THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

CIVIL SERVICE COMMISSION

Safety Forces Testing

FIREFIGHTER ENTRY-LEVEL TEST GUIDE

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alteration of the word descriptions, tables, or numbers in this manual without the express written consent of the City of Columbus and/or the Civil Service Commission, is prohibited.

The Columbus Civil Service Commission (CSC) designed this test guide to help you perform at your best in the Firefighter Entry-Level Examination process. It contains information about the test, sample questions, and test-taking strategies. Reading this guide and studying pertinent content prepares you for the Columbus Firefighter examination. Your journey to become a firefighter will require dedication and discipline to be successful. This journey begins with preparing for the examination. Congratulations on taking the first step to success by reading this test guide.

Firefighter Selection Process Communication

Stay informed by taking advantage of the information provided by Civil Service throughout the selection process. By staying informed, preparing for the selection process, and following through, you will significantly increase your likelihood of success. Once you apply, you will receive several email notifications to inform you of the next step in the firefighter selection process. Update your email address and check for email notices. Read each notice carefully. In addition to emails and this test guide, you will find additional information, such as sample test videos, the background standards, and the Columbus Firefighter Mile Preparation Guide, on the Civil Service website at Firefighter Exams - City of Columbus, Ohio. Finally, if you have questions regarding this test guide or the testing process, please call 614-645-0879 or email us at policefiretesting@columbus.gov.

Introduction to the Job of a Columbus Firefighter

The most publicized aspects of a firefighter's job are preserving life and property, primarily through fire suppression. However, most firefighters are responsible for much more, and a Columbus firefighter is no different. A firefighter's job is physically demanding. Firefighters must climb several flights of stairs, maintain water flow for long periods, and carry victims from dangerous situations. On an emergency scene, firefighters must carry out many tasks as quickly and efficiently as possible to preserve one's own life, the lives of victims, and the lives of other first responders. Many Columbus firefighters serve as paramedics, and all firefighters are trained to handle many basic medical emergencies. In addition, Columbus firefighters perform tasks between responses to emergencies. These tasks include maintaining and repairing equipment, cleaning equipment and the fire station, inspecting buildings and hydrants, learning area streets, and giving tours to school-aged children.

Columbus firefighters receive extensive training throughout their career, beginning with the initial 33 to 35 week paid fire training academy. During this time, recruits work first shift and return home in the evenings and on weekends. Once the initial training at the academy is complete, each firefighter is assigned a fire station based on the needs of the Division of Fire. Upon completion of the training academy, each firefighter must maintain a valid Firefighter II and Fire Safety Inspector Certification issued by the State of Ohio. Additionally, the firefighter will begin a 3-year program where learning continues during firefighter duties and is complemented with traditional bookwork, online tutorials, class instruction, and examinations. The Division of Fire must maintain a required number of firefighters who possess an Emergency Medical Technician-Paramedic certificate. Many City of Columbus firefighters are required to obtain and retain this certificate after becoming a firefighter.

Training continues throughout a firefighter's career through hands-on training at the station, simulated exercises in the field, classroom and hands-on training at the academy, and training delivered through online courses.

After the initial 33 to 35 week training, the schedule of a typical Columbus firefighter is 24-hours on-duty and 48-hours off-duty. Every third week, the firefighter has a Kelly Day (an additional day off-duty). This averages to a 48-hour work week. An example of a 3-week Kelly Cycle is as follows:

Sample Columbus Firefighter Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Work 24 hours	Off	Off	Work 24 hours	Off	Off	Work 24 hours
Off	Off	Kelly Day Off	Off	Off	Work 24 hours	Off
Off	Work 24 hours	Off	Off	Work 24 hours	Off	Off

In the example above, the firefighter has a Kelly Day on Tuesday; therefore, for each workday that falls on a Tuesday, this firefighter is not scheduled to work. This Kelly Cycle repeats every three weeks.

Overview of Test Phases

The CSC designed the Entry-Level Firefighter Examination for the City of Columbus to test the knowledge, skills, and abilities that are important to the firefighter job with the City of Columbus, Ohio.

