}$$

Comparing the equation both side we get,
a = 2 and b = -1
∴ The value of $a^2 + b^2 = 4 + 1 = 5$

Sol 81.
Given,
⇒ ? = [(1.569 × 1.569 × 0.431) + (1.569 × 0.431 × 0.431)] / [(1.569 + 0.431)^2 − (1.569 − 0.431)^2]
⇒ ? = [(1.569 × 1.569 × 0.431) + (1.569 × 0.431 × 0.431)] / [4 × 1.569 × 0.431]
⇒ ? = [(1.569 × 0.431) × (1.569 + 0.431)] / [4 × 1.569 × 0.431]
⇒ ? = (1.569 + 0.431)/4
⇒ ? = 2/4 = 0.5

Sol 82.
Calculation:
$\sqrt{625} \div 5 \times 3 + 15 - 25 = p + (9{,}261)^{1/3}$
⇒ $25 \div 5 \times 3 + 15 - 25 = p + (9{,}261)^{1/3}$
⇒ 5 × 3 + 15 - 25 = p + 21 (∵ $21^3 = 9261$)
⇒ 15 + 15 - 25 = p + 21
⇒ p + 21 = 30 - 25
⇒ p = 5 - 21
⇒ p = -16
∴ The value of p is -16.

Sol 83.
⇒ 40% of x − 12% of 2x = 15% of 80% of x + 51.4
⇒ 0.4x − 0.12 × 2x = 0.15 × 0.8x + 51.4
⇒ 0.4x − 0.24x = 0.12x + 51.4
⇒ 0.04x = 51.4
⇒ x = 51.4/0.04
∴ x = 1285

Sol 84.
Calculation:

$$\Rightarrow \frac{3}{1+\frac{1}{1+\frac{2}{7}}} + \frac{9}{1+\frac{2}{1+\frac{3}{7}}} + 31$$
$$\Rightarrow \frac{3}{1+\frac{7}{9}} + \frac{9}{1+\frac{14}{10}} + 31$$
$$\Rightarrow \frac{3}{\frac{16}{9}} + \frac{9}{\frac{24}{10}} + 31$$
$$\Rightarrow \frac{27}{16} + \frac{90}{24} + 31$$

$\Rightarrow \frac{27\times3+90\times2+31\times48}{48}$

$\Rightarrow \frac{81+180+1488}{48}$

$\Rightarrow \frac{1749}{48}$

$\Rightarrow \frac{583}{16}$

Sol 85.

Given:

25 × 3/15 + 2 × 25/5 × 3/15 + 12 × 5

Calculation:

25 × 3/15 + 2 × 25/5 × 3/15 + 12 × 5

= (25 × 3/15) + (2 × 25/5 × 3/15) + (12 × 5)

= 5 + 2 + 60

= 67

Sol 86.

Calculation:

{400% of 28 ÷ 21 × 12 - $(3)^3$ + 63 - 30 ÷ 3 + 10}

⇒ {112 ÷ 21 × 12 - $(3)^3$ + 63 - 30 ÷ 3 + 10}

⇒ {(16/3) × 12 - $(3)^3$ + 63 - 30 ÷ 3 + 10}

⇒ {64 - $(3)^3$ + 63 - 30 ÷ 3 + 10}

⇒ {64 - 27 + 63 - 30 ÷ 3 + 10}

⇒ {37 + 63 - 10 + 10}

⇒ 100

∴ The value of {4 of 28 ÷ 21 × 12 - $(3)^3$ + 63 - 30 ÷ 3 + 10} is 100.

Sol 87.

38% of 250 = 38/100 of 250 = 38/100 × 250 = 95

Sol 88.

16 ÷ 4 of 4 × [3 ÷ 4 of {4 × 3 ÷ (3 + 3)}] ÷ (2 ÷ 4 of 8)

⇒ 16 ÷ 16 × [3 ÷ 4 of {4 × 3 ÷ 6}] ÷ (2 ÷ 32)

⇒ 1 × [3 ÷ 4 of 2] ÷ 1/16

⇒ [3 ÷ 8] ÷ 1/16

⇒ [3/8] ÷ [1/16]

⇒ 6

Sol 89.

Given

$\frac{\left(3\frac{1}{5}+\frac{3}{5}\right)\div\frac{8}{5}}{1\frac{1}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$

$\Rightarrow \frac{\left(\frac{16}{5}+\frac{3}{5}\right)\div\frac{8}{5}}{\frac{8}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\div\frac{1}{5}\right)\right\}}$

$\Rightarrow \frac{\frac{19}{5}\times\frac{5}{8}}{\frac{8}{7}\div\left\{\frac{6}{7}-\left(\frac{1}{7}\times\frac{5}{1}\right)\right\}}$

$\Rightarrow \frac{\frac{19}{8}}{\frac{8}{7}\div\left\{\frac{6}{7}-\frac{5}{7}\right\}} = \frac{\frac{19}{8}}{\frac{8}{7}\div\frac{1}{7}} = \frac{\frac{19}{8}}{\frac{8}{7}\times\frac{7}{1}} = \frac{\frac{19}{8}}{\frac{8}{1}} = \frac{19}{8}\times\frac{1}{8} = \frac{19}{64}$

Sol 90.

⇒ P = 0.353535 ----(1)

Multiply by 100 in equation (1)

⇒ 100P = 35 + 0.3535....

⇒ 100P = 35 + P

⇒ 99P = 35

⇒ P = 35/99

Similarly,

⇒ Q = 64/99

⇒ (P + Q) = (35/99) + (64/99) = 99/99

⇒ $(P + Q)^3 = 1^3 = 1$

Sol 91.

Calculation:

Now,

$8^{(4x + 3)} = 64^{(3x + 1)}$

$\Rightarrow 8^{(4x + 3)} = (8 \times 8)^{(3x + 1)}$

$\Rightarrow 8^{(4x + 3)} = 8^{2(3x + 1)}$

Comparing powers

⇒ 4x + 3 = 6x + 2

⇒ 2x = 1

⇒ x = 1/2

2x + 3 = 2 × (1/2) + 3

⇒ 1 + 3

⇒ 4

∴ The value of (2x + 3) is 4.

Sol 92.

If x = $0.\bar{4}$ ----(1)

Multiply by 10 on both sides

⇒ 10x = 4 + 0.44...

⇒ 10x = 4 + x

⇒ x = 4/9

Similarly,

⇒ y = $0.\bar{3}$

⇒ y = 3/9

⇒ z = $0.\bar{2}$

⇒ z = 2/9

⇒ x + y + z = 4/9 + 3/9 + 2/9 = 1

Sol 93.

Calculations:

Considering the given equation

√(10 + √1521) = 25% of x + √(720 + √81)

⇒ √(10 + 39) = 25/100 × x + √(720 + 9)

⇒ √49 = x/4 + √729

⇒ 7 = x/4 + 27

∴ x = − 80

Sol 94.

Calculation:

46 ÷ [25 − {70 ÷ (335 − 150 ÷ 3 × 2 of 3)}]

⇒ 46 ÷ [25 − {70 ÷ (335 − 50 × 6)}]

⇒ 46 ÷ [25 − {70 ÷ (335 − 300)}]

⇒ 46 ÷ [25 − (70 ÷ 35)]

⇒ 46 ÷ [25 − 2]

⇒ 46 ÷ 23

⇒ 2

∴ The value of 46 ÷ [25 − {70 ÷ (335 − 150 ÷ 3 × 2 of 3)}] is 2.

Sol 95.

Calculation:

Considering the given equation

[√? + 50] = [(25 × 75) − (50 × 35)]

⇒ [√? + 50] = [(1875 − 1750)]

⇒ [√? + 50] = [125]

⇒ √? = 125 − 50

⇒ √? = 75

⇒ squaring both side

⇒ $(\sqrt{?})^2 = (75)^2$

⇒ ? = 5625

∴ ? = 5625

Sol 96.

