EIAT Test Prep!

Complete Elevator Industry Aptitude Test Study Guide & Practice

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GETTING STARTED

CONGRATULATIONS! By deciding to take the Elevator Industry Aptitude Test (EIAT), you have taken the first step toward a great future! Of course, there is no point in taking this important examination unless you intend to do your best to earn the highest grade you possibly can. That means getting yourself organized and discovering the best approaches, methods and strategies to master the material. Yes, that will require real effort and dedication, but if you are willing to focus your energy and devote the study time necessary, before you know it you will be opening that letter of acceptance to the school of your dreams.

We know that taking on a new endeavour can be scary, and it is easy to feel unsure of where to begin. That's where we come in. This study guide is designed to help you improve your test-taking skills, show you a few tricks of the trade and increase both your competency and confidence.

THE ELEVATOR INDUSTRY APTITUDE TEST

The EIAT test covers three major areas/subjects. The three subjects covered are:

Reading Comprehension: You need a good grasp of the English language. You are given a short passage, followed by 3 or 4 questions from the passage.

Mechanical Comprehension: This section assess your knowledge of various mechanical concepts, such as pulleys, gears and levers. Elevator repair is very much a mechanics oriented profession.

Arithmetic Computation: Basic math concepts such as fractions, decimals, and percent will be assessed. You are not permitted to use a calculator.

While we seek to make our guide as comprehensive as possible, note that like all exams, the EIAT might be adjusted at some future point. New material might be added, or content that is no longer relevant or applicable might be removed. It is always a good idea to give the materials you receive when you register to take the EIAT a careful review.

This book is for skill practice only! Some of the questions will be easy and others will be more difficult. Go through the practice questions and try your best - by practicing on a range of difficulty levels, you will be ready for the test!

HOW THIS STUDY GUIDE IS ORGANIZED

This study guide is divided into four sections. The first section, self-assessments, which will help you recognize your areas of strength and weaknesses. This will be a boon when it comes to managing your study time most efficiently; there is not much point of focusing on material you have already got firmly under control. Instead, taking the self-assessments will show you where that time could be much better spent. In this area you will begin with a few questions to evaluate quickly your understanding of material that is likely to appear on the EIAT. If you do poorly in certain areas, simply work carefully through those sections in the tutorials and then try the self-assessment again.

The second section, tutorials, offers information in each of the content areas, as well as strategies to help you master that material. The tutorials are not intended to be a complete course, but cover general principles. If you find that you do not understand the tutorials, it is recommended that you seek out additional instruction.

Third, we offer two sets of practice test questions, similar to those on the EIAT Exam.

The EIAT Study Plan

Now that you have made the decision to take the EIAT, it is time to get started. Before you do another thing, you will need to figure out a plan of attack. The very best study tip is to start early! The longer the time period you devote to regular study practice, the more likely you will retain the material and access it quickly. If you thought that 1x20 is the same as 2x10, guess what? It really is not, when it comes to study time. Reviewing material for just an hour per day over the course of 20 days is far better than studying for two hours a day for only 10 days. The more often you revisit a particular piece of information, the better you will know it. Not only will your grasp and understanding be better, but your ability to reach into your brain and quickly and efficiently pull out the tidbit you need, will be greatly enhanced as well.

The great Chinese scholar and philosopher Confucius believed that true knowledge could be defined as knowing what you know and what you do not know. The first step in preparing for the EIAT Exam is to assess your strengths and weaknesses. You may already have an idea of what you know and what you do not know, but evaluating yourself using our Self- Assessment modules for each of the three areas, Math, English and Reading Comprehension, will clarify the details.

Making a Study Schedule

To make your study time the most productive, you will need to develop a study plan. The purpose of the plan is to organize all the bits of pieces of information in such a way that you will not feel overwhelmed. Rome was not built in a day, and learning everything you will need to know to pass the EIAT Exam is going to take time, too. Arranging the material you need to learn into manageable chunks is the best way to go. Each study session should make you feel as though you have accomplished your goal, or at least are closer, and your goal is simply to learn what you planned to learn during that particular session. Try to organize the content in such a way that each study session builds on previous ones. That way,

you will retain the information, be better able to access it, and review the previous bits and pieces at the same time.

Self-assessment

The Best Study Tip! The very best study tip is to start early! The longer you study regularly, the more you will retain and 'learn' the material. Studying for 1 hour per day for 20 days is far better than studying for 2 hours for 10 days.

