



TATA MCGRAW-HILL'S



How to Prepare for

Quantitative Aptitude for the CAT

FOURTH EDITION

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PREFACE TO THE FOURTH EDITION

With the CAT going online, we felt the need to create a comprehensive and updated book that caters to CAT aspirants. Some salient features are given below:

1. Questions from this book: Over the past 5–7 years, it has been noticed that a minimum of 10–20% questions in CAT and other major management entrance examinations have been directly taken from the questions provided in this book. Furthermore, it was seen that between 2003 (when the book was first released) to 2008, 80–90% of the questions in CAT and other top management entrance tests were covered in this book.

The CAT having gone online saw no change in this trend. Many questions in each of the 22 test papers that the CAT administered in its online avatar in 2009 have been covered in this book.

In fact, 2009 can be said to be a watershed year for CAT preparation because this is the first year when there have been multiple CAT papers to study and base our writing on. So while in previous years we would have to second guess what the CAT would do based on just one test paper (to which we had access that year), we are now richer by 22 test papers when it comes to understanding what we need to provide our readers for their preparation. It is on the basis of this rather rich insight that we have based the changes in this edition. (Note: Similar changes have been incorporated in my other books *How to Prepare for Data Interpretation and Logical Reasoning for CAT* and *How to Prepare for Verbal Ability and Reading Comprehension for the CAT* published by Tata McGraw-Hill.)

2. Not too many changes in the pattern: Looking rationally into the paper patterns of the 22 CAT papers in 2009, there have not been too many changes with regard to the pattern of the examination as compared to previous years. While the difficulty level of the QA section varied from one paper to another (which was to be expected really because it is close to impossible to create two test papers with the same level of difficulty), what you would do well to keep in mind while preparing for the CAT is that the QA section continues to remain a thorough test of your academic intelligence. Thus, although on the first few days of the online CAT in 2009, some of the papers had a lot of easy questions (that you would expect to see in less tougher exams), on the later days the quality of the questions and the difficulty level of the papers had become pretty much 'CAT Standard'. As we head into the future with CAT 2010 and beyond, it is naturally expected that the IIMs would ensure that they maintain the quality standards associated with this prestigious examination. Hence, the LOD 1, LOD 2 and LOD 3 scheme of questions followed in this book is even more relevant now than ever before.

In fact, by 2012, the CAT is expected to shift to an adaptive format (like the GMAT) where every test-taker would get a different set of questions. In the adaptive format in the future, question banks of varying difficulty levels would be loaded into the computers and questions would appear for the student one by one. The difficulty level of the next question would increase if the previous one has been answered correctly and vice versa.

In order to do this, the examiners would need to build a database of questions which would be parallel to the LOD scheme followed in this book. These factors make this book and the content within all the more relevant for CAT aspirants in 2011 and beyond.

3. The need for greater variety in your preparation: Prior to the CAT going online, preparing for QA used to be a battle for Blocks 1, 4, 5 and 6. Even out of these, if someone did Blocks 1 and 5 well, he stood a strong chance at QA section.

However, as explained in details in the *introductory note to the online CAT*, the new avatar of this exam requires the aspirant to be much more balanced in the context of portion coverage.

With these things in mind and also keeping in mind the fact that past users of this book have asked for greater and more detailed solutions, following are the major highlights in this book.

Major highlights:

1. A comprehensive solutions to most questions in all LODs of all chapters.
2. Based on an assessment of any logic we have missed in any chapter, we have introduced extra questions for the reader in the form of additional block-wise practice tests. The questions in these tests have been carefully selected to ensure that we do not miss out on any probable question type.
3. An introductory write up on the QA section of the online CAT to give you a holistic view of how to approach the online CAT from the perspective of the examinee.

The book is totally in sync with the new trend and pattern of the examination. Ultimately the endeavour is to provide a one-stop solution for CAT and MBA exam aspirants to tackle the QA section of all major management entrance exams—an endeavour we feel we have managed to do pretty well.

Through this book, we are confident of giving you—the reader—an invaluable resource for enhancing your QA section score drastically. Contained in this book is the very best advisory for each and every question type. Your job is simple—to ensure that you follow the process contained in this advisory.