Given

$3^{\sqrt[3]{x}} + 4^{\sqrt[3]{x}} = 5^{\sqrt[3]{x}}$

Put x = 8

$3^{\sqrt[3]{8}} + 4^{\sqrt[3]{8}} = 5^{\sqrt[3]{8}}$

$\Rightarrow 3^2 + 4^{2 =} 5^2$

⇒ 9 + 16 = 25

⇒ 25 = 25

∴ x

Sol 97.

Considering the given equation

$4 + \cfrac{1}{3 + \cfrac{1}{2 + \cfrac{1}{1 + \frac{1}{3}}}}$

$\Rightarrow 4 + \cfrac{1}{3 + \cfrac{1}{2 + \cfrac{1}{\frac{4}{3}}}}$

$\Rightarrow 4 + \cfrac{1}{3 + \cfrac{1}{2 + \frac{3}{4}}}$

$\Rightarrow 4 + \cfrac{1}{3 + \cfrac{1}{\frac{11}{4}}}$

$\Rightarrow 4 + \cfrac{1}{3 + \frac{4}{11}}$

$\Rightarrow 4 + \cfrac{1}{\frac{37}{11}}$

$\Rightarrow 4 + \frac{11}{37}$

$\Rightarrow \frac{148+11}{37}$

$\Rightarrow \frac{159}{37}$

Sol 98.

Calculation

$\sqrt{961} \div 35 \times 630 + ? = 32^2$

$\Rightarrow 31 \div 35 \times 630 + ? = 32^2$

$\Rightarrow (31/35) \times 630 + ? = 1024$

$\Rightarrow 558 + ? = 1024$

$\Rightarrow ? = 1024 - 558$

$\therefore ? = 466$

Sol 99.

Given:

$x = \cfrac{2}{1 + \cfrac{2}{3 + \frac{1}{4}}}, \quad y = \cfrac{1}{1 + \cfrac{1}{3 + \frac{5}{2}}}$

Calculations:

$\Rightarrow x = \cfrac{2}{1 + \cfrac{2}{\frac{13}{4}}}$

$\Rightarrow x = \cfrac{2}{1 + \frac{8}{13}}$

$\Rightarrow x = 2 \times 13/21$

$\Rightarrow x = 26/21$

And,

$\Rightarrow y = \cfrac{1}{1 + \cfrac{1}{\frac{11}{2}}}$

$\Rightarrow y = \cfrac{1}{1 + \frac{2}{11}}$

$\Rightarrow y = 11/13$

Then,

$\Rightarrow 21x - 13y = 21 \times 26/21 - 13 \times 11/13$

$\Rightarrow 26 - 11$

$\therefore 21x - 13y = 15$

Sol 100.

Calculation:

$32^{1/3} \times (1/2)^{2/3} = 4^k$

$\Rightarrow (2^5)^{1/3} \times (2)^{-2/3} = (2^2)^k$

$\Rightarrow (2)^{5/3} \times (2)^{-2/3} = (2)^{2k}$

$\Rightarrow 5/3 + (-2/3) = 2k$

$\Rightarrow 1 = 2k$

$\Rightarrow k = 1/2$

$\therefore$ The value of k is 1/2.

Sol 101.

Given expression:

$\Rightarrow 20 - [2.8 \times 5 + 6 - 3 \div 0.9 \times 1.5 + 2]$

$\Rightarrow 20 - [14 + 6 - 3 \times (1/0.9) \times 1.5 + 2]$

$\Rightarrow 20 - [20 - (1/0.3) \times 1.5 + 2]$

$\Rightarrow 20 - [20 - 5 + 2]$

$\Rightarrow 20 - 17 = 3$

Sol 102.

Now, given expression:

$\Rightarrow 1 \div \left[1\frac{1}{8} \div \cfrac{\left(3\frac{1}{5} + \frac{3}{5}\right) \div \frac{8}{5}}{\left\{\frac{5}{8} + \left(\frac{1}{8} \div \frac{1}{3}\right)\right\}}\right]$

$\Rightarrow 1 \div \left[\frac{9}{8} \div \cfrac{\left(\frac{16}{5} + \frac{3}{5}\right) \div \frac{8}{5}}{\left\{\frac{5}{8} + \left(\frac{1}{8} \times \frac{3}{1}\right)\right\}}\right]$

$\Rightarrow 1 \div \left[\frac{9}{8} \div \cfrac{\frac{19}{5} \times \frac{5}{8}}{\frac{5}{8} + \frac{3}{8}}\right]$

$\Rightarrow 1 \div [\frac{9}{8} \times \frac{8}{19}$

$\Rightarrow 1 \div [9/19]$

$\Rightarrow 19/9$

Sol 103.

Calculation:

$\sqrt{151 - \sqrt{882 + \sqrt{320 + \sqrt[3]{59 + 5}}}} + \sqrt[3]{214 + \sqrt[4]{15 + \sqrt{881 - 900 + 20}}}$

$\Rightarrow \sqrt{151 - \sqrt{882 + \sqrt{320 + 4}}} + \sqrt[3]{214 + \sqrt[4]{15 + \sqrt{1}}}$

$\Rightarrow \sqrt{151 - \sqrt{882 + \sqrt{324}}} + \sqrt[3]{214 + \sqrt[4]{16}}$

$\Rightarrow \sqrt{151 - \sqrt{882 + 18}} + \sqrt[3]{214 + 2}$

$\Rightarrow \sqrt{151 - \sqrt{900}} + \sqrt[3]{216}$

$\Rightarrow \sqrt{151 - 30} + 6$

$\Rightarrow \sqrt{121} + 6$

$\Rightarrow 11 + 6$

$\Rightarrow 17$

$\therefore$ Required answer is 17.

Sol 104.

Given:

$3^{2x^2 - 7x - 7} = 9$

Formula:

1-: $a^m \times a^n = a^{(m+n)}$

2-: $a^m \div a^n = a^{(m-n)}$

3-: $[(a^m)^n] = a^{mn}$

4-: $(a)^{(1/m)} = \sqrt[m]{a}$

5-: $(a)^{(-m)} = 1/a^m$

6-: $(a)^{(m/n)} = \sqrt[n]{a^m}$

7-: $(a)^0 = 1$

Calculation:

$3^{2x^2 - 7x - 7} = 9$

$3^{2x^2 - 7x - 7} = 3^2$

On comparing power

$2x^2 - 7x - 7 = 2$

$\Rightarrow 2x^2 - 7x - 9 = 0$

$\Rightarrow 2x^2 - 9x + 2x - 9 = 0$

$\Rightarrow x (2x - 9) + 1 (2x - 9) = 0$

$\Rightarrow (2x - 9) (x + 1) = 0$

Taking,

$2x - 9 = 0$

$\Rightarrow 2x = 9$

$\Rightarrow x = 9/2$

Taking,

x + 1 = 0
⇒ x = -1
∴ The value of x are 9/2 and (-1).

Sol 105.

$3\frac{1}{5} - \left[2\frac{1}{2} - \left\{\frac{5}{6} - \left(\frac{2}{5} + \frac{3}{10} - \frac{4}{15}\right)\right\}\right]$
$\frac{16}{5} - \left[\frac{5}{2} - \left\{\frac{5}{6} - \left(\frac{12+9-8}{30}\right)\right\}\right]$
$\frac{16}{5} - \left[\frac{5}{2} - \left\{\frac{5}{6} - \frac{13}{30}\right\}\right]$
$\frac{16}{5} - \left[\frac{5}{2} - \left\{\frac{25-13}{30}\right\}\right]$
$\frac{16}{5} - \left[\frac{5}{2} - \frac{12}{30}\right]$
[16/5] - [(75 - 12)/30]
[16/5] - [63/30]
16/5 - 21/10
(32 - 21)/10
11/10

Sol 106.

Given,
Using BODMAS rule,
⇒ (1181 × 2 − 324 ÷ 2) + (45 × 4 + 15 × 8) = 343 × ? + 33 × 3
⇒ (1181 × 2 −162) + (45 × 4 + 15 × 8) = 343 × ? + 33 × 3
⇒ (2362 − 162) + (180 + 120) = 343 × ? + 99
⇒ (2362 − 162) + 300 = 343 × ? + 99
⇒ 2200 + 300 = 343 × ? + 99
⇒ 343 × ? = 2401
⇒ ? = 7

Sol 107.

