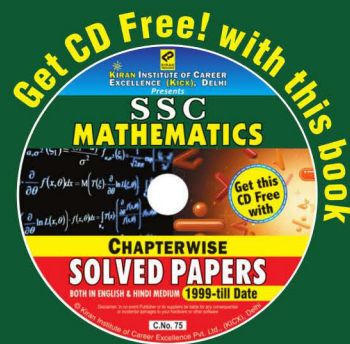


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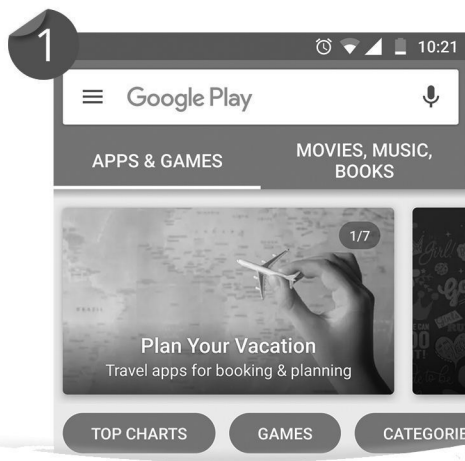
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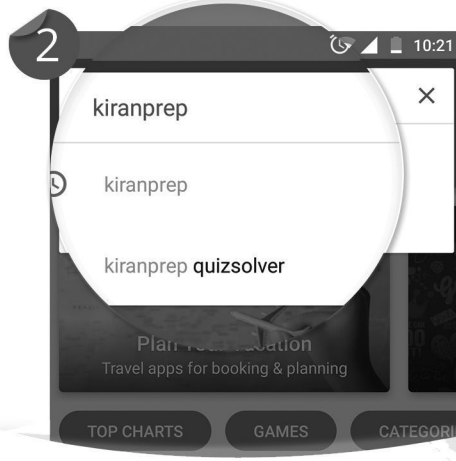
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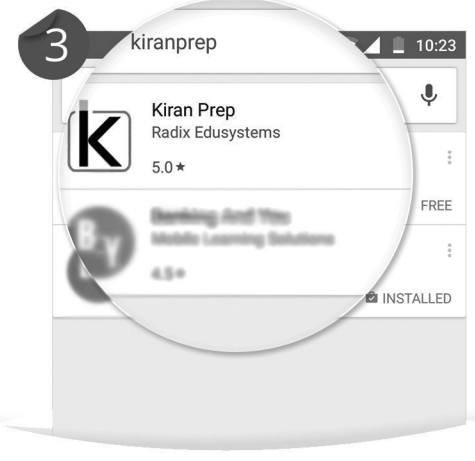
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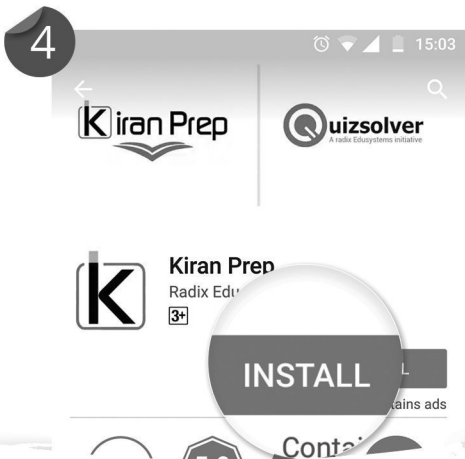
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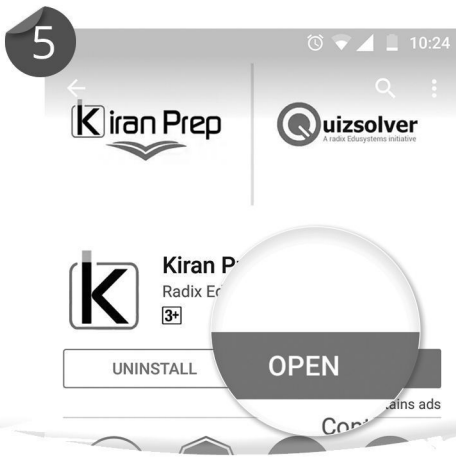
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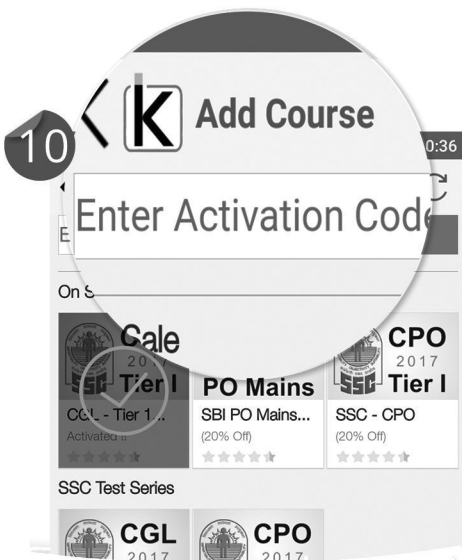
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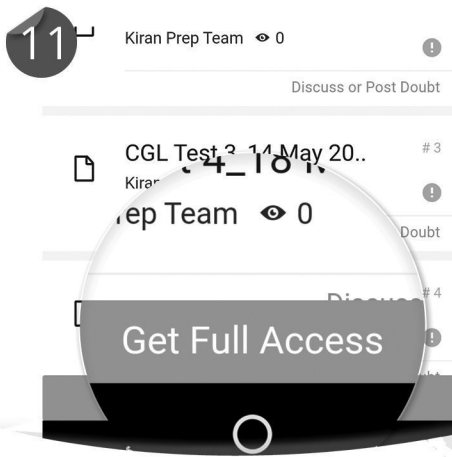
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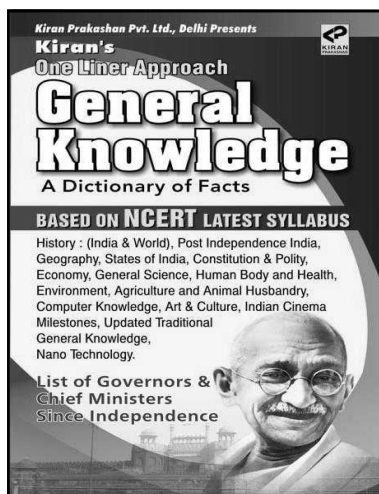
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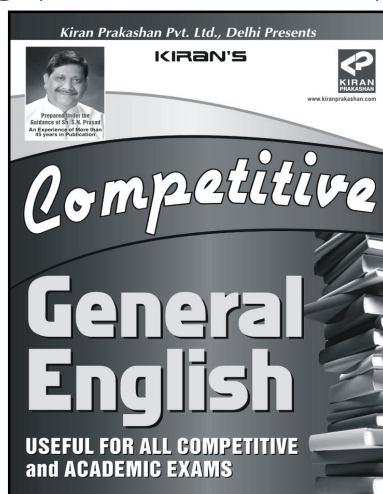
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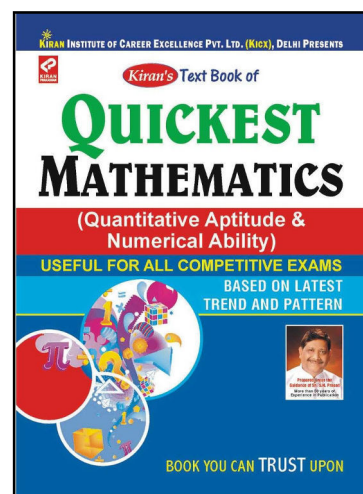
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The book before you, **Kiran's SSC Mathematics Chapterwise Solved Papers**, has been based on the questions of Quantitative Aptitude/ Numerical ability that have been asked in the various competitive examinations at the **CGL (Tier I & II), CHSL (10+2) and Matric levels**. This book has been conceived as a holistic treatment and single solution to all the difficulties that a candidate encounters while appearing for the SSC exams. The **Think-Tank of Kiran Prakashan** has taken into account the needs and difficulties of candidates and made an attempt to simplify the subject matter by de-constructing every thread and each pattern. The questions asked in the different examinations conducted by the SSC have been not only compiled at one place, but also compartmentalized topicwise/typewise to grasp and digest easily with the help of comprehensive explanations and tricky solutions. This is a rare collection of **more than 8900 questions** and their respective explanations. It wouldn't be bragging if we say, do master these questions and their explanations, you will automatically find yourself at ease with most of what surfaces in form of examination questions. In other words, master this book sincerely; success will itself become the mistress.