KEY POINTS FOR YOUR PREPARATION**Outline and Strategy**

The first aspect I would like to deal with here is to focus on helping you with the formulation of your strategy with respect to the portion to be covered for the Quantitative Aptitude section of the various management entrance exams including the CAT, XAT, FMS, CET, IIFT and other examinations.

Let us start by trying to understand some of the key areas in Quantitative Aptitude (QA).

Tackling Each Portion

My experience shows that very often students look at the vast number of chapters and concepts to be studied for QA and get disheartened. This is especially true for students who do not have a strong traditional background in Mathematics. Indeed if you were to look at it with a chapter-wise approach, you can easily define the course to be studied by dividing it into 20+ chapters—preparation for which is such a long-drawn effort that it ends up draining the student's energy enthusiasm and motivation.

It is in this context and for this precise reason that I have divided this book into 7 manageable blocks—the approach being rationalising the chapters and grouping them according to the amount of shared concepts these chapters have amongst each other.

The outline as defined in the index to this book would divide your work into 7 major areas to prepare for. For your convenience and strategising we have put down the relative importance of each of these seven blocks into perspective:

Block 1: Number Systems and Progressions

Importance: Very High for CAT, XAT, IIFT, FMS & High for MAT, CET, SNAP, IRMA, etc.

Block 2: Averages and Alligations

Importance: Low for QA in CAT, XAT, IIFT, FMS but High for Data Interpretation as a lot of questions in DI are based on the concepts of averages and alligations. Also High for MAT, CET, IRMA, NMIMS, etc.

Block 3: Percentages, Ratio Proportions, Time and Work, Time Speed and Distance. (Subsidiary but almost redundant chapters in this block – Interests, Partnerships and Profit and Loss)

Importance: **Moderate to High** for QA in CAT, XAT, IIFT, FMS and **Very High** for Data Interpretation (DI) as DI is almost entirely based on the concept of Percentages and Ratio and Proportions. **Very High** for MAT, CET, IRMA, NMIMS, etc.

Note: The chapter of "Time, Speed and Distance" is extremely important for these exams (especially for the CAT as this chapter has been a constant presence in the CAT for almost a decade.)

Block 4: Geometry and Mensuration.

Importance: **Very High** for CAT, XAT. **Average** for MAT, CET, SNAP, IRMA, IIFT, FMS, etc.

Block 5: Functions, Inequalities, Logs and Quadratic Equations

Importance: **Very High** for CAT, XAT. **Low** for MAT, CET, IRMA, NMIMS, etc.

Block 6: Permutations and Combinations and Probability

Importance: **Very High** for CAT, XAT, FMS, IIFT etc. **Average** for MAT, CET, IRMA etc.

Block 7: Set Theory, Coordinate Geometry

Importance: **Low to Moderate** for all exams. Set Theory is used for DI in CAT while coordinate geometry shows itself up in the IIFT exam.

Based on the experience of the online CAT, the strategic preparation imperative for you should be to do at least 4 blocks and if possible up to 6 blocks "really well".

What does it mean to prepare a block "really well"? This is something we feel needs emphasis here.

Well what we mean to say is that do not just focus on studying the theory in each of these areas but develop an intuitive knowledge of all problem scenarios which emerge out of each block.

Only then would you be able to reach a situation in the exam—that when the question presents itself to you in the exam—you would have had the logic for the same worked out before hand. This is something that can make a huge difference to your chances in the CAT.

Analysing Your Knowledge Level

The first thing you need to focus on is an analysis of your knowledge level in each of these seven parts. In each of the above areas, first analyse your level of knowledge/ability. In order to do so the typical question you should ask yourself is: For the next 100 questions I face in each of these areas, how many would I be able to handle comfortably?

Think of a number as an answer to this question for each of the seven blocks.