Calculation:
$(483 + 217) \times \frac{27}{189} + 32 \div 8 \times 12 + 2 = x$
$\Rightarrow 700 \times \frac{1}{7} + \frac{32}{8} \times 12 + 2 = x$
⇒ 100 + 4 × 12 + 2 = x
⇒ 100 + 48 + 2 = x
⇒ 150 = x
∴ Value of x is 150

Sol 108.

[0.9 - {2.3 - 3.2 - (7.1 - 5.4 - 3.5)}]
⇒ [0.9 - {2.3 - 3.2 - (-1.8)}]
⇒ [0.9 - {2.3 - 3.2 + 1.8}]
⇒ [0.9 - {4.1 - 3.2}]
⇒ [0.9 - 0.9]
⇒ 0.

Sol 109.

$\frac{\frac{1}{3} + \left[4\frac{3}{4} - \left(3\frac{1}{6} - 2\frac{1}{3}\right)\right]}{\left(\frac{1}{5} \text{ of } \frac{1}{5} \div \frac{1}{5}\right) \div \left(\frac{1}{5} \div \frac{1}{5} \times \frac{1}{5}\right)}$
$\frac{\frac{1}{3} + \left[\frac{19}{4} - \left(\frac{19}{6} - \frac{7}{3}\right)\right]}{\left(\frac{1}{25} \div \frac{1}{5}\right) \div \left(1 \times \frac{1}{5}\right)}$
$\frac{\frac{1}{3} + \left[\frac{19}{4} - \left(\frac{19-14}{6}\right)\right]}{\frac{1}{5} \div \frac{1}{5}}$
$\frac{1}{3} + \left[\frac{19}{4} - \frac{5}{6}\right]$
$\frac{1}{3} + \left[\frac{57-10}{12}\right]$
$\frac{1}{3} + \frac{47}{12}$
$\frac{4 + 47}{12}$
(51/12)
4.25

Sol 110.

Given,
⇒ $(5^2)^{x+2} \times (5^{-x})^4 = (5)^{x-5}$
⇒ $(5)^{(2x+4-4x)} = (5)^{x-5}$
⇒ $(5)^{(4-2x)} = (5)^{x-5}$
⇒ 4 − 2x = x − 5
∴ x = 3

Sol 111.

By eliminating option 1 and 3 as the square root of 2 and 8 can not be calculated.
Now by going through rest options,
⇒ $12^{\sqrt[4]{x}} + 5^{\sqrt[4]{x}} = 13^{\sqrt[4]{x}}$
⇒ $12^2 + 5^2 = 13^2$
⇒ 169 = 169
So, the value of x = 16

Sol 112.

Calculation:
$2\frac{3}{10} \div \left[3\frac{5}{6} \div \left\{5\frac{2}{3} - \left(1\frac{1}{2} + \frac{5}{2}\right)\right\}\right]$
⇒ 23/10 ÷ [23/6 ÷ {17/3 − (3/2 + 5/2)}]
⇒ 23/10 ÷ [23/6 ÷ {17/3 − 4}]
⇒ 23/10 ÷ [23/6 ÷ 5/3]
⇒ 23/10 ÷ [23/6 × 3/5]
⇒ [23/10] ÷ [23/10]
⇒ 1

Sol 113.

Calculation:
2.1 + 2.25 ÷ [63 - {7.5 × 8 + (13 - 2.5 × 5)}]
⇒ 2.1 + 2.25 ÷ [63 - {60 + (13 - 12.5)}]
⇒ 2.1 + 2.25 ÷ {63 - {60 + 0.5)}
⇒ 2.1 + 2.25 ÷ {63 - 60.5}
⇒ 2.1 + 2.25 ÷ 2.5
⇒ 2.1 + 0.9
⇒ 3

Sol 114.

Calculation:
∵ $93\frac{1}{3}$% of y = 280
⇒ (280/3)% × y = 280
⇒ 280/300 × y = 280
⇒ y = 300 ------(1)
∵ $26\frac{2}{3}$% × y = z
⇒ (80/3)% × y = z
⇒ (80/300) × 300 = z ------(From 1)
⇒ z = 80
∴ y + z = 300 + 80 = 380
⇒ 20% × (y + z)
= 20/100 × (380)
= 76

Sol 115.

Calculation:
25% of 2700 + 18% of 1900 = ?% of 3051
⇒ 2700 × 25/100 + 1900 × 18/100 = 3051 × ?/100
⇒ 675 + 342 = 3051 × ?/100
⇒ ? = 1017/3051 × 100
⇒ ? = 33.33%

Sol 116.

Let total number of students be x
As we know, 3/4 × 100 = 75%
Total number of students who are good in sports, interested in co-curricular activities and like music = 12% + 75% + 10% = 97%
Number of students who do not want to participate in the following activities = 100% - 97% = 3%
According to question
x × 3/100 = 15
⇒ x = 15 × 100/3

⇒ x = 500
∴ Total number of students is 500.

Sol 117.

$\left\{1\frac{1}{4}\ of\ \left(2\frac{1}{3}\div 1\frac{2}{5}\right)-1\frac{5}{12}\right\}+\frac{1}{9}\div 2\frac{1}{3}+\frac{2}{7}+\frac{1}{6}$

⇒ $\left\{\frac{5}{4}\ of\ \left(\frac{7}{3}\div\frac{7}{5}\right)-\frac{17}{12}\right\}+\frac{1}{9}\div\frac{7}{3}+\frac{2}{7}+\frac{1}{6}$

⇒ $\left\{\frac{5}{4}\times\left(\frac{7}{3}\times\frac{5}{7}\right)-\frac{17}{12}\right\}+\frac{1}{9}\times\frac{3}{7}+\frac{2}{7}+\frac{1}{6}$

⇒ $\left\{\frac{25}{12}-\frac{17}{12}\right\}+\frac{1}{21}+\frac{2}{7}+\frac{1}{6}$

⇒ $\frac{8}{12}+\frac{1}{21}+\frac{2}{7}+\frac{1}{6}$

⇒ $\frac{56+4+24+14}{84}$

⇒ $\frac{98}{84}$

⇒ $\frac{7}{6}$

Sol 118.

Concept used:
Increase in salary = Original salary × (100 + increase%)/100
Calculation:
Let the salary of Amit in 2016 was Rs. 'x'
⇒ x × {(100 + 10)/100} × {(100 + 15)/100} = 126500
⇒ x × 1.1 × 1.15 = 126500
⇒ x = 1,00,000
∴ The salary of Amit in 2016 was Rs. 1,00,000

Sol 119.

2/3 ÷ (8/3 × 6/5 ÷ 4/5) + 7/8 × (3/5 − 4/9 ÷ 5/3) − (3/7 × 1/4 ÷ 2/7)
= 2/3 ÷ (8/3 × 6/5 × 5/4) + 7/8 × (3/5 − 4/9 × 3/5) − (3/7 × 1/4 × 7/2)
= 2/3 ÷ 4 + 7/8 × (3/5 − 4/15) − 3/8
= 2/3 × 1/4 + 7/8 × 1/3 − 3/8
= 1/6 + 7/24 − 3/8
= 1/12

Sol 120.

Calculation:
25% of 960 + 55% of 740 = x
⇒ (25/100) × 960 + (55/100) × 740 = x
⇒ 240 + 407 = x
⇒ x = 647
∴ The value of x is 647.

Sol 121.

x = 1/(10 × 11) + 1/(11 × 12) + ……. + 1/(29 × 30)
⇒ x = (1/10) − (1/11) + (1/11) − (1/12) + (1/12) − ……..− (1/29) + (1/29) − (1/30)
⇒ x = 1/10 − 1/30 = (3 − 1)/30 = 2/30 = 1/15
⇒ y = 1/(20 × 21) + 1/(21 × 22) + …….+ 1/(39 × 40)
⇒ y = (1/20) − (1/21) + (1/21) − (1/22) + (1/22) − ……..− (1/39) + (1/39) − (1/40)
⇒ y = 1/20 − 1/40 = (2 − 1)/40 = 1/40
⇒ x : y = (1/15) : (1/40) = 8 : 3

Sol 122.