What don't you know?

The first step is to assess your strengths and weaknesses. You may already have an idea of where your weaknesses are, or you can take our Self-assessment modules for each of the areas, Math, English (Optional) and Reading Comprehension (Optional).

Exam Component	Rate 1 to 5
Reading Comprehension	
Number Operations	
Fractions	
Decimals	
Percent	
Algebra	
Mechanical Comprehension	

MAKING A STUDY SCHEDULE

The key to making a study plan is to divide the material you need to learn into manageable size and learn it, while at the same time reviewing the material that you already know.

Using the table above, any scores of 3 or below, you need to spend time learning, reviewing and practicing this subject area. A score of 4 means you need to review the material, but you don't have to re-learn it. A score of 5 and you are OK with just an occasional review before the exam.

A score of 0 or 1 means you really need to work on this area and should allocate the most time and the highest priority. Some students prefer a 5-day plan and others a 10-day plan. It also depends on how much time until the exam.

Here is an example of a 5-day plan based on an example from the table above:

Fractions: 1 Study 1 hour everyday – review on last day
Mechanical Comprehension: 3 Study 1 hour for 2 days then ½ hour a day, then review
Percent: 4 Review every second day
Pulleys and Levers: 2 Study 1 hour on the first day – then ½ hour everyday
Reading Comprehension: 5 Review for ½ hour every other day
Algebra: 5 Review for ½ hour every other day
Decimals: 5 very confident – review a few times.

Using this example, Algebra and Decimals are good, and only need occasional review. Mechanical Comprehension is also good and needs 'some' review. Decimals need a bit of work, Pulleys and Levers need a lot of work and Fractions are very weak and need the majority of time. Based on this, here is a sample study plan:

Day	Subject	Time
Monday		
Study	Fractions	1 hour
Study	Pulleys and Levers	1 hour
	½ hour break	
Study	Mechanical Comprehension	1 hour
Review	Decimals	½ hour
Tuesday		
Study	Fractions	1 hour
Study	Pulleys and Levers	½ hour
	½ hour break	
Study	Decimals	½ hour
Review	Percent	½ hour
Review	Decimals	½ hour
Wednesday		
Study	Fractions	1 hour
Study	Pulleys and Levers	½ hour
	½ hour break	
Study	Mechanical Comprehension	½ hour
Review	Decimals	½ hour
Thursday		
Study	Fractions	½ hour
Study	Pulleys and Levers	½ hour
Review	Mechanical Comprehension	½ hour
	½ hour break	
Review	Decimals	½ hour
Review	Percent	½ hour

Friday		
Review	Fractions	½ hour
Review	Pulleys and Levers	½ hour
Review	Mechanical Comprehension	½ hour
	½ hour break	
Review	Percent	½ hour
Review	Decimals	½ hour

More Info on Making a Study Plan

5-day Study Plan

https://www.test-preparation.ca/five-day-study-plan-ready-for-blast-off-day/

Use your Daily Routine to Study

https://www.test-preparation.ca/use-your-daily-routine-to-study/

How to Make a Study Plan

https://www.test-preparation.ca/how-to-make-a-study-plan/

Reading Comprehension

THIS SECTION CONTAINS A SELF-ASSESSMENT AND READING COMPREHENSION TUTORIALS. The Tutorials are designed to familiarize general principles and the Self-Assessment contains general questions similar to the questions likely to be on the EIAT, but are not intended to be identical to the exam questions and the questions here are for skill practice only. The tutorials are not designed to be a complete course, and it is assumed that students have some familiarity with reading comprehension. If you do not understand parts of the tutorial, or find the tutorial difficult, it is recommended that you seek out additional instruction.

The purpose of the self-assessment is:

- Identify your strengths and weaknesses.

- Develop your personalized study plan (above)

- Get accustomed to the EIAT format

- Extra practice – the self-assessments are almost a full 3rd practice test!

Since this is a Self-assessment, and depending on how confident you are with Reading Comprehension, timing is optional. The EIAT has 50 reading comprehension questions to be answered in 40 minutes. The self-assessment has 15 questions, so allow about 12 minutes to complete this assessment.

