



Operations Test Battery (OTB)



Test Preparation Kit

Strategies • Samples • Further Reading

How to Use This Manual

Congratulations! You have taken the first step to preparing to do your best on TECO’s Operations Test Battery (OTB). This manual is divided into several sections aimed at helping you become more successful when you take the test.

If this is your first time taking the OTB, please take the time to read through this entire manual. On the following pages you will find general test-taking strategies, information regarding each test (i.e., # of items, type of items, time allowed, etc.), and practice items. Finally, if you would like additional information to assist you in preparing for your upcoming test, we have provided a valuable list of resources that you may wish to seek out on your own time.

For those of you who are retaking the OTB, we recommend that you first review your previous test results in detail to identify areas that you may want to dedicate more time for preparation (i.e., reading comprehension, math, or mechanical comprehension). Also, **please pay attention to the general test taking strategies**, work through the sample problems, identify your weaknesses, and create a realistic study plan to successfully prepare before your test!

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Operations Test Battery FAQs

1. What is the Operations Test Battery?

The Operations Test Battery (OTB) consists of four individual tests:

- Reading Comprehension
- Math 1
- Math 2
- Mechanical Comprehension

These tests have demonstrated their validity for selection through extensive research. The results will give an indication of a candidate's general mental ability and mechanical comprehension. The tests have been designed and validated to help the Company determine whether your particular skills and abilities match those needed to succeed in the jobs we have to offer.

2. How long is the test?

The OTB typically takes about three hours. There is one 10-minute break during the testing. You must arrive on time for the phase 1 test session. **If you arrive after the session has started, you will not be allowed to participate.**

3. When am I eligible to take the OTB?

Candidates are eligible to take the OTB once during a six month period.

4. What can I do to prepare for the OTB?

Candidates should review the Preparation Guide in its entirety. The Guide provides tips to consider before the test, once you arrive for the test, and during the test, as well as different strategies to think about for various types of questions. The Guide also provides several websites that can be utilized as resources in your preparations. **Reviewing any of the materials provided does not guarantee a passing score on the OTB;** these are resources and tools designed to help you in your preparation process for testing.

5. What do I need to bring to the testing site?

The testing administrator will provide all materials necessary for testing (i.e., pencils, scratch paper, etc.). Candidates should bring photo identification such as a driver's license. Candidates are not allowed to use calculators or any other computing device. If you need glasses for reading, please bring them with you for the test.

6. How long does it take to receive my results?

It normally takes a week for TECO team members to receive their confidential test results. Non-TECO employees will be contacted by the recruiter to inform them if they will be moving to the next phase of the selection process. Recruiters do not have individual test scores, only the passing status of candidates.

7. How is the test scored?

Each individual test contributes an equally weighted score to the overall combined score; therefore, a higher score on one test could make up for a lower score on another test. Candidates are required to score 70 or greater for their composite score to advance in the selection process.

Details You Need To Know

Test Difficulty

Test difficulty is a relative opinion. Some may perceive a test as difficult, while others' perception may be totally different. Either way, **a great deal of time has to go into preparing for any kind of test.** Testing is not based upon what you learned in the last week or the last month; it is based upon years of learning.

Considering that you have chosen a path toward a particular career objective, it is likely that you will have learned some amount of information about your chosen field. You will have developed an extensive vocabulary, a skill of analysis within the setting of a particular field, and a host of other skills that will help you overcome the "difficult" parts of a test.

Even so, there will be some test questions that will require additional effort. You should pay attention and orient yourself to the time intervals allotted for completion of the test; also, ***you should move through the easier questions, note the ones that require more time, and go back to address them sequentially after you've answered the easier questions.*** More than likely, you will still find yourself unable to address confidently some of the questions.

Don't let the difficulty of a few test questions frustrate you. Test examiners expect a certain number of wrong answers, and tests are designed accordingly. The intent is not to find the perfect person, but rather to find one with sufficient skill and reasoning power to fit a specific field of endeavor. While you might feel bad about your test performance, you will likely feel better to know that the percentile scoring report indicates how few candidates come close to a perfect score.