Based on your answer, the following analysis would provide you a thumb rule which would tell you how much of a knowledge issue you have:

1. 90+: You know pretty much every question type and variant in the area. You should focus your energies on other aspects rather than knowledge improvement in the area.
2. 80+: Maybe you need to increase your exposure to questions a little bit; around 200–300 more questions in that area would be sufficient.
3. 60–80+: You have a significant knowledge issue in the area. You might need to go back to the basics, but it is less likely to be a theory issue but more of an exposure to questions issue.
4. <60: You need to work on both theory and exposure to questions.

Needless to say, the target and objective for preparations has to be to reach the 90+ range as explained above in any block you intend to do "really well".

Looking beyond Ability (Quick Reflexes)

A common frustrating experience for test-takers while taking the test is to not being able to solve a known question/logic and subsequently, not being able to score marks in questions which they knew.

In order to handle this problem, you would need to work on your reactions and reflexes when faced with QA questions. Once you have solved your knowledge/ability issue in a particular block, your next step is to improve your reactions and reflexes while solving a question. Needless to say you would need to do this block wise.

So obviously the main issue is how to improve reflexes and reactions.

- For every block, once you have solved the LODs and the Pre-Assessment/Review tests, the most crucial exercise in this context would be a comprehensive revision and review of each and every question you have solved in that block. Solve every question of every LOD and Pre-Assessment/Review test again and review the logic/process of problem solving used. This need to be done to the point where you almost "recollect" the logic of the question and are able to recognise the same if it is used again in a different context/problem.
- A thorough revision on the theory of the block.

1. Improve your ability to select what you know and leave what you do not

In the context of an examination where the required scores for 99 percentile would be 60–70% attempts with 100% accuracy, it is easy to see that perfect knowledge is perhaps not needed in order to crack the CAT. Hence, even if you have around 60–70% knowledge of the questions in an average test, you are perhaps good enough to crack the exam. A good way to test whether you have sufficient knowledge would be to pick up 10–20 test papers and divide your QA section into blocks of 5 questions each. Then test your knowledge by looking at the average number of questions you know. If on an average for every 5 QA test questions that you pick up, if you know more than 3, then the prognosis would be that you have adequate knowledge for cracking the CAT. Thus, while you may want to move towards knowing 5 out of 5 in this context, there are other things that you should focus on—developing your ability to decide on whether you are going to be able to solve a question while reading it for the first time. This would help you stop *fishing* during the test. (*Fishing* can be described as the activity of trying to solve a question without knowing whether you would actually complete the question.)

Your mind should give you a clear indication of whether you would be able to do the last step in a question, before you start doing it. In that sense you should be able to clearly define three types of outcomes when you finish reading a question for the first time:

- I see a clear flowchart and the steps are manageable—Obviously you need to go on and solve these questions.
- I see a clear flowchart but the steps are too lengthy—In this case you need to see where you stand in your test-time and attempt-wise.
- I do not see a clear flowchart but I can try as I see a starting point—This is potentially the most dangerous situation for you in the duration of the test, as once you get sucked into a question, there is a strong tendency to lose track of the time you are using up while trying the question. Our advice is that while taking the test you should not even start doing such questions.
- I see no flowchart and no starting point to the question—Obviously you should leave such questions and in fact if these are limited to around 20–30% of the paper there is no problem and you need not worry about them.

2. Focus on thorough knowledge of 'problem scenarios' rather than theoretical learning

To illustrate this, we would like to start with a few examples.

Consider the following string of 3 questions. Before I come to my main point here, I would like you to start by solving these questions before looking at the explanations provided:

- A boy starts adding consecutive natural numbers starting from 1. After some time he reaches a total of 1000 when he realises that he has double counted a number. Find the number double counted.

2. A boy starts adding consecutive natural numbers starting from 1. He reaches a total of 575 when he realises that he has missed a number. What can be said about the number missed?
3. Find the 288th term of the series: ABBCCDDDDDEEEEEFFFFFG...