The questions below are not the same as you will find on the EIAT - that would be too easy! And nobody knows what the questions will be and they change all the time. Below are general Reading Comprehension questions that cover the same areas as the EIAT. So, while the format and exact wording of the questions may differ slightly, and change from

year to year, if you can answer the questions below, you will have no problem with the Reading Comprehension section of the EIAT.

The self-assessment is designed to give you a baseline score in the different areas covered. Here is a brief outline of how your score on the self-assessment relates to your understanding of the material.

75% - 100%	Excellent – you have mastered the content
50 – 75%	Good. You have a working knowledge. Even though you can just pass this section, you may want to review the Tutorials and do some extra practice to see if you can improve your mark.
25% - 50%	Below Average. You do not understand reading comprehension problems. Review the tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.
Less than 25%	Poor. You have a very limited understanding of reading comprehension problems. Please review the tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.

After taking the Self-Assessment, use the table above to assess your understanding. If you scored low, read through the Tutorial, Help with Reading Comprehension, and if you need more practice, see Multiple Choice Secrets at www.multiple-choice.ca

SELF-ASSESSMENT

A B C D

1 ○ ○ ○ ○
2 ○ ○ ○ ○
3 ○ ○ ○ ○
4 ○ ○ ○ ○
5 ○ ○ ○ ○
6 ○ ○ ○ ○
7 ○ ○ ○ ○
8 ○ ○ ○ ○
9 ○ ○ ○ ○
10 ○ ○ ○ ○
11 ○ ○ ○ ○
12 ○ ○ ○ ○
13 ○ ○ ○ ○
14 ○ ○ ○ ○
15 ○ ○ ○ ○

Directions: The following questions are based on several reading passages. A series of questions follow each passage. Read each passage carefully, and then answer the questions based on it. You may reread the passage as often as you wish. When you have finished answering the questions based on one passage, go right onto the next passage. Choose the best answer based on the information given and implied.

Questions 1 – 4 refer to the following passage.

Passage 1 - Who Was Anne Frank?

You may have heard mention the word Holocaust in your History or English classes. The Holocaust took place from 1939-1945. It was an attempt by the Nazi party to purify the human race, by eliminating Jews, Gypsies, Catholics, homosexuals and others they deemed inferior to their "perfect" Aryan race. The Nazis used Concentration Camps, which were sometimes Death Camps, to exterminate the people held in the camps. The saddest fact about the Holocaust was the over one million children under the age of sixteen that died in a Nazi concentration camp. Just a few weeks before World War II was over, Anne Frank was one of those children to die.

Before the Nazi party began its persecution of the Jews, Anne Frank had a happy life. She was born in June of 1929. In June of 1942, for her 13th birthday, she was given a simple present which would go onto impact the lives of millions of people around the world. That gift was a small red diary that she called Kitty. This diary was to become Anne's most treasured possession when she and her family hid from the Nazi's in a secret annex above her father's office building in Amsterdam.

For 25 months, Anne, her sister Margot, her parents, another family, and an elderly Jewish dentist, hid from the Nazis in this tiny annex. They were never permitted to go outside and their food and supplies were brought to them by Miep Gies and her husband, who did not believe in the Nazi persecution of the Jews. It was a very difficult life for young Anne and she used Kitty as an outlet to describe her life in hiding.

After 2 years, Anne and her family were betrayed and arrested by the Nazis. To this day, nobody is exactly sure who betrayed the Frank family and the other annex residents. Anne, her mother, and her sister were separated from Otto Frank, Anne's father. Then, Anne and Margot were separated from their mother. In March of 1945, Margot Frank died of starvation in a Concentration Camp. A few days later, at the age of 15, Anne Frank died of typhus. Of all the people who hid in the Annex, only Otto Frank survived the Holocaust.

Otto Frank returned to the Annex after World War II. It was there that he found Kitty, filled with Anne's thoughts and feelings about being a persecuted Jewish girl. Otto Frank had Anne's diary published in 1947 and it has remained continuously in print ever since. Today, the diary has been published in over 55 languages and more than 24 million copies have been sold around the world. The Diary of Anne Frank tells the story of a brave young woman who tried to see the good in all people.

1. From the context clues in the passage, what does annex mean?

    a. Attic

    b. Bedroom

    c. Basement

    d. Kitchen

2. Why do you think Anne's diary has been published in 55 languages?

    a. So everyone could understand it.

    b. So people around the world could learn more about the horrors of the Holocaust.

    c. Because Anne was Jewish but hid in Amsterdam and died in Germany.

    d. Because Otto Frank spoke many languages.