Preparing to Take the OTB

Planning When to Study for your Test

You should start preparing for your test as soon as possible. However, the amount of time that is necessary to prepare depends on the individual, as well as the score the test taker hopes to achieve. If you are a quick learner, then you will not need to spend as much time preparing as someone that absorbs material and concepts at a lower rate. ***Nevertheless, if you desire a high score, you must allow yourself adequate study time.*** The following website may be helpful in providing good study tips: <http://www.howtostudy.org/> .

Preparing to Take the OTB

Coping with Test Anxiety

(Developed by Dr. Charlene Sorenson, Gallaudet University Department of Chemistry and Physics)

Since you are required to take the OTB, stress and anxiety are things you need to learn to manage. There are specific things that you can do during your preparation to reduce your level of stress.

One Thing at a Time

Often life seems crowded with things to do, people to see, email to answer, etc. ***It is important for you to set priorities and make choices about what needs to be done first.*** If you find yourself focusing on the stresses in your life, try writing down your worries. That way you can set them aside, and come back and think about them later when you have more time.

Follow a Regular Routine

Following a regular routine helps to reduce stress. Performing the same tasks every day will make you more comfortable. Your regular routine should include:

- Some form of exercise
- **Studying**
- **Test Preparation**
- Healthy Diet
- Ample Sleep
- Time with Family

Visualize the Test Experience

Visualization is a way to mentally practice taking a test.

- With your eyes closed, picture yourself in the test taking room. See yourself looking at the test and remembering each answer as it comes.
- Mentally review what you know about the subject (if you do not know enough, go back and review).
- Use the 3-breath technique every time you feel stress or worry.
 - Get in a comfortable position, spine straight, feet flat on the floor
 - Close your eyes
 - Concentrate on your body, and notice where there is tension, discomfort or stress
 - Take a deep breath, visualize all your stress, then breathe out. While breathing out, visualize all the stress leaving your body
 - Repeat these steps at least three times

Beware of the “Leap and Dive” Effect

Many habits of mind and body can cause a “leap and dive” effect. Anything that makes you feel too high will later cause you to crash to a low. These leaps and dives of emotion can distort your thinking and make it hard to concentrate. When you are trying to study, you should avoid the mental and physical behaviors that cause these leaps and dives. Examples of things that you should avoid because they cause a temporary “leap” are:

- Foods that are high in sugar
- Concerns about the future
- Not enough sleep
- Romantic concerns
- Drugs and alcohol

Preparing to Take the OTB

Test Preparation

Test Week Preparation

The week of the test you should try to continue to follow your regular daily routine. You should add a couple more activities into your pre-established routine. For example:

- Establish priorities for studying
- Study
- Take review notes
- Reduce your notes to a page or a card for each subject
- Meet with a study group (if available)
- Study on your own
- Do a breathing exercise to relax
- Get enough sleep

Just Before the Test

Physical Preparation: The morning of the test you should try to eat a balanced breakfast. Do not eat a breakfast of ONLY carbohydrates (like cereal). This leads to a quick wake up, but you will feel tired two hours after breakfast. Instead you should eat a mix of carbohydrates, protein, and/or fruit (like toast, eggs, and juice).

There are also specific foods and beverages you should avoid because they can increase your stress level.

Try to avoid eating:

- Processed food
- Artificial sweeteners
- Soft drinks
- Chocolate
- Caffeine
- Junk food
- Alcohol

Mental Preparation: You want to feel relaxed when you sit down to take the test, so make sure you do the following things:

- Mentally review your notes
- **Arrive to the test taking site on time**
- Do a breathing exercise to relax

Good Luck!