This edition of **Kiran's SSC Mathematics Chapterwise Solved Papers** has been parceled out into **22 chapters**, each dealing with study materials, Topicwise and comprising bulk of questions and explanations. The chapters are : **Number System, LCM and HCF, Simplification, Power, Indices and Surds, Average, Ratio and Proportion, Percentage, Profit and Loss, Discount, Simple Interest, Compound Interest, Time and Work, Pipe and Cistern, Time and Distance, Boat and Streams, Sequence and Series, Algebra, Trigonometry, Geometry, Mensuration, Statistics and Data Interpretation and Miscellaneous.**

Explanations to the questions serve in some way as highly directed study material. We have ensured not to bombard you with bulky study materials which sometimes prove futile if a candidate is facing severe crunch of time.

**Johann Wolfgang von Goethe, considered the supreme genius of modern German literature, said once: "What is not started today is never finished tomorrow."**

Relating to what Goethe had to say, we are proud to have made the beginning of a start. And, that start is **Kiran's SSC Mathematics Chapterwise Solved Papers**, where facts have been consolidated and refined and presented in the easy-to-digest objective question format which have actually been already asked in the different levels and formats of competitive examinations. Scientifically it has been proved that you tend to remember anything for long if that has been asked from you and you found yourself in a testing situation.

So, this book has been scientifically weaved on the principle of **'Test to Prepare and Success.'**

As our experience suggests, SSC, to a great extent, follows the pattern of questions asked in previous examinations. But the scope has been enlarged now. Earlier syllabus was of Arithmetic alone, now it is syllabus of Mathematics. New syllabus has some new topics such as, Trigonometry, Geometry and Algebra with Co-ordinate Geometry. The new syllabus has been given in the introduction.

Last, but not the least, there is no shortcut to success. Only hard work and perseverance pays rich dividends in the long term. So, it is desirable on your part to make the best out of this unique offering before you. Let us remind you that the questions you find in this book will not only help you prepare for the SSC examinations, they will equip you with the much required knowledge and insight in 'cracking' other examinations as well.

Hugh Nibley, the famous American author and Mormon apologist said: **"Only if you reach the boundary will the boundary recede before you. And if you don't, if you confine your efforts, the boundary will shrink to accommodate itself to your efforts. And you can only expand your capacities by working to the very limit."**

Our researchers have taken painstaking efforts in the direction of accommodating and expanding to the limit. The guiding principle has been to have an eye on whatever is significant, and when you do have such a microscopic eye, there is little that can be expected to have been ignored. So, here is our new, novel and unique offering to you, **Kiran's SSC Mathematics Chapterwise Solved Papers**. You will find a CD and scratch card for online test. This will help you prepare for the SSC online exam pattern. Read this book with pen and paper and digest it thoroughly to reach the limits of life. Have a serious glance to know what it is all about.