A = $[\frac{3}{7}\ of\ 4\frac{1}{5}\div\frac{18}{25}+\frac{17}{24}]\ of\ [\frac{289}{16}\div(\frac{3}{4}+\frac{2}{3})^2]$

A = $[\frac{3}{7}\ of\ \frac{21}{5}\div\frac{18}{25}+\frac{17}{24}]\ of\ [\frac{289}{16}\div(\frac{3}{4}+\frac{2}{3})^2]$

A = [3/7 × 21/5 × 25/18 + 17/24] × [289/16 ÷ (17/12)^2]
A = [3/7 × 21/5 × 25/18 + 17/24] × [289/16 × (12/17)2]
A = [3 × 3 × 5/18 + 17/24] × [144/16]
A = [5/2 + 17/24] × [9]
A = [60/24 + 17/24] × [9]
A = [77/24] × [9]
A = [77/8] × [3]
∴ 8A = 8 × [77/8] × [3]
∴ 8A = 231
∴ The value of 8A is 231

Sol 123.

⇒ $\frac{8}{9}of\left(5\frac{1}{4}\div 2\frac{1}{3}of\ 4\right)\div\left(8\div\frac{2}{3}of\frac{4}{5}\right)\ of\ \left(8\times\frac{2}{3}\div\frac{4}{5}\right)$

⇒ $\frac{8}{9}of\left(\frac{21}{4}\div\frac{7}{3}\times 4\right)\div\left(8\div\frac{2}{3}\times\frac{4}{5}\right)\ of\ \left(8\times\frac{2}{3}\times\frac{5}{4}\right)$

⇒ $\frac{8}{9}of\left(\frac{21}{4}\div\frac{28}{3}\right)\div\left(8\div\frac{8}{15}\right)of\frac{20}{3}$

⇒ $\frac{8}{9}of\left(\frac{21}{4}\times\frac{3}{28}\right)\div\left(8\times\frac{15}{8}\right)of\frac{20}{3}$

⇒ $\frac{8}{9}\times\frac{9}{16}\div\frac{20}{3}of 15$

⇒ $\frac{8}{9}\times\frac{9}{16}\times\frac{3}{20}of(1/15)$

⇒ 1/200

Sol 124.

Calculation
Let the value of ? be 'x'
Considering the given equation
[1/{1 + 2/(3 + 4/x)}] = (19/29)
⇒ [1/{1 + 2x/(3x + 4)}] = (19/29)
⇒ [(3x + 4)/(5x + 4)] = (19/29)
⇒ 87x + 116 = 95x + 76
⇒ 8x = 40
⇒ x = 5
∴ ? = 5

Sol 125.

Let other decimal number be A.
Given,
⇒ A × 1.6 = 0.768
⇒ A = 0.48

Sol 126.

Given expression is,

⇒ $\frac{72\div 9+3-6-(2\times 3)+5\ of\ 3-(1+5\times 2-2)}{8\div 4+2-(6\times 8\div 2)+(7\times 4-2\times 2)}=?$

⇒ $?=\frac{72\div 9+3-6-6+5\ of\ 3-(1+10-2)}{8\div 4+2-\left(6\times\frac{8}{2}\right)+(28-4)}$

⇒ $?=\frac{\frac{72}{9}+3-6-6+15-9}{\frac{8}{4}+2-24+24}$

⇒ $?=\frac{8+3-12+6}{2+2}$

⇒ ? = 5/4

Sol 127.

Calculation:
Considering the given equation
x = 60 + 40 ÷ (25 - 15) × (40% of 100) - (28.56% of 49)
x = 60 + 40 ÷ 10 × 40 - 14
x = 60 + 4 × 40 - 14
x = 60 + 160 - 14
x = 220 - 14
x = 206
Now we have to find how much x is less than 15^2
15^2 = 225
so 225 - 206 = 19

Sol 128.

Suppose A = 0.131131131……..∞ ----(1)
Multiply by 1000 in equation (1)
⇒ 1000A = 131 + 0.131131……∞
⇒ 1000A = 131 + A
⇒ 999A = 131
⇒ A = 131/999
Similarly,
Suppose B = 0.232232232….. ∞ ----(2)
Multiply by 1000 in equation (2)

⇒ 1000B = 232 + 0.232232……∞
⇒ 1000B = 232 + B
⇒ 999B = 232
⇒ B = 232/999
A + B = 131/999 + 232/999 = 121/333

Sol 129.
Calculation:
(0.72 × 0.26 + 0.18 × 0.52) ÷ (0.13 × 0.9)
⇒ (0.1872 + 0.0936) ÷ 0..117
⇒ 0.2808 ÷ 0.117 = 2.4
Or we can calculate the expression like this
(0.72 × 0.26)/(0.13 × 0.9) + (0.18 × 0.52)/(0.13 × 0.9)
⇒ 1.6 + 0.8 = 2.4
∴ 2.4

Sol 130.
Formula: $a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$
$\frac{0.72 \times 0.72 \times 0.72 - 0.39 \times 0.39 \times 0.39}{0.72 \times 0.72 + 0.72 \times 0.39 + 0.39 \times 0.39} = 0.72 - 0.39 = 0.33$

Sol 131.
Calculation:
Let the value of A be 5
Value of B be 6

A	5
B	6

----(i)
Let the value of B be 4
Value of C be 5

B	4
C	5

----(ii)
Now, value of B is different
So LCM of 6, 4 = 12
Now multiply equation (i) by 2 and equation (ii) by 3
So now the value of A, B and C become

A	B	C
10	12	15

According to question
C = 15 = 330
⇒ 15 = 330
⇒ 1 = 22
∴ The value of A = 22 × 10 = 220

Sol 132.
Let the value of X be 100
Now, first number = 100 × (100 - 50)% = 50
And, second number = 100 × (100 - 20)% = 80
∴ Ratio of first number and second number = 50 : 80 = 5 : 8

Sol 133.
Calculation:
Considering the given equation
$14\frac{2}{7}\% \ of \ 1400 - \{(10 \times 9) \div (8 - 2) \times 13\} - \frac{25^2}{5^3}$
$\Rightarrow \frac{100}{700} \times 1400 - (90 \div 6 \times 13) - \frac{5^4}{5^3}$
⇒ 100 × 2 – (15 × 13) – 5
⇒ 200 – 195 – 5
⇒ 200 – 200
⇒ 0

Sol 134.
(√77 + √35 - √22 - √10)(√77 - √35 + √22 - √10)
⇒ {(√77 - √10) + (√35 - √22)}{(√77 - √10) - (√35 - √22)}
Using, (a + b)(a - b) = $a^2 - b^2$
⇒ $(√77 - √10)^2 - (√35 - √22)^2$
⇒ (77 + 10 - 2√770) - (35 + 22 - 2√ 770)
⇒ 87 - 2√770 - 57 + 2√ 770
⇒ 30.

Sol 135.
By hit and trial, putting x = 8
$5^{\sqrt[3]{x}} + 12^{\sqrt[3]{x}} = 13^{\sqrt[3]{x}}$
$\Rightarrow 5^{\sqrt[3]{8}} + 12^{\sqrt[3]{8}} = 13^{\sqrt[3]{8}}$
$\Rightarrow 5^2 + 12^2 = 13^2$
⇒ 25 + 144 = 169
⇒ 169 = 169
⇒ L.H.S = R.H.S
∴ The value of x = 8.