3. From the description of Anne and Margot's deaths in the passage, what can we assume typhus is?

   a. The same as starving to death.

   b. An infection the Germans gave to Anne.

   c. A disease Anne caught in the concentration camp.

   d. Poison gas used by the Germans to kill Anne.

4. In the third paragraph, what does outlet mean?

   a. A place to plug things into the wall

   b. A store where Miep bought cheap supplies for the Frank family

   c. A hiding space similar to an Annex

   d. A place where Anne could express her private thoughts.

ANSWER KEY

1. A
We know that an annex is like an attic because the text states the annex was above Otto Frank's building.

Choice B is incorrect because an office building doesn't have bedrooms. Choice C is incorrect because a basement would be below the office building. Choice D is incorrect because there would not be a kitchen in an office building.

2. B
The diary has been published in 55 languages so people all over the world can learn about Anne. That is why the passage says it has been continuously in print.

Choice A is incorrect because it is too vague. Choice C is incorrect because it was published after Anne died and she did not write in all three languages. Choice D is incorrect because the passage does not give us any information about what languages Otto Frank spoke.

3. C
Use the process of elimination to figure this out.

Choice A cannot be the correct answer because otherwise, the passage would have simply said that Anne and Margot both died of starvation. Choices B and D cannot be correct because, if the Germans had done something specifically to murder Anne, the passage would have stated that directly. By the process of elimination, choice C has to be the correct answer.

4. D
We can figure this out using context clues. The paragraph is talking about Anne's diary and so, outlet in this instance is a place where Anne can pour her feelings.

Choice A is incorrect answer. That is the literal meaning of the word outlet and the passage is using the figurative meaning. Choice B is incorrect because that is the secondary literal meaning of the word outlet, as in an outlet mall. Again, we are looking for figurative meaning. Choice C is incorrect because there are no clues in the text to support that answer.

Help with Reading Comprehension

At first sight, reading comprehension tests look challenging especially if you are given long essays to answer only two to three questions. While reading, you might notice your attention waning, or feeling sleepy. Do not be discouraged because there are various tactics and long range strategies that make comprehending even long, boring essays easier.

Your friends before your foes. It is always best to start with essays or passages with familiar subjects rather than those with unfamiliar ones. This approach applies the same logic as tackling easy questions before hard ones. Skip passages that do not interest you and leave them for later.

Don't use 'special' reading techniques. This is not the time for speed-reading or anything like that – just plain ordinary reading – not too slow and not too fast.

Read through the entire passage and the questions before you do anything. Many students try reading the questions first and then looking for answers in the passage thinking this approach is more efficient. What these students do not realize is that it is often hard to navigate in unfamiliar roads. If you do not familiarize yourself with the passage first, looking for answers become not only time-consuming but also dangerous because you might miss the context of the answer you are looking for. If you read the questions first you will only confuse yourself and lose valuable time.

Familiarize yourself with reading comprehension questions. If you are familiar with the common types of reading comprehension questions, you are able to take note of important parts of the passage, saving time. There are six major kinds of reading comprehension questions.

- **Main Idea**- Questions that ask for the central thought or significance of the passage.

- **Specific Details** - Questions that asks for explicitly stated ideas.

- **Drawing Inferences** - Questions that ask for a statement's intended meaning.

- **Tone or Attitude** - Questions that test your ability to sense the emotional state of the author.

- **Context Meaning** – Questions that ask for the meaning of a word depending on the context.

- **Technique** – Questions that ask for the method of organization or the writing style of the author.

Read. Read. Read. The best preparation for reading comprehension tests is always to read, read and read. If you are not used to reading lengthy passages, you will probably lose concentration. Increase your attention span by making a habit out of reading.

Reading Comprehension tests become less daunting when you have trained yourself to read and understand fast. Always remember that it is easier to understand passages you are interested in. Do not read through passages hastily. Make mental notes of ideas you may be asked.

Reading Comprehension Strategy

When facing the reading comprehension section of a standardized test, you need a strategy to be successful. You want to keep several steps in mind:

- First, make a note of the time and the number of sections. Time your work accordingly. Typically, four to five minutes per section is sufficient. Second, read the directions for each selection thoroughly before beginning (and listen well to any additional verbal instructions, as they will often clarify obscure or confusing written guidelines). You must know exactly how to do what you're about to do!