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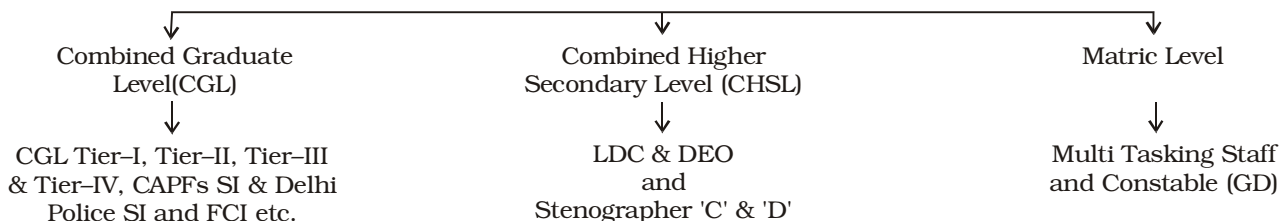
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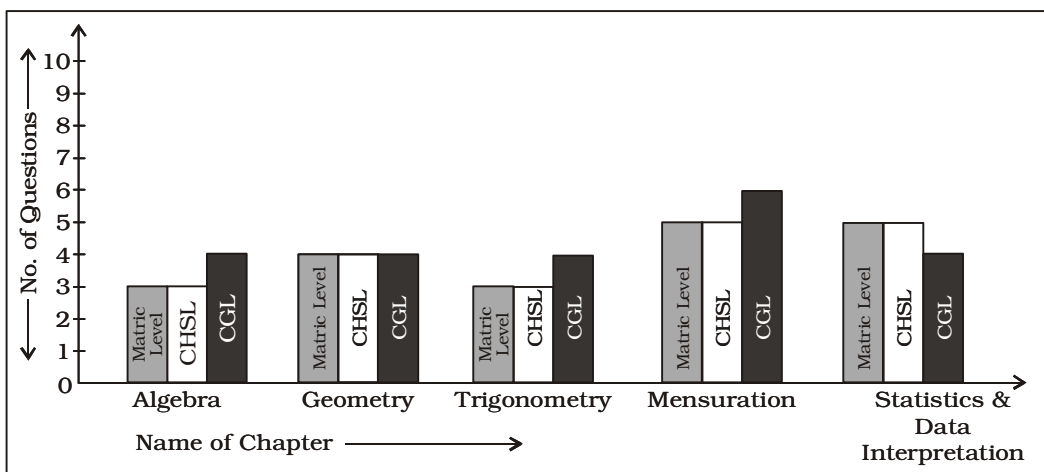
## SOME NOTABLE FACTS

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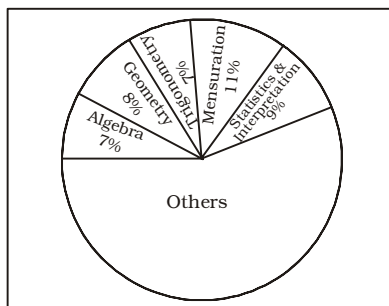


- Staff Selection Commission Conducts examination for Graduate Level, Higher Secondary Level and Matric Level on all India basis.
- Till now SSC conducted Combined Graduation level Examination used to be held in two parts i.e. Tier-I and Tier-II. But from now onwards this examination will be held in four parts i.e. Tier-I, Tier-II, Tier-III and Tier-IV.
- Earlier in SSC conducted Tier-I Exam used to have 50 questions on Mathematics out of 200 questions, while in Tier-II a candidate had to answer 100 questions. But from 2016 onwards in Tier-I out of 100 questions, 25 questions will be on Mathematics, while a candidate has to answer 100 questions in Tier-II.
- SSC Conducts Tier-I examination for CHSL of 100 questions out of which Mathematics carries a weightage of 25 questions.
- Matric Level exams are conducted for Multi Tasking Staff in which out of 150, 25 questions are from Mathematics and in Constable GD exam weightage of Mathematics is 25 questions out of 100.
- The Changing nature of Mathematics questions in recent exams conducted by SSC make this subject very important and deciding factor in success or failure.

### TOP 5 IMPORTANT CHAPTERS



- Combination of Algebra, Geometry, Trigonometry, Mensuration and Statistics & Data Interpretation in recent Exams (2011-2017)



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- ➔ We have tried to compile questions asked in various exams (Bank PO, Clerk, SSC, Railway, Insurance, RBI, Air Force, by UPSC such as IAS CSAT, CDS, CAPF, NDA, Police, Postal Assistant, Teachers Recruitment Exams and various State Public Service Commission etc; CAT, MAT, XAT etc.). These examples have been solved by conventional methods as well as by short-cut methods.
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**TOPICWISE DISTRIBUTION OF QUESTIONS OF SSC GRADUATE LEVEL  
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**QUANTITATIVE APTITUDE**