We can now start to look at each of these 3 questions:

1. Consider the fact that when you add numbers as stated above ($1+2+3+4+\dots$) the result is known as a triangular number. Hence, numbers like 1, $1+2=3$, $1+2+3=6$ and so on are triangular numbers. This question asks us to consider the possibility of making the mistake of double counting a number. So instead of $1+2+3+4$ if you were to do by error $1+2+3+3+4$ you would realise that the number you would get would be 13 which would be more than 10 (which should have been your correct addition) and less than 15 (the sum of 1 to 5) which is the next triangular number. And the double counted value could be achieved by spotting 10 as the immediately lower value—and the difference between 10 and 13 would give you the required double counted number.

To carry forward this logic into the given question, we should realise that we are just bothered about finding the last triangular number below 1000—and in trying to work this out is where we really apply our intelligence.

Before one writes about that though, one fully realises that a lot of readers (especially aspirants with an engineering background at this point are thinking about $n \times (n+1)/2$. Knowing that process, one chooses to write about the alternate way to think about in this question.

$$1 + 2 + 3 + 4 + \dots + 10 = 55;$$

Hence, we can easily see that $11+12+13+14+15+\dots+20$ would equal 155 and the sum of 21 to 30 would equal 255 and so on.

Thus, in trying to find the last triangular number below 1000 we can just do: $55+155+255+355 = 820$ (which is the sum of the first 40 natural numbers) and since we have still not reached close to 1000 we start by adding more numbers as: $820 + 41 + 42 + 43 + 44 = 990$ and the difference between 990 and 1000 is 10 which is the required answer.

2. For this question we would just need to carry the learning from the previous question forward and realise that when we miss a number, we actually get a total which is lower than the correct total. Hence, if we want to find the number missed all we need to do is to find the first triangular number greater than 575. This can be got simply by $55+155+255+31+32+33+34 = 595$; so the number missed has to be 20.
3. In this question all you would need to notice is that in the series ABBCCDDDDDEEEEF...

A ends after the first term; B ends after the third ($1+2$) term; C ends after the sixth ($1+2+3$) term and so on. So we can infer that what we are looking at is how many numbers need to be added before we get to a number just below 288. So $55 + 155 + 21 + 22 + 23$ gives us 276 which pretty much means that the 24th alphabet (i.e. x) would be running in this series when we reach the 288th term.

So looking at the three questions above and the solutions, one wants the reader to only answer one specific question:

How much does knowing the first question and developing your thought ability and your intelligence help you in solving the second and the third one? I hope you see the connection. For your information, the three questions presented above were asked in CAT 2001, CAT 2002 and CAT 2003!!!

CONCLUDING NOTE

You sit in front of your CAT question paper and the first question comes in front of you. If you have identified the logic of the question or seen the question itself earlier, your entire QA preparation is fructified. In fact, every question/logic (that you would face in your test) which you have seen earlier represents a triumph of your preparation process. It is for this very reaction that you prepare for an aptitude exam like the CAT. Any other preparation is quite worthless.

Your battle for CAT would be won if you get a "YES I KNOW THIS PATTERN/LOGIC" reaction to 50–60% of the questions in your test.

Contained in this book is the finest collection questions which you would hope to find anywhere. Remember, each question solved needs to be a learning experience—one that is to be kept in your mind for future problem solving. Adopt this approach with the problems contained in this book and we are quite confident that you would KNOW over 50% of your actual CAT test paper since you have already solved something like that before!!

All The BEST !!!!!

ARUN SHARMA

PREFACE TO THE FIRST EDITION

Over the last few years, as a trainer of CAT and other aptitude tests, I have felt the need for a comprehensive book on the subject. Students appearing for the CAT and other aptitude tests usually struggle for appropriate study material to prepare for this vital section of the examination.

This book comes as a humble attempt to fulfil this gap.

Structure of the book

The book is divided into 19 chapters and five test papers. Each chapter is divided into three broad parts:

- (a) Theory
- (b) Solved examples
- (c) Chapter end exercises (LODs I, II & III), with answer key

The questions in the chapter end exercises have been categorised into three levels of difficulty, viz. Level of Difficulty I, Level of Difficulty II and Level of Difficulty III.