Sol 136.
$\left[8 - \left\{6 - \left(3 - \overline{5 - 3}\right)\right\}\right] \ of \ \frac{1 + \frac{1}{4}}{1 - \frac{1}{4}} \div \frac{\frac{1}{3} + \frac{1}{4}}{\frac{1}{3} - \frac{1}{4}}$
$\Rightarrow [8 - \{6 - (3 - 2)\}] \ of \frac{\frac{5}{4}}{\frac{3}{4}} \div \frac{\frac{7}{12}}{\frac{1}{12}}$
$\Rightarrow [8 - \{6 - 1\}] \ of \frac{5}{3} \div 7$
$\Rightarrow [8 - 5] \ of \frac{5}{3} \div 7$
⇒ 3 of 5/3 ÷ 7
⇒ 5 ÷ 7
⇒ 5/7

Sol 137.
$\frac{3 \div \{5 - 5 \div (6 - 7) \times 8 + 9\}}{4 + 4 \times 4 \div 4 \ of \ 4}$
$= \frac{3 \div \{5 - 5 \div (-1) \times 8 + 9\}}{4 + 4 \times 4 \div 16}$
$= \frac{3 \div \{5 + 5 \times 8 + 9\}}{4 + 4 \times \frac{1}{4}}$
$= \frac{3 \div \{5 + 40 + 9\}}{4 + 1}$
$= \frac{3 \div \{54\}}{5}$
$= \frac{\frac{1}{18}}{5}$
= 1/90

Sol 138.
Calculation:
45 - 5 of (6.3 ÷ 9) + 7 × 0.5
⇒ 45 - 5 × 0.7 + 3.5
⇒ 45 - 3.5 + 3.5
⇒ 45

Sol 139.
Calculation:
$36 \div 2 + \frac{3}{4} \times \frac{3}{2}$
$= 18 + \frac{9}{8}$
$= \frac{153}{8} = 19\frac{1}{8}$
$\therefore \ 19\frac{1}{8}$

Sol 140.
$\frac{36 \div 42 \ of \ 6 \times 7 + 24 \times 6 \div 18 + 3 \div (2 - 6) - (4 + 3 \times 2) \div 8}{21 \div 3 \ of \ 7}$
$\Rightarrow \frac{36 \div 42 \times 6 \times 7 + 24 \times \frac{6}{18} + \frac{3}{-4} - (4 + 6) \div 8}{21 \div 3 \times 7}$
$\Rightarrow \frac{\frac{36}{42 \times 6} \times 7 + 8 - \frac{3}{4} - 10 \div 8}{21 \div 21}$
$\Rightarrow \frac{1 + 8 - \frac{3}{4} - \frac{10}{8}}{1}$
⇒ 1 + 8 – 3/4 – 5/4

⇒ (4 + 32 − 3 − 5)/4
⇒ 7

Sol 141.
Given,
⇒ ? = 7/8 of 16/49 of 21/50 of 5/18 of 1830
⇒ ? = 7/8 × 16/49 of 21/50 of 5/18 of 1830
⇒ ? = 2/7 × 21/50 of 5/18 of 1830
⇒ ? = 3/25 × 5/18 of 1830
⇒ ? = 1/30 × 1830
⇒ ? = 61

Sol 142.
Calculation:
⇒ 11 + 11 ÷ 11 × 11 − 11 + 11 ÷ 11 × 11 − 11 + 11 = ?
⇒ 11 + 1 × 11 − 11 + 1 × 11 − 11 + 11 = ?
⇒ 11 + 11 − 11 + 11 − 11 + 11 = ?
⇒ 11 + 11 = ?
⇒ ? = 22
∴ The value of ? is 22.

Sol 143.
Follow BODMAS rule to solve this question, as per the order given below:
Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,
Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,
Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,
Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.
⇒ 2 × 3 ÷ 2 of 3 × 2 ÷ (4 + 4 × 4 ÷ 4 of 4 − 4 ÷ 4 × 4)
⇒ 2 × 3 ÷ 6 × 2 ÷ (4 + 4 × 4 ÷ 16 − 4 ÷ 4 × 4)
⇒ 2 × 1/2 × 2 ÷ (4 + 4 × 1/4 − 1 × 4)
⇒ 1 × 2 ÷ (4 + 1 − 1 × 4)
⇒ 1 × 2 ÷ (5 − 4)
⇒ 1 × 2 ÷ 1 = 2

Sol 144.
The square root of 3249 = 57
Unit digit of 3249 = 9
∵ We know that the unit digit of 3^2 is 9 and the unit digit of 7^2 is also 9.
The square root must be a number whose unit digit will be either 3 or 7.
Hence, the required answer must be either 57 or 63 or 67.
Now, we know that 60^2 = 3600
∴ The required answer must be less than 60.
∴ The square root of 3249 will be 57.
Thus, the correct answer is option 3.

Sol 145.
Calculation:
(37.5% of 1,608) + (11.11% of 9,900)
⇒ (37.5% × 1,608) + (11.11% × 9,900)
⇒ (3 / 8 × 1,608) + (1 / 9 × 9,900) [37.5% = 3 / 8] [11.11% = 1 / 9]
⇒ 603 + 1,100
⇒ 1,703

Sol 146.
$\frac{10}{7}(1 - 2.43 \times 10^{-3})$ = 1.417 + x
⇒ $\frac{10}{7}(1 - 0.00243)$ = 1.417 + x
⇒ $\frac{10}{7}$ × 0.99757 = 1.417 + x
⇒ 1.4251 = 1.417 + x
⇒ x = 1.4251 − 1.417
∴ x = 0.0081

Sol 147.
$\left(\frac{2}{5}\right)^{-\frac{1}{2}} \times \left(\frac{5}{2}\right)^{\frac{1}{2}}$
⇒ $\left(\frac{5}{2}\right)^{\frac{1}{2}} \times \left(\frac{5}{2}\right)^{\frac{1}{2}}$
⇒ $\left(\frac{5}{2}\right)^{\frac{1}{2}+\frac{1}{2}}$
⇒ 5/2

Sol 148.
Simplify using BODMAS : Bracket - Of - Division - Multiplication - Addition - Subtraction
$2^3 \div 2^{-2} + \sqrt{36} + \sqrt{144} = ?$
⇒ $\frac{2^3}{2^{-2}} + 6 + 12 = ?$
⇒ 2^5 + 6 + 12 = ?
⇒ 32 + 6 + 12 = ?
∴ 50 = ?

Sol 149.
Given,
$\left[\frac{9^{x+8} - 81 \times 3^{2x-5}}{3^3 \times 9^{x+2}}\right] \div 3^{-5} = ?$
⇒ $[(3^{2x+16} - 3^4 \times 3^{2x-5})/(3^3 \times 3^{2x} \times 3^4)] \div 1/3^5$ = ?
⇒ ? = $[(3^{2x} \times 3^{16} - 3^{2x} \times 3^{-1})/(3^{2x} \times 3^7)] \div 1/3^5$
⇒ ? = $(3^9 - 3^{-8}) \div 3^{-5}$
⇒ ? = $(3^9 - 3^{-8}) \times 3^5$
⇒ ? = $3^{9+5} - 3^{-8+5}$
⇒ ? = $3^{14} - 3^{-3}$

LEVEL 3 150 - 200 Questions

Sol 150.
Concept used:
Increased% = (Increased population) / (Total population) × 100
Calculation:
Let the male population be x
∴ female population = 4800 - x
⇒ x × 108 / 100 + 95 / 100 × (4800 - x) = 5028
⇒ 13x / 100 + 4560 = 5028
⇒ x = 3600
∴ Male population at present = 3600

Sol 151.
Calculation:
223.3 + 22.33 + 2.233 + 0.2233 = ?
⇒ ? = 248.0863
∴ ? = 248.0863

Sol 152.
⇒ (5 + 5 ÷ 5 × 5) ÷ (5 ÷ 5 of 5) of (5 × 5 ÷ 5 of 5 + 5 ÷ 5 × 5)
⇒ (5 + 1 × 5) ÷ (5 ÷ 25) of (5 × 5 ÷ 25 + 1 × 5)
⇒ (5 + 5) ÷ (1/5) of (1 + 5)
⇒ 10 ÷ (1/5) of 6
⇒ 10 ÷ (6/5)
⇒ 10 × (5/6) = 25/3