S. No.	TOPICS	* Average number of Questions	EXAMINATIONS															
			SSC CGL Tier-I 16.05.2010 (1st Sitting)	SSC CJSF 29.08.2010	SSC CPO SI 12.12.2010	SSC CGL Tier-I 26.06.2011	SSC CPO SI & ASI 28.08.2011	SSC CGL Tier-II 16.09.2012	SSC CGL Tier-I 21.04.2013	SSC CGL Tier-II 29.09.2013	SSC CGL Tier-II 21.09.2014	SSC CGL Tier-I 26.10.2014	SSC CGL Tier-II 12.04.2015	SSC CAPFs SI, CJSF ASI & D.P. SI 21.06.2015	SSC CGL Tier-I 16.08.2015	SSC CGL Tier-II 25.10.2015	SSC CGL Tier-I (Ind Sitting) 27.10.2016	SSC CGL Tier-II (CBE) 12.01.2017
1.	Number System	1	4	3	2	3	2	4	2	4	1	—	4	—	2	3	1	4
2.	LCM and HCF	1	2	1	1	2	—	1	2	1	3	—	—	—	1	2	—	2
3.	Simplification	1	5	7	6	7	—	—	2	—	3	2	3	2	—	1	—	2
4.	Power, Indices and Surds	2	6	3	7	4	4	1	3	1	1	3	3	3	1	4	—	1
5.	Average	3	2	2	3	2	2	5	2	8	7	2	6	1	1	6	1	5
6.	Ratio and Proportion	3	3	4	4	3	3	5	2	5	3	1	5	3	2	7	1	6
7.	Percentage	2	2	5	4	4	2	5	2	4	5	1	3	2	1	4	1	6
8.	Profit and Loss	3	3	4	4	5	5	6	3	6	6	—	7	3	2	5	1	7
9.	Discount	2	2	2	2	3	—	4	1	4	4	4	5	1	1	4	1	3
10.	Simple Interest	1	1	3	2	1	2	1	1	1	1	1	1	—	—	2	1	—
11.	Compound Interest	1	2	1	1	2	—	3	1	3	3	—	3	1	1	3	—	4
12.	Time and Work	2	3	3	3	3	2	3	1	3	3	3	6	1	3	5	1	6
13.	Pipe and Cistern	1	—	1	1	—	1	2	1	2	2	—	1	—	—	2	—	—
14.	Time and Distance	2	3	2	2	1	1	3	1	3	2	2	2	2	3	4	1	4
15.	Boat and Stream	1	—	1	1	1	1	1	1	1	1	—	2	—	—	1	—	—
16.	Sequence and Series	1	2	2	3	—	—	1	—	2	2	—	—	—	—	—	—	—
17.	Algebra	4	3	—	—	—	5	9	5	8	10	4	8	5	8	10	4	9
18.	Trigonometry	4	—	—	—	—	5	10	5	10	10	6	9	5	7	9	3	10
19.	Geometry	4	—	—	—	—	4	11	5	10	10	7	7	3	5	7	4	7
20.	Mensuration	6	3	—	1	5	6	15	5	15	15	5	20	8	5	16	1	19
21.	Statistics & Data Interpretation	4	3	3	3	4	5	5	5	6	5	7	5	9	7	5	4	5
22.	Miscellaneous	1	1	—	—	—	—	5	—	3	3	2	—	1	—	—	—	—
Total Number of Questions		50	50	50	50	50	50	100	50	100	100	50	100	50	50	100	25	100

\* Average number of questions is based on the data available in the chart mentioned above (Considering 50 questions set)

# ARE YOU AN ASPIRANT OF SSC TIER-I, TIER-II, FCI, 10+2 LDC & DATA ENTRY OPERATOR AND MATRIC LEVEL EXAMS ?

**You do well know that in the recent exams conducted by SSC, 20–30 questions (out of 50) were asked from 1.ALGEBRA 2.TRIGONOMETRY 3.GEOMETRY 4.MENSURATION topics. The chart given below proves the importance of these topics.**

	ALGEBRA	TRIGONOMETRY	GEOMETRY	MENSURATION
SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (1st Sitting)	10	5	4	6
SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (2nd Sitting)	6	6	5	4
SSC CGL Tier-II Exam, 25.10.2015	22	9	11	12
SSC CGL Tier-I Exam, 30.08.2015	11	7	8	3
SSC CGL Tier-I Exam, 19.08.2015 (2nd Sitting)	10	7	9	2
SSC Combined Graduate Level (CGL) Tier-I Exam, 21.04.2013	7	5	8	5
SSC FCI Assistant Grade-III Exam, 07.04.2013	5	5	5	6
SSC FCI Assistant Grade-III Exam, 11.11.2012	6	5	6	5
SSC 10+2 Higher Secondary Level Data Entry Operator & LDC Exam, 04.11.2012	4	6	4	4