Level of Difficulty I (LOD I): These are the basic types of questions pertaining to the chapter. A majority of the MBA entrance tests would test the student with LOD I questions. Tests which ask LOD I questions include MAT, IMT, IRMA, IIFT, NIFT, CET Maharashtra, Bank PO examinations, BBA, BCA, Law, and so on. Besides, there are about 10 questions of LOD I type in the CAT nowadays.

Level of Difficulty II (LOD II): These are questions, which are more advanced than the LOD I questions. These questions test all basic as well as applied concepts in the chapter. *LOD II questions are closest to the difficulty levels of the CAT.* Hence, the objective of LOD II questions should be to:

- (a) Clearly understand the concept which underlies the question.
- (b) Create a judgment of time required for different mental processes.
- (c) Identify the time guzzlers.
- (d) Reinforce application of a method in mental processes through the question.
- (e) Learn to flowchart complex questions.

Level of Difficulty III (LOD III): LOD III questions build on the previous questions and are a step beyond the LOD II questions. Although they are also normally more difficult than the average CAT question, approximately 5–10 LOD III questions could be asked in the CAT every year. Hence, the learning objectives at LOD III are to:

- (a) Learn applications of the basic concepts at the highest level.
- (b) Sharpen the flowcharting skills learnt at LOD II.
- (c) Use each question as a learning opportunity.

One should not be disheartened if he/she is unable to solve LOD III questions. These questions are extremely tough and uncommon in the CAT and other aptitude tests. Questions in actual tests will appear very simple and elementary if one can solve LOD III questions.

Approach Taken in Writing This Book

In my experience, the 'math skill' of students appearing for CAT can be classified into three levels:

- Level 1: Students who are weak at Mathematics
- Level 2: Students who are average at Mathematics
- Level 3: Students who are strong at Mathematics

This book has been written keeping in mind all the three kinds of students.

From my experience I have given below my perspective of what one should aim for (based on the category that he/she belongs to). It is important to clearly understand the starting level and accordingly define strategy for the QA section.

Level 1: Students who are weak at mathematics: Typically, these are students who were weak at mathematics in school and/or have left mathematics after their 10th or 12th class. They face a mental block in mathematics and have problems in writing equations. They also have severe problems in understanding mathematical language and are unable to convert the mathematical language into mathematical equations. They make mistakes even in interpretation of the most basic statements in mathematics (leave alone the complex statements). Besides, these students also have problems in solving equations. They suffer from the insecurity of knowing that they are unable to solve most problems which they face.

Level 2: Students who are average at mathematics: These students lie between the Level 1 and Level 3 students.

Level 3: Students who are strong at mathematics: These are the students who have got strong, structured and logical thinking ability. They not only understand the basic repetitive statements in mathematics but also complex statements. They are able to create their own flowcharts to arrive at solutions of these complex mathematical situations. There are two alternative approaches that a student can take in solving this book.

Approach 1: "Start with basic concepts, solved examples then move on to LOD I, then LOD II in the chapter. Do not go into LOD III in the chapter in the first go. Complete all 19 chapters and then re-start with Chapter 1 – review the basic concepts, resolve LOD I and LOD II, then move on to LOD III. This approach is advocated for students who are weak to average in mathematics (i.e. students of Level 1 and Level 2).

After completing the theory and practice exercises of the book for a second time, go to the practice sets 1–5 provided at the end of book. Set a time limit of 40 minutes for each set and take the tests. The questions contained in the sets are questions which have appeared in the CAT over the last 5 years (based on memory)."

Approach 2: "Start with the basic concepts, solved examples and then go through the exercises of LOD I, LOD II and LOD III. This is recommended for students who have strong concepts in mathematics (Level 3 students)."

Then go to the 5 practice tests given at the end of the book and take them one by one (time limit of 40 minutes for each test)."

An Important Point

Each of the questions contained in the LOD I, LOD II and LOD III exercises in the chapters have immense learning value. Hence, the approach that one takes while solving the questions should be one of learning. The reader should try to clearly understand the interpretation of each sentence used in the construction of the questions.

In other words the learning in every chapter should not be restricted to the solved examples or the theory contained in the chapter, but should continue through each of the questions contained in the exercises.