MATHEMATICS

THIS SECTION CONTAINS A SELF-ASSESSMENT AND NUMBER OPERATIONS TUTORIALS. The Tutorials are designed to familiarize general principles and the self-assessment contains general questions similar to the number operations questions likely to be on the EIAT exam, but are not intended to be identical to the exam questions and are for skill practice only. The tutorials are not designed to be a complete math course, and it is assumed that students have some familiarity with number operations. If you do not understand parts of the tutorial, or find the tutorial difficult, it is recommended that you seek out additional instruction.

MATHEMATICS SELF-ASSESSMENT

Below is a number operations self-assessment. The purpose of the self-assessment is:

- Identify your strengths and weaknesses.

- Develop your personalized study plan (above)

- Get accustomed to the EIAT format

- Extra practice – the self-assessments are almost a full 3rd practice test!

Since this is a Self-assessment, and depending on how confident you are with number operations, timing yourself is optional. The EIAT includes decimals, whole numbers, fractions, metric conversion, percentages and basic algebra. There are a total of 40 questions, which must be answered in 40 minutes. The self-assessment has 40 questions, so allow 40 minutes to complete this assessment.

The questions below are not the same as you will find on the EIAT - that would be too easy! And nobody knows what the questions will be and they change all the time. Below are general number operations questions that cover the same areas as the EIAT. So, while the format and exact wording

of the questions may differ slightly, and change from year to year, if you can answer the questions below, you will have no problem with the number operations section of the EIAT.

The self-assessment is designed to give you a baseline score in the different areas covered. Here is a brief outline of how your score on the self-assessment relates to your understanding of the material.

75% - 100%	Excellent – you have mastered the content
50 – 75%	Good. You have a working knowledge. Even though you can just pass this section, you may want to review the tutorials and do some extra practice to see if you can improve your mark.
25% - 50%	Below Average. You do not understand the content. Review the tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.
Less than 25%	Poor. You have a very limited understanding. Please review the Tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.

NUMBER OPERATIONS SELF-ASSESSMENT

	A	B	C	D	E		A	B	C	D	E
1	○	○	○	○	○	21	○	○	○	○	○
2	○	○	○	○	○	22	○	○	○	○	○
3	○	○	○	○	○	23	○	○	○	○	○
4	○	○	○	○	○	24	○	○	○	○	○
5	○	○	○	○	○	25	○	○	○	○	○
6	○	○	○	○	○	26	○	○	○	○	○
7	○	○	○	○	○	27	○	○	○	○	○
8	○	○	○	○	○	28	○	○	○	○	○
9	○	○	○	○	○	29	○	○	○	○	○
10	○	○	○	○	○	30	○	○	○	○	○
11	○	○	○	○	○						
12	○	○	○	○	○						
13	○	○	○	○	○						
14	○	○	○	○	○						
15	○	○	○	○	○						
16	○	○	○	○	○						
17	○	○	○	○	○						
18	○	○	○	○	○						
19	○	○	○	○	○						
20	○	○	○	○	○						

Number Operations

1. 389 + 454 =

    a. 853
    b. 833
    c. 843
    d. 863

2. 9,177 + 7,204 =

    a. 16,4712
    b. 16,371
    c. 16,381
    d. 15,412

3. 2,199 + 5,832 =

    a. 8,331
    b. 8,041
    c. 8,141
    d. 8,031

4. 8,390 - 5,239 =

    a. 3,261
    b. 3,151
    c. 3,161
    d. 3,101

5. 643 - 587 =

    a. 56
    b. 66
    c. 46
    d. 55

6. 3,406 - 2,767 =

    a. 629
    b. 720
    c. 639
    d. 649

7. 149 × 7 =

    a. 1032
    b. 1043
    c. 1059
    d. 1063

8. 467 × 41 =

    a. 19,147
    b. 21,227
    c. 23,107
    d. 18,177

9. 309 × 17 =

    a. 5,303
    b. 4,913
    c. 4,773
    d. 5,253

Answer Key

1. C
389 + 454 = 843

2. C
9,177 + 7,204 = 16,381

3. D
2,199 + 5,832 = 8,031

4. B
8,390 - 5,239 = 3,151

5. A
643 - 587 = 56

6. C
3,406 - 2,767 = 639

7. B
149 × 7 = 1043

8. A
467 × 41 = 19,147

9. D
309 × 17 = 52,53

10. A
491 ÷ 9 = 54 r5

Decimals, Percent and Fractions

DECIMAL TIPS, TRICKS AND SHORTCUTS

Converting Decimals to Fractions

Converting decimals to fractions is easy if you say it the right way! If you say "point one" or "point 25," you'll have trouble.