## CONTENTS

### ALGEBRA

- ❖ **Chapter-01** : Indices and Surds
- ❖ **Chapter-02** : Polynomials
- ❖ **Chapter-03** : Factorisation of Quadratic Polynomials
- ❖ **Chapter-04** : Simplification of Fractions
- ❖ **Chapter-05** : Algebraic Identities
- ❖ **Chapter-06** : Solutions of Linear Equations
- ❖ **Chapter-07** : Graphic Representation of Straight Lines
- ❖ **Chapter-08** : Co-ordinate Geometry
- ❖ **Chapter-09** : Sequence and Series

### IMPORTANT POINTS AT A GLANCE

#### TRIGONOMETRY

- ❖ **Chapter-10** : Circular Measure of Angles
- ❖ **Chapter-11** : Trigonometric Ratios
- ❖ **Chapter-12** : Trigonometric Identities
- ❖ **Chapter-13** : Heights and Distances

### IMPORTANT POINTS AT A GLANCE

#### GEOMETRY

- ❖ **Chapter-14** : Lines and Angles
- ❖ **Chapter-15** : Triangles : Similarity and Congruence
- ❖ **Chapter-16** : Quadrilaterals
- ❖ **Chapter-17** : Circles : Chords and Tangents

### IMPORTANT POINTS AT A GLANCE

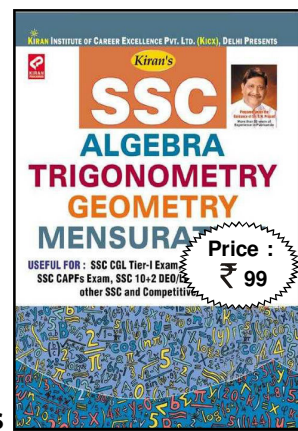
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# TOPICWISE DISTRIBUTION OF QUESTIONS SSC 10+2 DEO & LDC AND MATRIC LEVEL EXAMS HELD ON DURING 2010-2017

## QUANTITATIVE APTITUDE

S. No.	TOPICS	* Average number of Questions	EXAMINATIONS															
			SSC DEO & LDC 27.11.2010	SSC DEO & LDC 20.02.2011	SSC Multi-Tasking 27.02.2011	SSC Constable (GD) 05.06.2011	SSC DEO & LDC 04.12.2011	SSC Cons. (GD) & Rifleman (GD) 22.04.2012 (1st S)	SSC DEO & LDC 11.12.2012	SSC Multitasking Staff 17.03.2013	SSC DEO & LDC 10.11.2013 (IInd Sitting)	SSC CHSL DEO & LDC 16.11.2014	SSC Constable (GD) 04.10.2015 (1st Sitting)	SSC CHSL DEO & LDC 15.11.2015 (1st Sitting)	SSC CHSL DEO & LDC 06.12.2015 (1st Sitting)	SSC CHSL DEO & LDC 20.12.2015 (1st Sitting)	SSC CHSL (10+2) Tier-I (CBE) 08.09.2016 (1st Sitting)	SSC CHSL (10+2) Tier-I (CBE) 16.01.2017 (IInd Sitting)
1.	Number System	1	4	2	3	6	2	3	3	2	3	—	2	3	—	1	—	2
2.	LCM and HCF	1	2	—	1	2	1	1	1	1	1	—	—	—	—	1	—	—
3.	Simplification	2	5	—	7	5	6	—	—	1	—	1	1	1	2	—	—	—
4.	Power, Indices and Surds	3	6	10	6	5	7	1	1	1	3	1	—	2	1	1	3	—
5.	Average	2	2	3	2	1	3	2	2	2	2	2	3	1	3	2	1	1
6.	Ratio and Proportion	3	3	5	4	2	4	2	2	2	—	2	1	1	2	2	1	1
7.	Percentage	3	2	4	5	2	4	2	2	2	1	2	2	2	1	2	1	1
8.	Profit and Loss	3	3	3	4	3	5	2	2	3	3	2	2	3	4	3	1	—
9.	Discount	2	2	3	2	3	2	2	2	2	2	2	4	2	2	2	1	2
10.	Simple Interest	1	1	2	3	1	2	—	—	1	1	—	2	—	1	2	1	—
11.	Compound Interest	1	2	1	1	1	1	1	1	1	1	1	—	2	1	—	—	1
12.	Time and Work	2	3	2	3	2	3	2	2	2	1	1	2	2	2	2	1	1
13.	Pipe and Cistern	1	—	1	1	1	1	—	—	1	—	1	—	—	—	—	—	—
14.	Time and Distance	2	3	3	2	4	2	—	—	1	1	1	2	2	1	2	1	1
15.	Boat and Stream	1	—	—	1	—	1	1	1	—	1	—	—	—	1	—	—	—
16.	Sequence and Series	1	2	—	2	1	3	—	—	—	—	3	—	—	1	—	—	—
17.	Algebra	3	3	—	—	1	—	5	5	—	5	5	—	5	3	5	2	5
18.	Trigonometry	3	—	—	—	—	—	5	5	—	5	5	—	4	5	5	3	4
19.	Geometry	4	—	—	—	—	—	6	6	—	6	7	—	5	6	6	4	1
20.	Mensuration	5	3	5	—	4	1	6	6	1	8	5	2	6	5	5	1	1
21.	Statistics & Data Interpretation	5	3	5	3	3	3	9	9	2	4	9	2	9	9	9	4	4
22.	Miscellaneous	1	1	1	—	—	—	5	5	—	2	—	—	—	—	—	—	—
Total Number of Questions		50	50	50	50	50	50	25	25	25	50	50	25	50	50	50	25	25