The Firefighter Entry-Level Examination is a multi-phase test. The entire examination process consists of three phases. The three phases are as follows:

Phase I—Multiple-Choice Exam Subtests

1. Situational Judgment Test (SJT)
2. Map Reading and Following Directions
3. Mathematics
4. Reading Comprehension
5. Mechanical Aptitude

Phase II—Firefighter Mile Events

1. Stair Climb
2. Paced Walk
3. Hose Advance
4. Equipment Haul
5. Paced Walk
6. Blind Crawl
7. Forcible Entry/Tire Strike
8. Paced Walk
9. Victim Rescue
10. CPR

Phase III—Fire Oral Assessment Mechanism (FOAM) Scored Abilities

Problem Sensing & Resolution
Interpersonal Relations

Later sections of this test guide will provide more specific descriptions of the phases.

Important Notes about the Exam

- CSC staff WILL NOT admit late candidates in the exam. Arrive early to avoid being turned away from taking the exam that day. Once the exam instructions begin, CSC staff will not admit additional applicants into the testing room.
- Bring a printed copy of your admission notice and your driver's license to the test site.
- CSC staff will notify you of the exam location in your examination notice. Read the notice in detail and arrive at the specified location.

Scoring

The CSC will score the entry-level firefighter exam as follows:

Phase I	Multiple-Choice	Pass/Fail
Phase II	FOAM	Band/Fail
Phase III	Firefighter Mile	Pass/Fail

The Multiple-Choice and Firefighter Mile phases of the examination process will be scored on a pass or fail basis. The FOAM exam score will be weighted as 100% of the final score for those who pass the multiple-choice phase. Only those who pass all phases of the examination process will be placed on the eligible list.

Phase I – Multiple-Choice Exam

This section of the test guide provides information about the Multiple-Choice Examination. It is designed to 1) provide you with strategies for taking the test and 2) give you an understanding of the examination content.

General Test-Taking Strategies for Phase I

- Try to get a good night's sleep before the test. It is important that you are well rested so you can do your best.
- Eat appropriately before the test. Too little or too much food can hinder your performance rather than help.
- Know where the test center is located. Arrive before your scheduled time. Refer to your admission notice for the exact date and time. It may be helpful to drive by the exam location on a date before your exam.
- Business attire is **not** required. Bring a sweatshirt or sweater and dress in layers to adjust your comfort to fit the room's temperature.
- When you arrive at the test site, check-in, and you will be assigned a seat. Try to relax and get comfortably settled as quickly as possible.
- Listen to and follow all directions.

- Do not waste time on problems that are too hard. Skip them and go to the next question. If time permits, you may go back later. There is no penalty for guessing. The test is not designed to have trick questions; if you know the answer to a question, mark it accordingly.

- Feel free to write in your test booklet. Writing in your booklet may help you to reason through various test questions. Mark all final answers on your answer sheet to receive credit.

Multiple-Choice Subtests

The multiple-choice exam includes many types of test items which are divided into five subtests: 1) Situational Judgment, 2) Map Reading and Following Directions, 3) Mathematics, 4) Reading Comprehension, and 5) Mechanical Aptitude. The test will cover each of these five subtests.

Subtest 1—Situational Judgment

The Situational Judgment portion of this subtest is a video-based assessment. This portion of the examination will assess the judgment required for problem solving in work-related situations. For this test, you will view several scenarios. Each scenario will be presented in a non-fire-related work setting. At various points in the scenario, an employee will be placed in a situation that requires a response. The employee will respond to the situation (referred to as scenes during the test) in multiple ways. After each response by the employee, you will rate the effectiveness of the response.

You will need to make your ratings quickly, as you will be provided 10 to 15 seconds to rate each response. Each employee response will be shown only ONE TIME. The video will be played one time in its entirety and will not be stopped. DO NOT wait until the end of the test to rate responses! When the video is over, this subtest is over, and you will be instructed to complete the remainder of the examination.

After each employee's response to a scene, you will rate the effectiveness of the response using the following scale:

> A = Highly effective—provides the desired effect, impressive. Response provided extra effort and attention that made it distinctly better than satisfactory.
>
> B = Satisfactory—fulfills the requirements resulting in a positive outcome, but nothing more. Response meets the standard but does not provide any extra effort (does not go above and beyond).
>
> C = Substandard—below standard or less than adequate; will likely have a negative impact on the situation. A response may have positive points but does not meet the standard of what would be expected or required for the situation.
>
> D = Unacceptable—clearly inferior. Without a doubt, the response would end in a negative outcome; definitely wrong.