But if you say, "one tenth" and "twenty-five hundredths," then you have already solved it! That's because, if you know your fractions, you know that "one tenth" looks like this: 1/10. And "twenty-five hundredths" looks like this: 25/100.

Even if you have digits before the decimal, such as 3.4, learning how to say the word will help you with the conversion into a fraction. It's not "three point four," it's "three and four tenths." Knowing this, you know that the fraction which looks like "three and four tenths" is 3 4/10.

The conversion is not complete until you reduce the fraction to its lowest terms: It's not 25/100, but 1/4.

Converting Decimals to Percent

Changing a decimal to a percent is easy if you remember one thing: multiply by 100.

For example, if you start with .45, simply multiply it by 100 for 45. Then add the % sign to the end - 45%.

Think of it this way: take out the decimal point, add a percent sign on the opposite side. In other words, the decimal on the left is replaced by the % on the right.

It doesn't work quite that easily if the decimal is in the middle of the number. For example, 3.7. Here, take out the decimal in the middle and replace it with a 0 % at the end. So 3.7 converted to decimal is 370%.

Percent Tips, Tricks and Shortcuts

Percent problems are not nearly as scary as they appear, if you remember this neat trick:

EXPONENTS: TIPS, SHORTCUTS & TRICKS

Exponents are just shorthand for saying that you're multiplying a number by itself two or more times.

For instance, instead of saying 5 x 5 x 5, you can show that you're multiplying 5 by itself 3 times if you just write 5^3 .

We usually say this as "five to the third power" or "five to the power of three." In this example, the raised 3 is an "exponent," and the 5 is the "base."

You can even use exponents with fractions. For instance, $1/2^3$ means you're multiplying 1/2 x 1/2 x 1/2. (The answer is 1/8).

HOW TO ANSWER BASIC MATH MULTIPLE CHOICE

The time allowed on the math portion of a standardized test is typically so short that there's no room for error. You have to be fast and accurate.

Math strategy is very helpful, but nothing beats knowing your stuff! Make sure that you have learned all the important formulas that will be used.

If you don't know the formulas, strategy won't help you.

MECHANICAL COMPREHENSION

THIS SECTION CONTAINS A MECHANICAL COMPREHENSION SELF-AS-
SESSMENT. The Self-Assessment contains general ques-
tions similar to the questions likely to be on the EIAT,
but are not intended to be identical to the exam questions.

Below is a Mechanical Comprehension Self-assessment. The
purpose of the self-assessment is:

- Identify your strengths and weaknesses.

- Develop your personalized study plan (above)

- Get accustomed to the EIAT format

- Extra practice – the self-assessments are almost a full
  3rd practice test!

Since this is a Self-assessment, and depending on how confi-
dent you are with Mechanical Comprehension, timing your-
self is optional. The self-assessment has 10 questions, so
allow 8 minutes to complete this assessment.

The questions below are not the same as you will find on the
EIAT - that would be too easy! And nobody knows what the
questions will be and they change all the time. Below are
general number operations questions that cover the same
areas as the EIAT. So, while the format and exact wording
of the questions may differ slightly, and change from year to
year, if you can answer the questions below, you will have no
problem with the number operations section of the EIAT.

The self-assessment is designed to give you a baseline score
in the different areas covered. Here is a brief outline of how
your score on the self-assessment relates to your under-
standing of the material.

75% - 100%	Excellent – you have mastered the content
50 – 75%	Good. You have a working knowledge. Even though you can just pass this section, you may want to review the tutorials and do some extra practice to see if you can improve your mark.
25% - 50%	Below Average. You do not understand the content. Review the tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.
Less than 25%	Poor. You have a very limited understanding. Please review the Tutorials, and retake this quiz again in a few days, before proceeding to the rest of the practice test questions.