Preparing to Take the OTB

Test Taking Strategies

1. **Complete the easiest questions or sections first.** Begin the test by identifying the areas in which you are strongest while remembering to mark the questions you skip. Complete these sections first and then move to the more difficult areas. Don't spend too much time on any one question – since each question is worth the same in scoring, it is always to your advantage to complete as many questions as you can! Marking your answer sheet when you skip an item can help you keep track of where you are on the test – some candidates have lost valuable time when they did not mark a skipped item and got off-track on the answer sheet. **Surprisingly, this is one of the most common mistakes made by test takers.**
2. Read each question carefully. After reading each question, make sure you understand it clearly.
3. **Try to not make RANDOM guesses**, instead, narrow down for the correct response. It is best to eliminate at least one wrong answer before guessing. If you are given four choices and randomly guess, you only have a 25% chance of guessing the right answer—or a 75% chance of guessing the WRONG answer. Further, if you can eliminate just one wrong answer you have boosted your chances to 33%. Obviously, if you can eliminate two wrong answers your chances have gone up to 50%. When all else fails, and you must make guesses:
 - a. **Be aware of key words: “always,” “never,” “all,” or “none.” Consider these options carefully.**
 - b. **Trust your “gut”:** Usually your first reaction is right.
4. Leave time for review. If you complete the test before the time is up, don't stop working - review your answers! Don't look for patterns in the responses – the tests have been professionally developed and don't necessarily have the same number of “A,” “B,” or “C” answers. If you find that you have answered mostly “A,” for example, trust your instincts and don't assume that it must be wrong. Research has shown that many people who change answers during the review change right answers to wrong ones. Changes should be made only when you are certain the original answer is wrong. You can also use any extra time to make certain your answers are entered darkly and clearly.
5. There are no penalties for wrong answers on the OTB. Thus, take advantage of the time warnings the administrator gives you – in a test of this type it is better to guess than to leave an item blank when you are running short on time.

Strategies for Various Question Types

True – False

- If any part of the statement is false, the entire statement is false.
- Words such as “always,” “never,” “all,” and “none” are often, but not always, signals that a statement is false.

Multiple Choice

- Read the entire question and try to answer it before looking at your options.
- Even if you think you know the answer be sure to read through all of your options.
- If you are uncertain, begin by eliminating answers that are wrong, increasing your chances of being right.

Reading Comprehension Test

The test contains groups of statements derived from power plant safe work practice handbooks. The test taker must answer true/false questions and multiple choice questions.

Total questions: 40 – True/False and Multiple Choice

Time limit: 40 Minutes

Example

Carefully read the statements within the box below, then answer the two items following it. Mark your answers in the spaces provided on your answer sheet for items 1 and 2. The first item is a true-false question. If the statement in the item is **True**, completely fill in circle **1** on the answer sheet for item 1. If it is **False**, fill in circle **2** for item 1. The second item is a multiple-choice question. Select the best answer from among the choices given and fill in the circle matching your choice for item 2 on your answer sheet.

FIRE SAFETY

- In the event of a fire, never use an elevator for escape. Use the stairs instead.
- Whenever you discover a fire, first sound a fire alarm, then try to determine what can be done to help those whose lives may be in immediate danger. Once you are out of a burning building, never go back inside. Instead, stand clear and allow professional firefighters to handle the situation.
- Not all fire extinguishers are appropriate for use on all fires. For example, if the fire is electrical in nature, *do not* spray water on the flame. Instead, try to cut off the source of power. If wood or paper is burning, spray water at the *base* of the flame, not at the top or middle part of the flame.

1. If you discover a fire and believe that someone's life may be in danger, you should first help save that person then sound a fire alarm.
True False
2. If you determine that the fire is electrical in nature, you should...
 - 1) Spray a chemical compound on the open flame
 - 2) Spray water at the base of the flame
 - 3) Attempt to cut off the source of the electrical power
 - 4) Use the stairs, not the elevator

Mathematics Test, Part 1 & 2

The math portions of the OTB are divided into two sections: part 1 and 2. All answers are presented in multiple choice format, and there are **NO CALCULATORS** or other computing devices allowed during the test. You will be given scratch paper to work out all of your calculations. Your scratch work will be collected, but only answers appearing on the answer sheet will be scored for the tests.

Mathematics Test Part 1

Part 1 is designed to measure your ability to solve arithmetic problems involving operations with whole numbers, decimals, simple fractions, and word problems. There are 18 multiple choice items and you will be given 40 minutes to work on them. Below is a sample item from the Mathematics Test Part 1.