Sol 153.
Given,
⇒ 3/4 ÷ 4/5 × 8/5 ÷ 4/3 × 16/27 + ? = 3
Using BODMAS rule,
⇒ 15/16 × 24/20 × 16/27 + ? = 3
⇒ 2/3 + ? = 3
⇒ ? = 3 − 2/3
⇒ ? = 7/3

Sol 154.
Given,
⇒ $(2.43 \times 10^7) \div (2.7 \times 10^{-5}) = (0.3^2 \times 10^{-5}) \times (0.05 \times 10^{20}) \times (?)$
⇒ $(243 \times 10^5) \div (27 \times 10^{-6}) = (9 \times 10^{-7}) \times (5 \times 10^{18}) \times ?$
⇒ $9 \times 10^{11} = 9 \times 10^{-7} \times (5 \times 10^{18}) \times ?$
⇒ $10^{18} = (5 \times 10^{18}) \times ?$

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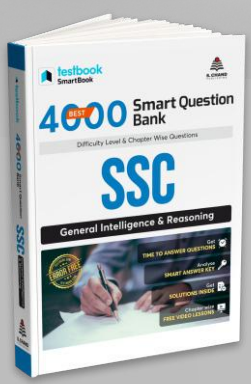

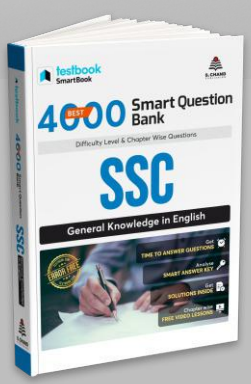

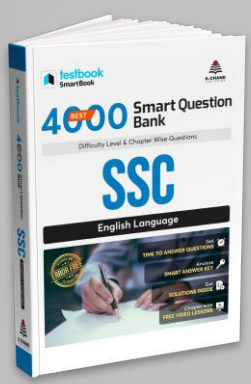

⇒ 1 = 5 × ?
⇒ ? = 0.2

Sol 155.
5 ÷ 5 of 5 × 2 + 2 ÷ 2 of 2 × 5 – (5 – 2) ÷ 6 × 2
⇒ 5 ÷ 25 × 2 + 2 ÷ 4 × 5 – 3 ÷ 6 × 2
⇒ 2/5 + 5/2 – 1
⇒ 19/10

Sol 156.
Calculation:
$\sqrt{\frac{1.96 \times 0.64}{1.6 \times 4.9}}$
$\Rightarrow \sqrt{\frac{\left(\frac{14}{10}\right)^2 \times \left(\frac{8}{10}\right)^2}{\frac{(4)^2}{10} \times \frac{(7)^2}{10}}}$
$\Rightarrow \frac{\frac{14}{10} \times \frac{8}{10}}{\frac{28}{10}}$
⇒ 4/10 = 0.4
∴ 0.4

Sol 157.
Given,
⇒ [{36.4 + 153.6} ÷ {185.6 – 175.6}] × 15.5 + 35.5 = ? × 82.5
⇒ [{190} ÷ {185.6 – 175.6}] × 15.5 + 35.5 = 82.5 × ?
⇒ [190 ÷ 10] × 15.5 + 35.5 = 82.5 × ?
⇒ 19 × 15.5 + 35.5 = 82.5 × ?
⇒ 294.5 + 35.5 = 82.5 × ?
⇒ 330 = 82.5 × ?
⇒ ? = 330/82.5
⇒ ? = 4

Sol 158.
⇒ [(4/5 + 1/4) × 2(7/6 + 1/7)] – 2/3 + 5/4 = 3 + ?
⇒ ? + 3 = [(21/20) × 2(55/42)] – 2/3 + 5/4
⇒ ? + 3 = [21/20 × 55/21] – 2/3 + 5/4
⇒ ? + 3 = 11/4 – 2/3 + 5/4
⇒ ? + 3 = 4 – 2/3
⇒ ? + 3 = 10/3
⇒ ? = 1/3

Sol 159.
Calculation:
150% of 15 + 75% of 75
⇒ 3/2 × 15 + 3/4 × 75
⇒ 22.5 + 56.25
⇒ 78.75
∴ Required number is 78.75

Sol 160.
$\Rightarrow 21.45 - \left[3.18 + \left\{9.87 \times \left(10.74 \div \overline{6.25 - 0.88}\right)\right\}\right]$
⇒ 21.45 – [3.18 + {9.87 × (10.74 ÷ 5.37)}]
⇒ 21.45 – [3.18 + {9.87 × 2}]
⇒ 21.45 – [3.18 + 19.74]
⇒ 21.45 – 22.92
⇒ -1.47

Sol 161.
Calculation:
$\left[121 \div \left\{\left(\frac{1}{5} of 25 + 3 of 2\right) \div 5 \div 55\right\}\right]$
$\Rightarrow \left[121 \div \left\{\left(25 \times \frac{1}{5} + 2 \times 3\right) \times \frac{1}{5} \times \frac{1}{55}\right\}\right]$
$\Rightarrow \left[121 \div \left\{(5 + 6) \times \frac{1}{5} \times \frac{1}{55}\right\}\right]$
$\Rightarrow \left[121 \div \left\{\frac{11}{5} \times \frac{1}{55}\right\}\right]$
⇒ 121 × 25
⇒ 3025
∴ The value is 3025.

Sol 162.
Calculation:
10% of m = 20% of n
⇒ (10/100) × m = (20/100) × n
⇒ 10 m = 20 n
⇒ m/n = 20/10
∴ m : n = 2 : 1

Sol 163.
$\frac{(0.3)^3 + (0.2)^3}{(0.3 - 0.2)^2} = ?$
$\Rightarrow \frac{0.027 + 0.008}{(0.1)^2} = ?$
⇒ ? = 0.035/0.01
⇒ ? = 35/10
∴ ? = 7/2

Sol 164.

Calculation:
Considering the given equation
⇒ 500 + 600% of 100 – 600 + (20 × 5 + 500 – 200) = ?
⇒ 500 + 600 – 600 + (400) = ?
⇒ 900 = ?
⇒ 900 = ?
∴ ? = 900

Sol 165.
$5 \div 5 \div 5 \div \overline{5 \; of \; 5}$
$= 5 \div 5 \div 5 \div 25$
$= 5 \times \frac{1}{5} \times \frac{1}{5} \times \frac{1}{25}$
$= \frac{1}{125}$

Sol 166.
Concept used:
Passing% = (Passing Marks) / (Total marks) × 100
Calculation:
Let the total marks be x and passing marks be p.
⇒ x × 70 / 100 = x × 50 / 100 + 180
⇒ 7x / 100 - 5x / 100 = 180
⇒ 2x / 100 = 180
∴ x = 900
Also, x × 40 / 100 = p - 50
⇒ 900 × 40 / 100 = p - 50
∴ passing marks = p = 410
⇒ Passing% = 410 / 900 × 100
∴ required passing% = 45.56%(approx.)

Sol 167.
(√2.89 ÷ 0.17 + √1.44 ÷ 0.3 of 0.4 – 1/20 of 200)
⇒ [1.7 ÷ 0.17 + 1.2 ÷ (0.3 × 0.4) – 200 × 1/20]
⇒ 10 + 1.2 ÷ 0.12 – 10
⇒ 10 + 10 – 10
∴ 10

Sol 168.
We know that $7^3 = 343$
So, a = 7, b = 3
∴ $b^a = 3^7 = 2187$

Sol 169.
Formula Used:
Sum of 'n' positive natural number = $\frac{n \times (n+1)}{2}$
Calculation:
$55\frac{1}{11} + 55\frac{2}{11} + 55\frac{3}{11} + \ldots + 55\frac{10}{11}$
$= 55 + \frac{1}{11} + 55 + \frac{2}{11} + \ldots + 55 + \frac{10}{11}$

$= (55 \times 10) + \frac{1}{11} + \frac{2}{11} + \ldots + \frac{10}{11}$
$= 550 + \frac{1+2+3+\ldots+10}{11}$
$= 550 + \frac{55}{11}$
= 555

Sol 170.