Each response can have any rating, so rate each response independently of the others. For example, response 1 could be highly effective, and response 2 could also be highly effective. For each response, consider the entire A/B/C/D scale.

You do not need specialized training, knowledge, or experience for this subtest. Instead, your answers should draw on the general knowledge and life experience you have acquired through work, school, extracurricular, and/or community activities.

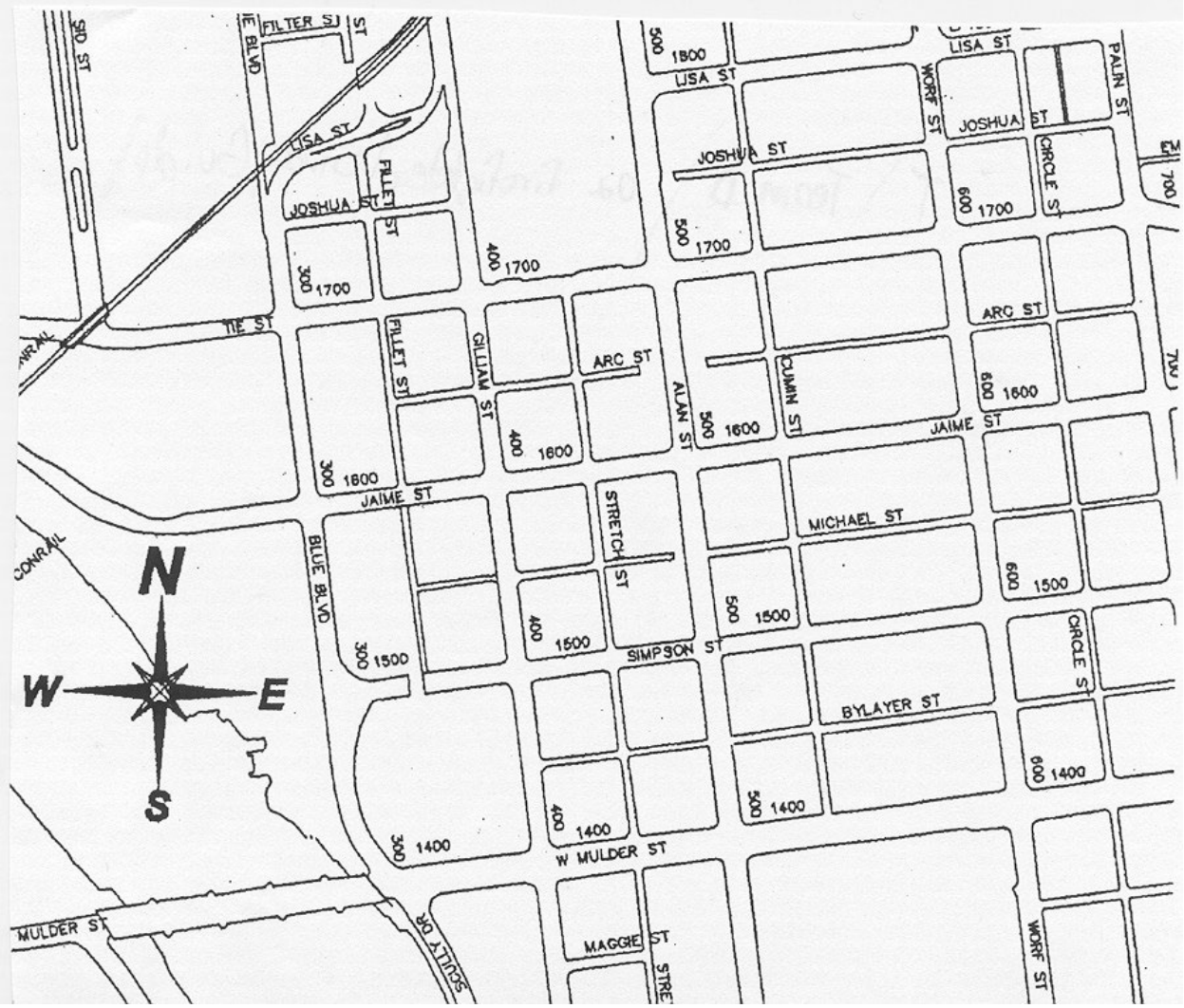
Suggestions on how to do your best with Situational Judgment

- Be attentive to each of the scenarios.
- While viewing the responses, pay careful attention to tone, wording, and demeanor.
- Use the full scale. Consider all four ratings for each response.
- Once you make your rating, look back at the screen to prepare for the next scene to begin.