Mechanical Comprehension Self-Assessment

1. Ⓐ Ⓑ Ⓒ Ⓓ

2. Ⓐ Ⓑ Ⓒ Ⓓ

3. Ⓐ Ⓑ Ⓒ Ⓓ

4. Ⓐ Ⓑ Ⓒ Ⓓ

5. Ⓐ Ⓑ Ⓒ Ⓓ

6. Ⓐ Ⓑ Ⓒ Ⓓ

7. Ⓐ Ⓑ Ⓒ Ⓓ

8. Ⓐ Ⓑ Ⓒ Ⓓ

9. Ⓐ Ⓑ Ⓒ Ⓓ

10. Ⓐ Ⓑ Ⓒ Ⓓ

Mechanical Comprehension Self-Assessment
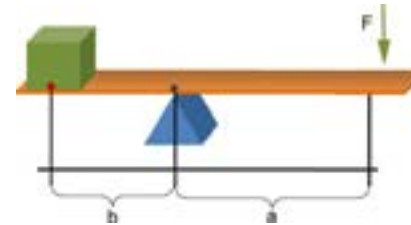
1. Consider the illustration above and the corresponding data:

Weight = W = 200 pounds
Distance from fulcrum to Weight = b = 10 feet
Distance from fulcrum to point where force is applied = a = 20 feet
How much force (F) must be applied to lift the weight?

    a. 80
    b. 100
    c. 150
    d. 200

2. A force of 20 kg. is applied to two springs in series, which compresses the springs 6 inches. If the same force is applied to springs in parallel, how far will the springs compress?

    a. 6 inches
    b. 3 inches
    c. 2 inches
    d. 1 inch

3. You are asked to determine the gear ratio of a vehicle. You open the differential and observe the ring gear the and pinion gear. The ring gear has 40 teeth and the pinion gear has 8, What is the gear ratio of the vehicle?

    a. 4:1

    b. 5:1

    c. 8:2

    d. 8:0
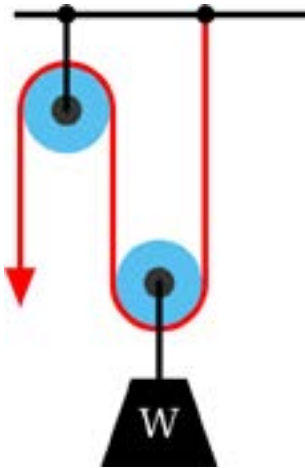
4. Consider the pulley arrangement above. If the weight, W, is 50 pounds, how much force is required to lift it?

    a. 10 pounds

    b. 20 pounds

    c. 25 pounds

    d. 50 pounds

5. Consider a gear train with 3 gears, from left to right, A with 20 teeth, gear B with 60 teeth, and gear C with 10 teeth. Gear A turns clockwise at 60 rpm. What direction and speed in rpm does Gear C turn?

    a. 120 rpm, clockwise

    b. 100 rpm clockwise

    c. 120 rpm counter clockwise

    d. 140 rpm counter clockwise

Answer Key

1. B
To solve for F, Weight X b (distance from fulcrum to weight) = Force X a (distance from fulcrum to point where force is applied)
200 X 10 = F X 20
2000/20 = F
F = 100

2. B
If the springs in series compress 6 inches, then the springs in parallel will compress half that amount, or 3 inches.

3. B
Opening the differential, the ring gear is the larger gear and the pinion the smaller. The gear differential is calculated by dividing the number of teeth on the pinion into the number of teeth on the ring gear. 40/8 = 5, or 5:1.

4. C
Since the weight is only attached to one pulley, the force required will be 50/2 = 25 pounds.

5. A
First calculate the speed of gear B. The gear ratio is 60:20 or 3:1. If gear A is turning at 60 rpm, then gear B will turn at 30/3 = 20 rpm.

Next calculate B and C. Gear C is smaller, so it will turn faster. The gear ratio is 60:10 or 6:1, and since gear B turns at 20 rpm, gear C will turn at 20 X 6 = 120 rpm.

Next calculate the direction. Gear A is turning clockwise, so Gear B is turning counter clockwise, so Gear C must be turning clockwise.

MECHANICAL COMPREHENSION TUTORIAL

The EIAT Mechanical Comprehension section is tests your basic knowledge of simple machines like levers, wedges and pulleys, as well as some basic physics. Think of the mechanical comprehension section as a basic IQ test for all things mechanical.

The Mechanical comprehension section also has questions where you are required to visualize objects, and visualize how things work.