$\Rightarrow \sqrt{176 + \sqrt{2401}}$
$\Rightarrow \sqrt{176 + 49}$
$\Rightarrow \sqrt{225}$
⇒ 15

Sol 171.

$\sqrt{93 + \sqrt{32 + \sqrt{274 + \sqrt{225}}}}$
$\Rightarrow \sqrt{93 + \sqrt{32 + \sqrt{274 + 15}}}$
$\Rightarrow \sqrt{93 + \sqrt{32 + 17}}$
$\Rightarrow \sqrt{93 + 7} = 10$

Sol 172.

$7\frac{1}{3} \div 2\frac{1}{2}\ of\ 1\frac{3}{5} - \left(\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4}\right) - \frac{5}{24}$
$\Rightarrow \frac{22}{3} \div \frac{5}{2} \times \frac{8}{5} - \left(\frac{3}{8} + \frac{1}{7} \times \frac{7}{4}\right) - \frac{5}{24}$
$\Rightarrow \frac{22}{3} \div 4 - \left(\frac{3}{8} + \frac{1}{4}\right) - \frac{5}{24}$
⇒ 22/12 − 5/8 − 5/24
⇒ (44 − 15 - 5)24
⇒ 24/24
⇒ 1

Sol 173.

$\Rightarrow \left(\frac{27}{10^3} \times \frac{27}{10^5 \times 100} \times \frac{8}{10^4 \times 100} \times \frac{64}{100} \times 27\right)^{\frac{1}{9}}$
$\Rightarrow \left(\frac{3^3}{10^3} \times \frac{3^3}{10^7} \times \frac{2^3}{10^6} \times \frac{2^6}{10^2} \times 3^3\right)^{\frac{1}{9}}$
$\Rightarrow \left(\frac{3^9 \times 2^9}{10^{18}}\right)^{\frac{1}{9}}$
$\Rightarrow \frac{3 \times 2}{100}$
⇒ 6/100
⇒ 0.06

Sol 174.

$25\%\ of\ 20\%\ of\ 5 + 999\frac{391}{392} \times [15\%\ of\ 653\frac{1}{3}]$
= 5 × (20/100) × (25/100) + [999 + (391/392)] × [(1960/3) × (15/100)]
= (1/4) + [999 + 1 − (1/392)] × 98
= (1/4) + 999 × 98 + 98 − (98/392)
= (1/4) + 97902 + 98 − (1/4)
= 98000

Sol 175.

Given:
345.86 + 321.86 + 123.14 + 189.14
Calculation:
345.86 + 321.86 + 123.14 + 189.14
⇒ 980
∴ The value of ? is 980.

Sol 176.

Calculation:

$1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{5}}}$
$\Rightarrow 1 + \frac{2}{1 + \frac{3}{\frac{9}{5}}}$
$\Rightarrow 1 + \frac{2}{\frac{8}{3}}$
⇒ 1 + 3/4 = 7/4
∴ 7/4

Sol 177.

Solution:
Given number is 7.07, 7.70, 7.707, 7.007, 0.77
Required Ascending order = 0.77 < 7.007 < 7.07 < 7.70 < 7.707
∴ The number which is at third place is 7.07

Sol 178.

Given expression is −
{(8.6 × 2.5) + (1.6 × 4.5)} ÷ 0.7 = 14.5 × 4 − ?
⇒ {(21.5) + (7.2)} ÷ 0.7 = 14.5 × 4 − ?
⇒ (28.7) ÷ 0.7 = 14.5 × 4 − ?
⇒ 41 = 14.5 × 4 − ?
⇒ 41 = 58 − ?
⇒ ? = 58 − 41
⇒ ? = 17

Sol 179.

(0.15 × 4.4 + 0.33 × 0.75 − 0.055 × 0.5) = ?
⇒ 0.11 (0.15 × 40 + 3 × 0.75 − 0.5 × 0.5) = ?
⇒ 0.11 (6 + 2.25 − 0.25) = ?
⇒ 0.11 × 8 = ?
∴ ? = 0.88

Sol 180.

$(I)\ \sqrt{256} + \sqrt{0.0256} + \sqrt{121} + \sqrt{0.0121}$
⇒ 16 + 0.16 + 11 + 0.11
⇒ 27.27 = R.H.S.
This statement is correct.
$(II)\ \sqrt{12321} + \sqrt{123.21} + \sqrt{1234321} + \sqrt{123.4321}$
⇒ 111 + 11.1 + 1111 + 11.11
⇒ 1244.21 = R.H.S.
This statement is correct.
$(III)\ \sqrt{9801} + \sqrt{102.01} + \sqrt{1.2321} + \sqrt{0.0025}$
⇒ 99 + 10.1 + 1.11 + 0.05
⇒ 110.26 ≠ R.H.S.
This statement is wrong.
∴ Statement (I) and (II) are true.

Sol 181.

⇒ [√(62.72/2) + √(35.28/2) − √(1.28/2)]/∛(11.664/2) = 12.5% of p
⇒ [√31.36 + √17.64 − √0.64]/∛5.832 = p × 12.5/100
⇒ [5.6 + 4.2 − 0.8]/1.8 = p × 12.5/100
⇒ 9/1.8 = p × 12.5/100
⇒ 5 = p × 12.5/100
⇒ p = 5 × 100/12.5
⇒ p = 40

Sol 182.

17 × 29 = 493,
⇒ 170 × 0.029 = 17 × 29 × 10/1000 = 4.93

Sol 183.

Using BODMAS rule to solve this question, we have
⇒ {35% of (90% of 800)}% of 500 = ?
⇒ [35% of {(90/100) × 800}]% of 500 = ?
⇒ (35% of 720)% of 500 = ?
⇒ {(35/100) × 720}% of 500 = ?
⇒ 252% of 500 = ?
⇒ (252/100) × 500 = ?
∴ ? = 1260

Sol 184.
Total number of employees = 2000
Number of employees during the 4^{th} year = 2000 × 85/100 × 90/100 × 110/100 = 1683

Sol 185.
Given expression is,
56% of 700 − 60% of 280 + 25% of 400 + 72% of 950 − 66% of 150 = ?
⇒ ? = 56/100 × 700 − 60/100 × 280 + 25/100 × 400 + 72/100 × 950 − 66/100 × 150
⇒ ? = 392 − 168 + 100 + 684 − 99
⇒ ? = 909

Sol 186.
Let remaining question right be x, then
According to the question
60 × (65/100) + x = 120 × 75/100
39 + x = 90
x = 90 - 39 = 51
Required percentage = 51/60 × 100 = 85%
SHORT TRICK:
Using average method
(65 + y)/2 = 75
65 + y = 75 × 2
y = 150 - 65 = 85%

Sol 187.
20.05 − [3.06 − {3.57 + (6.24 × $\overline{4.09 - 1.59}$)}] = ?
⇒ 20.05 − [3.06 − {3.57 + (6.24 × 2.5)}]
⇒ 20.05 − [3.06 − {3.57 + 15.6}]
⇒ 20.05 − [3.06 − 19.17]
⇒ 20.05 − (-16.11)
⇒ 20.05 + 16.11 = 36.16

Sol 188.
(x − y) × 60/100 = (x + y) × 45/100
⇒ (x − y) × 4 = (x + y) × 3
⇒ 4x − 4y = 3x + 3y
⇒ x = 7y
⇒ x/y = 7/1
Suppose x = 7 and y = 1
⇒ y = k% of x
⇒ 1 = k% × 7
⇒ k% = 1/7
⇒ k = 100/7
⇒ 21% of k
⇒ 21/100 × 100/7 = 3

Sol 189.
$(0.08\% \text{ of } 0.008\% \text{ of } 8)^{1/9}$
$(8 \times 0.008/100 \times 0.08/100)^{1/9}$
$[(8 \times 8 \times 8) / (100 \times 1000 \times 100 \times 100)]^{1/9}$
$[(2/10)^9]^{1/9}$
2/10
0.2

Sol 190.
Let the fraction be 100/100
According to the question,
Numerator of a fraction in increased by 60%
⇒ Numerator = 100 + (60/100) × 100 = 160
Denominator is decreased by 60%
⇒ Denominator = 100 - (60/100) × 100 = 40
⇒ New fraction = 160/40 = 4
∴ New fraction is 4 times the older fraction.