Subtest 2—Map Reading and Following Directions

This subtest of the exam is designed to test your ability to follow directions and read maps. For this subtest, you will answer questions regarding a map. To be successful, gain familiarity with north, south, east, west, northwest, northeast, southwest, and southeast when reading a map. Be able to follow written mapping directions while referring to a map.

This map is followed by the type of questions that will be asked in this subtest.



1. What direction is the intersection of Arc Street and Worf Street from the intersection of Alan Street and Lisa Street?

A. northeast
B. northwest
C. southeast
D. southwest

The answer is “C.” The intersection of Alan Street and Lisa Street is in the top center portion of the map, while the intersection of Arc Street and Worf Street is toward the top right portion of the map (the northeast portion of the map). The intersection of Arc Street and Worf Street is further south and further east of the intersection of Alan Street and Lisa Street.

2. Which of the following streets is the southernmost street on the map?

A. Filter Street
B. Jamie Street
C. Maggie Street
D. Sid Street

The answer is “C.” Maggie Street is a street that runs east to west and is located toward the bottom of the map and is the southernmost street of the four listed. Filter Street and Jamie Street both run east to west. Jamie Street is toward the center of the map. Filter Street and Sid Street are in the top left corner of the map. Sid street runs north to south but does not extend south past the center of the map.

3. You are traveling west on Simpson Street approaching Gilliam Street and need to take the shortest route to reach W. Mulder Street. Assuming all streets are two-way streets, what direction would you turn on to Gilliam Street?

A. north
B. south
C. east
D. west

The answer is “B.” Simpson Street runs east and west and is north of W. Mulder Street, which also runs east and west. To take the shortest route from Simpson Street to W. Mulder Street, you would need to turn south, or left (in this case), onto Gilliam Street.

Note the maps on the examination will provide the direction north only. You will be expected to determine the other directions.

Subtest 3—Mathematics

The purpose of this subtest is to test your ability to add, subtract, multiply, and divide whole numbers, fractions, and decimals and apply formulas/math principles to practical situations. Candidates will NOT be permitted to use calculators during the exam.

1. Basic arithmetic (adding, subtracting, multiplying, and dividing)
2. Word/story problems
3. Mathematics involving fractions and decimals
4. Conversion problems (inches/feet/yards, ounces/pounds, ounces/pints/quarts/gallons, and seconds/minutes/hours)
5. Simple geometry such as finding the area or perimeter of a rectangle

Mathematics Subtest: Formulas

The following conversions and formulas are available in this guide. However, the formulas will **NOT** be provided to you during the test. Memorize these formulas and know how to compute measures using these formulas.

12 inches = 1 foot
3 feet = 1 yard
1,760 yards = 1 mile
100 centimeters = 1 meter
1000 meters = 1 kilometer
1 acre = 4,840 square yards

16 ounces = 1 pound
2 cups = 1 pint
16 ounces = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon

60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
52 weeks = 1 year
365 days = 1 year

area of a rectangle = width x length
perimeter of a rectangle = (2 x width) + (2 x length)

Mathematics Subtest: Sample Questions

1. 2/3 +3/4+5/8=?

A. 2 1/24
B. 10/24
C. 10/15
D. 1 23/24

The answer is A. To complete this problem, first, find the lowest common denominator. That is, find the lowest number that the bottom number of each fraction will multiply into to make the same whole number. In this case, 24 is the lowest common denominator. Convert each fraction to the denominator of 24 before adding the fractions. The problem now looks like this: 16/24 + 18/24 + 15/24=? Now the numerators (top numbers of each fraction) are added; this totals 49/24. Then reduce to the mixed number of 2 1/24 (Answer A).

2. 1644 is what percentage of 4110?