Sample

$$94.00 - .99 =$$

- a. 93.10
- b. 93.01
- c. 93.11
- d. 93.00

The correct choice is B, 93.01

The following exercises will help prepare you for the Mathematics Test Part 1. Solve each problem below and choose the correct answer.

1. $4 \div \frac{1}{2} =$

- a. 8
- b. 6
- c. 4
- d. 2

2. $1.7 \times 4 =$

- a. 8.8
- b. 5.7
- c. 6.8
- d. 2.3

3. $\frac{1}{2} + 0.25 =$

- a. $\frac{1}{3}$
- b. 0.50
- c. $\frac{3}{4}$
- d. 0.125

4. $1.8 + 1.94 =$

- a. 3.84
- b. 3.74
- c. 2.84
- d. 2.74

5. $1 \frac{10}{12} - 1 \frac{2}{9} =$

- a. $\frac{2}{3}$
- b. $\frac{11}{18}$
- c. 1
- d. $\frac{1}{3}$

6. $1.2 \div 2 =$

- a. 0.6
- b. 1.4
- c. 2.2
- d. 2.4

7. Tony wants to buy a screwdriver that costs \$4, a wrench that costs \$13, and a hammer that costs \$9. He has already saved \$13 for the purchase of the tools. How much more money does Tony need to buy all three tools?

- a. \$26
- b. \$24
- c. \$17
- d. \$13

8. A square calendar has a perimeter of 48 inches. How long is each side?

- a. 16
- b. 12
- c. 8
- d. 4

Mathematics Test Part 2

The Mathematics Test Part 2 is designed to measure your ability to solve arithmetic problems involving operations with single and double variable algebra, which rely on your knowledge of basic operations (subtraction, addition, multiplication, and division, etc.). There are 20 multiple choice items and you will be given 15 minutes to work on them. Below is a sample item from the Mathematics Test Part 2.

Sample

Solve for X: $X = -1 + 4$

- a. $X = 1$
- b. $X = 2$
- c. $X = 3$
- d. $X = 4$
- e. $X = 5$

The correct choice is C, $X = 3$

The following exercises will help prepare you for the Mathematics Test Part 2. Solve each problem below and choose the correct answer.

1. $-14 + 4$

- a. -18
- b. 10
- c. -10
- d. 18

2. Solve for x: $6x = 18$

- a. $X = -2$
- b. $X = 3$
- c. $X = 2$
- d. $X = 12$

3. The sum of -7 and 4, divided by their product.

- a. $-28/11$
- b. $-3/11$
- c. $3/28$
- d. $11/28$

4. $(3a + 2b)(a - 9b)$

- a. $3a^2 - 25ab - 18b^2$
- b. $4a - 16ab - 7b$
- c. $3a - 7b$
- d. $3a^2 + 29ab + 18b^2$

5. If $\sqrt{x + 4} = 10$, then:

- a. $a = 36$
- b. $a = -36$
- c. Either a or b
- d. Neither a or b

6. Solve for x: $x^4 + 4 = 20$

- a. $x = 4$
- b. $x = -2$
- c. $x = 2$
- d. Both b and c

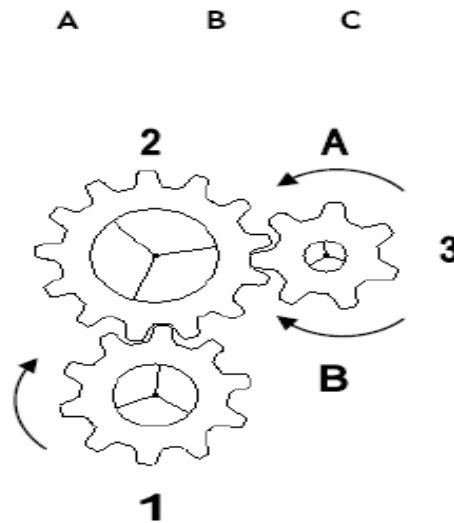
Mechanical Comprehension

The Mechanical Comprehension Test is designed to measure how much mechanical aptitude and intuition you have. It covers various areas such as pressure, sound, fluids, force, gravity, etc. You have 30 minutes to complete this test, and should try to answer every question in the time allowed. The test consists of 68 multiple choice questions, which are divided into 18 content areas:

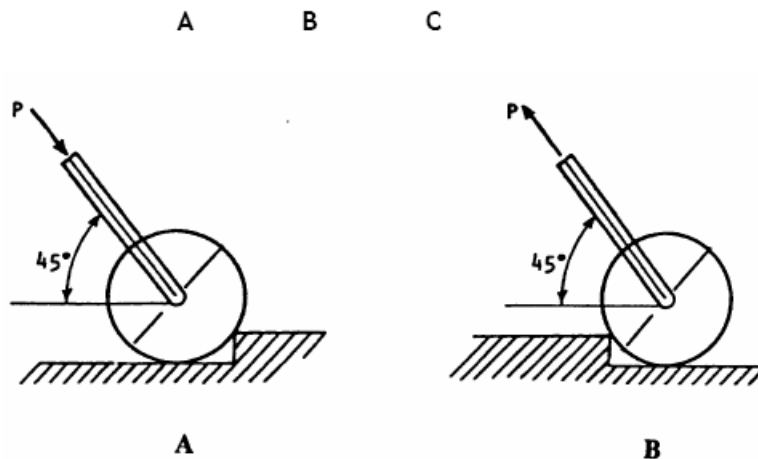
- | | | |
|---------------------|------------------------|------------------------|
| • Acoustics | • Centrifugal Force | • Gravity and Velocity |
| • Inertia | • Planes and Slopes | • Shape and Volume |
| • Belt Drive | • Electricity | • Heat |
| • Levers | • Pulley Systems | • Structures |
| • Center of Gravity | • Gears | • Hydraulics |
| • Optics | • Resolution of Forces | • Miscellaneous |

Below are examples of items from the Mechanical Comprehension Test:

1. If gear #1 is turning as indicated, which way will gear #3 turn?(Choose C if gears lock.)



2. Two identical rollers have forces applied to them as shown below. Which force needs to be greater in order to roll them over the step? (Choose C if force is equal for both.)



Answers to Practice Problems

Reading Comprehension:

1. False, according to the second statement, you should first sound a fire alarm and then help others.
2. 3) Attempt to cut off the source of the electrical power.

Mathematics Test Part I

1. A
2. C
3. C
4. B
5. B
6. A
7. D
8. B

Mathematics Test Part II

1. C
2. B
3. C
4. A
5. A
6. D

Mechanical Comprehension

1. B – Since the gears are not interlocked, they will rotate if gear #1 turns. By turning gear #1 clockwise as indicated, gear #3 will turn clockwise as well (i.e., answer B).
2. A – Pushing the roller over a step requires a larger force than pulling the roller over the step.
3. C – The height of the surface above each hole is equal, so water will flow out with equal speed.
4. A – The heavier, larger weight will move away from the direction the car is moving

Test Preparation Resources

Note: Reviewing any of these materials does not guarantee a passing score on the OTB; these resources are tools designed to guide you in your preparation process for testing.

There are several resourceful websites listed below; however, the Internet provides a tremendous amount of additional resources on the areas tested in the OTB. Additionally, obtaining these resources must be done at your own expense.

Reading Comprehension:

<http://ux.brookdalecc.edu/fac/reading/mhurley/>

Math:

www.hippocampus.org

www.math.com

www.mathgoodies.com

Mechanical:

www.hippocampus.org

www.easyphysics.net

Other Activities:

Puzzles, games, and hobbies that involve math, computation skills (e.g., number games, flash cards, etc.), mechanical and spatial skills (e.g., erector sets, building models, rockets, etc.)

College/trade school courses in algebra, basic mathematics, physics and the sciences

Seminars that teach specific skills (e.g., construction, electronics, mechanics, etc.)