In conclusion, this is a book which is unique in approach and coverage. Any CAT aspirant who goes through the questions contained in this book in the manner advised in this book would get a distinct advantage when he/she faces the CAT.

ARUN SHARMA

ONLINE CAT: FROM THE QA PERSPECTIVE

Welcome to the world of online CAT!

The advent of the online version of the Common Admission Test (CAT) in 2009 brought with it a whole lot of opinions and views about what has changed in the examination and what should be the ideal preparation pattern. Therefore, one objective in this revised edition of this widely read book is to look at the issues that an aspirant needs to consider while preparing for the online CAT. I would like to discuss this issue in the following parts:

1. *What has changed?* A comprehensive analysis of what are the critical dimensions of the changes that have taken place in the CAT in its online avatar and what it means for the aspirant, both in respect of positive and negative factors, taking into account the following:
 - (a) Changes in the Test-Taking Experience
 - (b) Changes in the Exam pattern
 - (c) Changes in the Marking process
2. *What does all this mean for the Preparation Process?* How it should change in the context of an online examination and how has it remained constant- whether online or paper-and-pen?

While doing so I have taken the help of a varied experiential sample of test-takers from across India and also my own personal experience of taking (and may I add dominating) the CAT. Given below are some of the implications of the online version of the CAT in the context of the Quantitative Aptitude section (which this book is all about)

I. WHAT HAS CHANGED?

The 'Experience' of Taking the Test

1. Cleaner & More Efficient: Compared to the paper-and-pen based CAT, the online version is much cleaner as the clarity of questions, their visibility, as well as the overall feel of the question solving experience is much better. Consequently, the efficiency (of the thought processes) is much higher, leading to a much superior test-solving experience.

2. Space Management on the Table: In the paper-and-pen version, the aspirant had to typically manage the test paper, admit card, watch, pencils (at least 2), eraser, sharpener as well as the answer sheet on the table. To add to their woes, the paper-and-pen versions of the exam were mostly conducted in schools. Very often the aspirants had to contend with the additional challenge of managing all this paraphernalia on a school boy's small table. In addition, if luck did not run your way and you were made to sit in a classroom meant for juniors, (between classes 3 to 6) you really had a challenge.

Most of these problems have disappeared in the new version. The fact that computer terminals at most colleges and universities are of standard shape and size eliminates the imbalance created due to non-uniformity. Besides, while writing the online version of the CAT, all you need to manage on the table are the mouse, the key board, a pencil and a sheet of paper for rough work; no watches, erasers, sharpeners and most importantly, no test paper and no answer sheet.

3. Moving Questions in the Test: Unlike the paper-and-pen version, where test-takers could scan the whole question paper in one look, in the online CAT, aspirants had to move one question at a time. This had both its advantages and disadvantages in terms of the overall test experience. The obvious disadvantage that most aspirants faced was the fact that since you could not really see the whole paper in one look, you could not make a judgment about the balance, the difficulty level or the portion wise question distribution in the paper. (Although we are referring to the quantitative aptitude section here, this was also true for all the sections in the exam)

Ironically, the biggest advantage for the examinee in terms of the online CAT was exactly the same i.e. since you could see the paper entirely at one go, the only option while taking the test was to look at the questions one by one. This turned out to be a huge advantage because of two main reasons mentioned below:

Higher Focus while Solving an Individual Question: Not knowing the exact number of questions from various areas and being able to estimate the difficulty level of the paper, left individuals with no choice but to focus on the one question that was visible to them on the screen. The result was that achieving the all important 'tunnel vision' while solving a question was much easier. The immediate result of this was that the focus on the 'problem at hand' was infinitely more in the online version than in the conventional paper-and-pen format. Thus, ironically, not knowing the pattern of the paper resulted in giving examinees their best chance to solve a question.

The main reason for this was that while solving the question in front of the computer screen the experience of the previous question was totally blanked out. In the paper-and-pen version, students who had a negative experience while solving a question or two carried that negativity to the next question.