\* Average number of questions is based on the data available in the chart mentioned above (Considering 50 questions set)



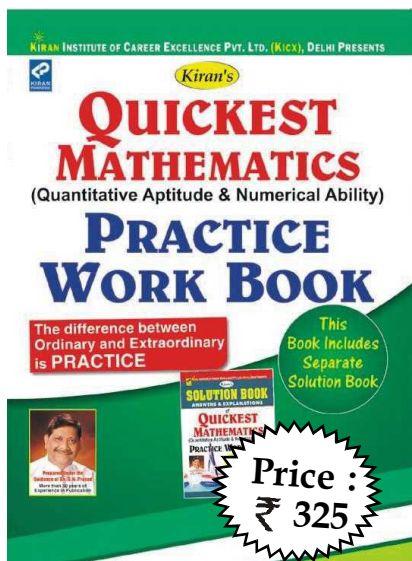
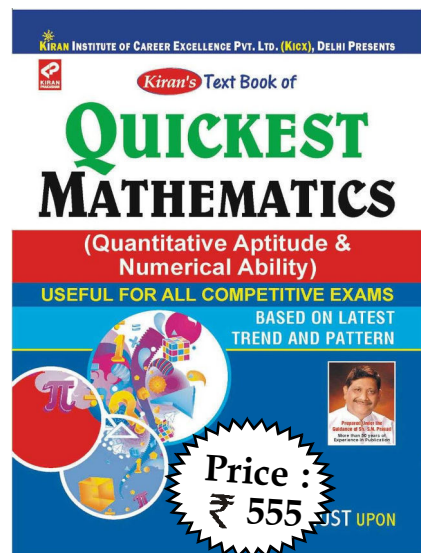
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1. Numbers 2. Binary Number System 3. Addition and Subtraction 4. Vedic Mathematics 5. Multiplication 6. Division 7. Divisibility 8. LCM and HCF 9. Decimal & Fraction 10. Power and Roots – Square, Cube - Indices, Surds 11. Algebra 12. Simplification 13. Percentage 14. Profit and Loss 15. Average 16. Ratio and Proportion 17. Alligation or Mixture 18. Partnership 19. Problems Based on Ages 20. Simple Interest 21. Compound Interest 22. Time and Work 23. Work and Wages 24. Pipes and Cistern 25. Time and Distance 26. Trains 27. Boats and Streams 28. Races and Games 29. Geometry : Lines, Angles 30. Triangles 31. Quadrilaterals 32. Circles 33. Area and Perimeter 34. Volume and Surface Areas (3-Dimensional Figures) 35. Trigonometry 36. Height and Distance 37. Series 38. Progression and Sequence 39. Permutation and Combination 40. Probability 41. Logarithms 42. Calendar 43. Clocks 44. Data Analysis 45. Data Sufficiency 46. Data Interpretation



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