Sol 191.
$2^{9y} = 64$
⇒ 2^{9y}⇒ $= 2^6$
Comparing on power
⇒ 9y = 6
⇒ y = 6/9
⇒ y = 2/3
∴ $125^y = 5^{3y}$
⇒ $5^{3(2/3)}$
⇒ 5^2
⇒ 25

Sol 192.
$\left(\sqrt{3}^5\right) \times 9^2 = 3^n \times 3\sqrt{3}$
⇒ $3^{5/2} \times 3^4 = 3^n \times 3^{3/2}$
⇒ $[3^{5/2} \times 3^4]/3^{3/2} = 3^n$
⇒ $3^{5/2 + 4 - 3/2} = 3^n$
⇒ $3^5 = 3^n$
Comparing power, we get
⇒ n = 5

Sol 193.
$3^4 \times 2^6 \div 4^2 + 5^2 \times 7^1 + 1 = 5^3 \times 2^?$
⇒ $3^4 \times 2^6 \div 4^2 + 5^2 \times 7^1 + 1 = 81 \times 2^2 + 175 + 1 = 500$
⇒ $5^3 \times 2^? = 500 = 5^3 \times 2^2$
∴ ? = 2

Sol 194.
Given,
$$\Rightarrow ? = \frac{(0.3266 \times 1.544 \times 117.5)}{(163.3 \times 0.7720 \times 4.70)}$$
⇒ ? = (3266 × 1544 × 1175 × 10^{-8}) / (1633 × 7720 × 470 × 10^{-7})
⇒ ? = (2 × 1/5 × 5/2 × 10^{-1})
⇒ ? = 0.1

Sol 195.
$$12\frac{3}{4} + 27\frac{1}{2} - 6\frac{2}{5} - 3\frac{7}{10}$$
Solving the given equation:
⇒ 51/4 + 55/2 − 32/5 − 37/10
⇒ 161/4 − 101/10
⇒ 1206/40
⇒ 603/20

Sol 196.
Converting the decimal values into corresponding fractions:
33.33% = 1/3
12.5% = 1/8
40% = 2/5
Calculation:
33.33% of 342 + 12.5% of 800 + x = 40% of 900
(1/3) × 342 + (1/8) of 800 + x = (2/5) × 900
114 + 100 + x = 360
⇒ 214 + x = 360
⇒ x = 360 − 214 = 146
∴ The value of 'x' is 146.

Sol 197.
Calculation:
⇒ (5 × 8 × 48/4 × 3) ÷ (11/7 + 17/7)
⇒ (5 × 2 × 16) ÷ (28/7)
⇒ 160/4
∴ $\left(\frac{5}{4} of \frac{8}{3} of\ 48\right) \div \left(\frac{11}{7} + 17\ of \frac{1}{7}\right) = 40$

Sol 198.
As we know
⇒ 8/13 = 0.61
⇒ 7/15 = 0.46
⇒ 5/11 = 0.45
⇒ 0. 27
The greatest number among them = 0.61 = 8/13

Sol 199.
The given expression,

$\Rightarrow ? = (0.00032)^{0.6}$
$\Rightarrow ? = (32 \times 10^{-5})^{0.6}$
$\Rightarrow ? = (2 \times 10^{-1})^{5 \times 0.6}$
$\Rightarrow ? = 2^3 \times 10^{-3}$
$\therefore ? = 0.008$

Sol 200.
P is 40% less than Q.
Let Q be 100y, then P be 60y.
$\Rightarrow (Q - P)/P = 40y/60y = 66.66\%$
$\therefore$ Q is 66.66% more than P.

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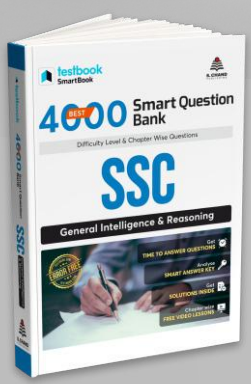

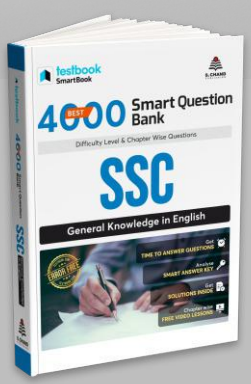

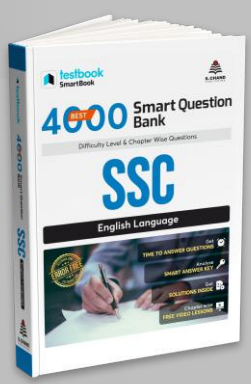

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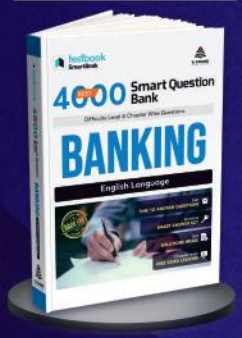

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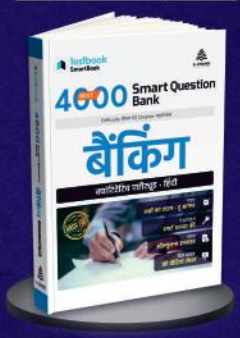

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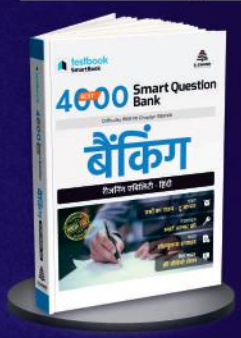

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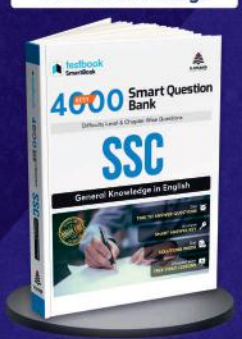

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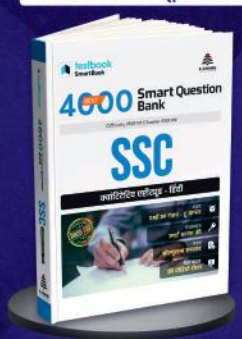

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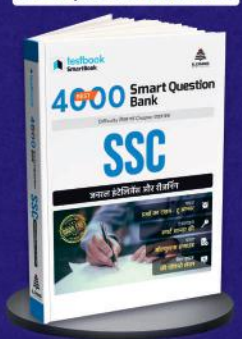

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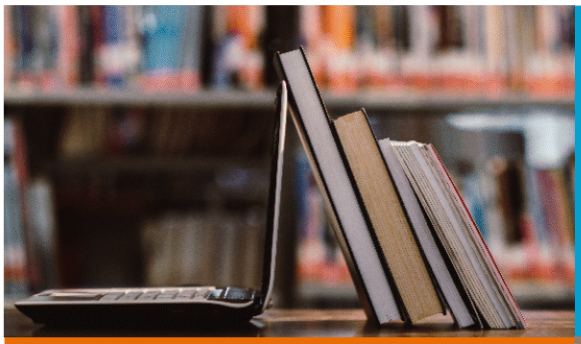

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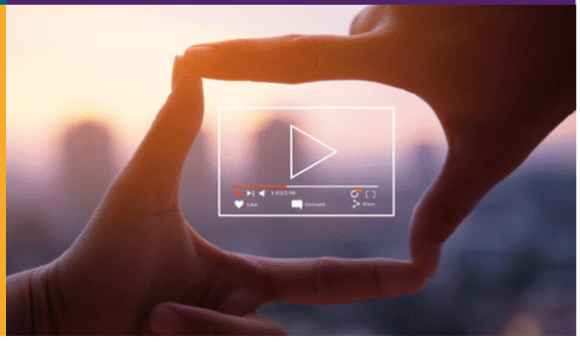

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