Thus the specific advantage of the online version was that "forgetting" a bad experience was relatively easier. The moment you navigated away from the question in front of you, it went away from your mind as well. So much so, that remembering a question that was just two questions back was close to impossible. Naturally the 'carry over' emotions from a previous negative experience were significantly reduced.

The Imperative for Faster Navigation (less time wasted on unsolvable questions): Since the examinees had not seen the question paper right at the beginning, the imperative to move to the next question was extremely strong. This resulted in students seeing a higher percentage of the questions in the online test than in the paper-and-pen version.

Author's Note: One of the problems I had noticed in the paper-and-pen version was that most examinees were not able to 'see' the entire paper, i.e. the fraction of the quantitative aptitude section that they were able to process was a fraction of the entire test paper. As a result they used to miss out on a large number of sitters! On an average, out of a 5-page question paper in quantitative aptitude, students were able to process at most upto 2-3 pages. So they would naturally miss out on all easy ones on the pages they did not process. A lot of time would get wasted in questions that they tried and were unable to solve or even if they solved, they were unable to get them correct.

Part of this time mismanagement also occurred due to the fact that they did not have the clock ticking on the screen in front of them. Therefore, they naturally lost track of how much time they had spent in attempting to solve a question. A good percentage of the time the aspirants used to spend in the QA section was spent in trying to solve a question which they were eventually unable to solve.

All this changed for the better in the online version. There was a greater imperative to move to the next question due to the twin facts that you had not seen the entire paper as you were moving from one question to the other, and that the ticking clock was omnipresent in front of your eyes on the screen. As a result, you were aware of the exact amount of time you had spent on a particular question. The net result was that after trying a question for maybe 60 to 90 seconds, in case you did not have a clue about what to do in the same, you moved to the next question. Thus time management improved drastically for the examinee.

I believe this is one of the main reasons why a lot of students who were trying to compare the two versions of the CAT said that the online version was easier. Since the amount of time spent in questions which they were eventually unable to solve, reduced drastically, they got a feeling that they were solving questions all the time as opposed to the paper-and-pen version where aspirants used to have an overall negative experience of the test (as they would end up spending a lot of time in attempting "unsolvable" questions).

4. Mark/Unmark Button & the Review Button: A very important feature in the online version was the introduction of the REVIEW button. In the paper-and-pen version, it was extremely difficult to track the number of your attempts

especially so in the context of questions that you were unsure about and/or questions which you wanted to come back to. There was simply no way in which you could keep a track of those and as a result there was effectively 'no second chance' at a question.

This too changed in the online CAT. For every question, apart from the facility to answer it, you also had a MARK button, which would give you easy access to the question at the end of the paper. When you have completed the paper (reached the last question in the paper), you also got access to a review screen that in one visual showed you all the questions you had solved as well as all the questions you had marked with the MARK button. So going back to a specific question in the paper was just the click of the mouse away.

To sum up, the net effect of the online CAT was a superior test-taking experience — something that gives you a chance to be more in control of your test — and thus aim for a higher score assuming that the same set of questions would have been asked in the paper-and-pen version.

What has Changed in Terms of the Exam Pattern?

Having seen the specific changes that have occurred in terms of the test-taking experience, let us now examine another crucial aspect.

Changes in Exam Pattern: Obviously for the purpose of this book, the analysis will pertain to the QA portion only. In order to read a similar analysis with respect to the other sections namely, *Verbal Ability & Data Interpretation* you can refer to my book on those subjects, also published by Tata McGraw-Hill. The major changes in the pattern of the Quantitative Aptitude paper can be summarised through the following points:

1. More balanced portion coverage
2. Reduction in number of questions
3. Lack of uniformity
4. Higher percentage cutoffs

1. More Balanced Portion Coverage: As per the scheme followed in this book, the QA portion can be divided into 7 major parts (or blocks as I call them in this book).

The underlying constant that used to exist in the paper-and-pen version (through the entire decade prior to the first online CAT) was the prominence of Block 1 and Block 5 (Block 1 comprising Number Systems and Progressions and Block 5 comprising the chapters of Functions, Inequalities, Quadratic Equations and Logarithms.)