OVERVIEW OF SIMPLE MACHINES
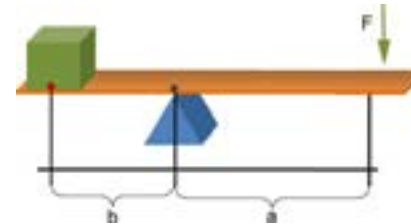
LEVERS

The lever is a movable bar that pivots on a fulcrum attached to a fixed point. The lever operates by applying forces at different distances from the fulcrum, or pivot.

Assuming the lever does not dissipate or store energy, the power into the lever must equal the power out of the lever. As the lever rotates around the fulcrum, points farther from this pivot move faster than points closer to the pivot. Therefore a force applied to a point farther from the pivot must be less than the force located at a point closer in, because power is the product of force and velocity.

This is the law of the lever, which was proven by Archime-

PRACTICE TEST QUESTIONS SET 1

READING COMPREHENSION

The questions below are not the same as you will find on the EIAT - that would be too easy! And nobody knows what the questions will be and they change all the time. Below are general questions that cover the same subject areas as the EIAT. So, while the format and exact wording of the questions may differ slightly, and change from year to year, if you can answer the questions below, you will have no problem with the EIAT.

For the best results, take these practice test questions as if it were the real exam. Set aside time when you will not be disturbed, and a location that is quiet and free of distractions. Read the instructions carefully, read each question carefully, and answer to the best of your ability.

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Do not attempt more than one set of practice test questions in one day. After completing the first practice test, wait two

or three days before attempting the second set of questions.

This book is for skill practice only! Some of the questions will be easy and others will be more difficult. Go through the practice questions and try your best - by practicing on a range of difficulty levels, you will be ready for the test!

	A	B	C	D	E		A	B	C	D	E
1	○	○	○	○	○	21	○	○	○	○	○
2	○	○	○	○	○	22	○	○	○	○	○
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4	○	○	○	○	○	24	○	○	○	○	○
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Mathematics

	A	B	C	D	E			A	B	C	D	E
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3	○	○	○	○	○	23		○	○	○	○	○
4	○	○	○	○	○	24		○	○	○	○	○
5	○	○	○	○	○	25		○	○	○	○	○
6	○	○	○	○	○	26		○	○	○	○	○
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Mechanical Comprehension

	A	B	C	D	E			A	B	C	D	E
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20	○	○	○	○	○							

PRACTICE TEST QUESTIONS SET 2

READING COMPREHENSION

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Mathematics

	A	B	C	D	E		A	B	C	D	E
1	○	○	○	○	○	21	○	○	○	○	○
2	○	○	○	○	○	22	○	○	○	○	○
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Mechanical Comprehension

	A	B	C	D	E		A	B	C	D	E
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20	○	○	○	○	○						

25. B
If there is no friction, the object's weight does not affect its horizontal motion. Thus, we need a minimum force (slightly greater than zero) to move it on a horizontal plane a distance d.

26. C
In the bottom row, there are 3 × 4 + 3 = 15 cubes.
In the next row, there are 2 + 3 + 3 + 3 + 1 = 12 cubes.
In the third row, there are 2 + 2 = 4 cubes.
In the upper row, there are only 2 cubes.
Thus, in total there are 15 + 12 + 4 + 2 = 33 cubes.

27. A
The figure has 4 rows and 5 columns, with not all of them are complete. It is obvious that in order to be a perfect square, it must have 5 × 5 dimensions.

From the figure, you may see that the first (bottom) row is complete. In the second row one cube is missing, in the third row two cubes are missing, in the fourth row four cubes are missing and in the fifth row all 5 cubes are missing. The missing cubes must be filled with one of the shapes.

28. A
If you rotate the shapes in the choices by 900 clockwise, you will notice that the missing shape to form a perfect cube is the first one.

29. B
From the figure, block A touches 6 blocks (1 is below, 2 are lateral in vertical position (narrow face), 2 are lateral in the horizontal position and one is lateral in the vertical position (wider side).

30. A
From the figure, block B touches 1 block below, 2 blocks above and one block laterally, i.e. in total 4 blocks.

CONCLUSION

CONGRATULATIONS! You have made it this far because you have applied yourself diligently to practicing for the exam and no doubt improved your potential score considerably! Getting into a good school is a huge step in a journey that might be challenging at times but will be many times more rewarding and fulfilling. That is why being prepared is so important.

Study then Practice and then Succeed!

Good Luck!

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