In each of the years from 1999 to 2008, the QA section required you to get a net score of approximately 30–40% of the total marks in order to score a high 90 percentile in this section.

In the light of this fact, the importance of Block 1 and Block 5 can be gauged from the table below:

Block	Weightage (as a % of total marks)
Block 1	30–50%
Block 5	15–50%
Combined weightage of Blocks 1 & 5	60–80%

Add to this, the chapter of Time, Speed and Distance with a minimum weightage of 5–10% and you pretty much had the QA section well covered. In a nutshell, QA for CAT preparation had become "do 10 chapters well".

However, this scenario has changed in the context of the online version of the exam.

The balance of weightage of questions shifted and each of the 7 blocks have become important. The aspirant of CAT online version saw a weightage distribution of the kind illustrated below.

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Squares and Cubes of Numbers

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Progressions

Averages

Allegations

Percentages

Profit and Loss

Interest

Ratio, Proportion, and Variation

Time and Work

Time, Speed and Distance

Geometry and Mensuration

Coordinate Geometry

Functions

Inequalities

Quadratic and other Equations

Logarithms

Permutations and Combinations

Probability

Set Theory

Quantitative Aptitude is a key component to unlocking a winning CAT score and no author does the subject justice more than Arun Sharma, whose vast experience in his field is reflected in

every chapter of Quantitative Aptitude for CAT. A stellar product in its category, this book is now in its seventh edition. Not only does it follow the latest trends and question patterns for CAT, it is also found immensely useful by students for other management entrance tests like XAT, SNAP, IIFT and so on. The book comprehensively covers all topics, including Numbers, Average and Mixtures, Arithmetic and Word-based Problems, Geometry, Algebra, Counting, etc.

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About the Author

Arun Sharma is a post graduate from the prestigious Indian Institute of Management, Bangalore. He has been training corporate house and CAT aspirants since 1996 and has personally trained over a thousand students into the IIMs and other top B Schools. Besides, he holds the unique distinction of clearing the CAT 16 times in a row, with a score of 99.99 percentile in CAT 2008.

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Block III Arithmetic and Word-based Problems

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Block VI Counting

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Preface to the First Edition

Over the last few years, as a trainer of CAT and other aptitude tests, I have felt the need for a comprehensive book on the subject. Students appearing for the CAT and other aptitude tests usually struggle for appropriate study material to prepare for this vital section of the examination.

This book comes as a humble attempt to fulfil this gap.

Structure of the book

The book is divided into 19 chapters and five test papers. Each chapter is divided into three broad parts:

(a) Theory

(b) Solved examples

(c) Chapter end exercises (LODs I, II & III), with answer key

The questions in the chapter end exercises have been categorised into three levels of difficulty, viz, Level of Difficulty I, Level of Difficulty II and Level of Difficulty III.

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18. Probability

19. Set Theory

How to Prepare for QUANTITATIVE APTITUDE for CAT- Arun Sharma

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Author Name Arun Sharma

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All the short tricks and many videos that you see on the internet or on You tube all are taken from this book so now you can understand the importance of this book and how this book can help in Exam.

Arun Sharma's Quantitative Aptitude for CAT has been a bestseller in this segment for many years and has evolved into a 'must read' book for this topic. The revised sixth edition is as per the latest trends for CAT questions and also relate itself to other management entrance exam like XAT, SNAP, IIFT etc. Quantitative Aptitude is one of the most challenging components of MBA entrance examinations and the author, in his inimitable style has adopted a scientific yet student-friendly approach to discussing the topic.

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7. Additional block-wise practice tests to ensure no probable question type is missed out

About Of Arun Sharma

Arun Sharma : Entrepreneur, Educator, CEO at Mindworkzz & Author at Tata McGraw Hill Education, Lucknow Area, India.

His Own Business Name : Mindworkzz, Tata McGraw Hill Education

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Superb book for getting ready inclination segment for a large portion of the administration exams and passage tests. It obviously clarifies the required manner of thinking that ought to be connected while tackling issues. The book likewise contains practice issues separated in different classifications which would assist the understudies with tracking their advancement.

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