A. 10%
B. 20%
C. 30%
D. 40%
E. 50%

The answer is D. See the solution below.

```
        0.4
4110| 1644
    - 0
      16440
    - 16440
          0
```

3. Which of the numbers below best completes the series: 121, 144, 169, 196, 225, _____?

A. 256
B. 265
C. 274
D. 283

The answer to 3 is A. The difference between each number in the progression increases by two, as shown below.
144 – 121= 23
169 – 144= 25
196 – 169= 27
225 – 196= 29
??? – 225= 31
??? = 31 + 225 = 256 (Answer A)

Also, the sequence is 11^2, 12^2, 13^2, 14^2, …

4. What is 20% of 650?

A. 120
B. 130
C. 150
D. 520
E. 1300

The answer is B. To calculate the answer, transform 20% into a decimal. (.20) Then multiply .20 and 650. Place the decimal two digits from the right to account for the two decimal places in the problem.

```
  650
 x.20
 00.0
130.0
130.0
```

5. You are fighting a fire at a plastics manufacturing company. The entire building sits on a city block that is a rectangle consisting of exactly one acre. You know that the length of the block is 121 yards, but you need additional hose to cover the width of the block. If you need exactly the same length hose as the width of the block, how many yards of additional hose do you need if one acre is equal to 4,840 square yards?

A. 40
B. 121
C. 2,420
D. 4,719

The answer is A. To calculate square yards, multiply the length by width. Since one acre is 4,840 square yards, you divide 4,840 by 121 (length) to get the width, which is 40 yards. This is equal to the amount of additional hose that is needed.

```
      40
121 | 4840
    - 484
        00
    -   00
        0
```

6. Which of the numbers below best completes the series: 2, 4, 12, 48, _____?

A. 56
B. 72
C. 96
D. 240

The answer is D. To determine the next number in the sequence, determine the relationship between the numbers. The difference between each number in the progression is multiplied by the next highest number.

2 x 2= 4
4 x 3= 12
12 x 4= 48
48 x 5= 240 (Answer D)

Subtest 4—Reading Comprehension

In this subtest, you will be given a passage to read and questions to answer based on that passage. Please select the best answer based on the passage. When answering the questions, you may refer back to the passage if necessary.

During training and firefighter duties, you will need to read and interpret a wide range of texts to help you serve the community to your greatest capacity. Your task in this portion of the test is to demonstrate your ability to read and learn from texts and to apply what you learn to related situations. You will read four to eight selections, ranging in length from approximately 40 to 1000 words. Many of these selections are about events that have happened or might happen to ordinary people. Some of the events have to do with safety concerns, but most are about people solving problems in various situations.

Reading and learning from a text involves many different kinds of thinking. As you read, you will need to think about what is happening and what people might think and do. Generally, the more

details you can see, hear, or feel as you read, the more you can understand a text. Try to create an awareness of being present in the scene with the characters. Try to create connections between your life and the lives of people described in the selections. Try to stand in someone's shoes; in fact, try to stand in more than one person's shoes. When you are answering questions, use the images and connections you have made with your own life, and check the text again to find out if your images and interpretations are accurate. For example, you may have experienced something similar to one of the characters, but your situation may have had a different outcome from the one in the text.

Do not try to memorize the text as you read. It is more useful to try to understand the events and relationships described. You can always go back to the text to check for descriptions and actions after you read the questions.

Questions following each text are intended to test your comprehension, comparison of viewpoints, application of definitions, and use of limited information to select more general relationships between people and events (inference). Read the questions carefully. Be particularly alert to questions that ask for statements that do NOT fit the text. You will answer 15-30 reading comprehension questions.

The following sample selection and examples of different kinds of questions should help you anticipate the type of thinking you will be asked to do during and after your reading.

Reading Comprehension: Sample 1
Ben, a high school dropout, was going through a difficult time. Since his father had died, he sometimes talked at length to his grandfather. So he shared some things with the older man and received some excellent counsel. Ben asked his grandfather how he knew so much, and the older man said that when he was young, he suffered some of the same problems as Ben, and more, he had learned from them.

Infer Meaning: A text may not tell you every single one of the conclusions the author wants you to reach. If texts did, they would be much longer, and the explanations would not be useful to everyone—because most people do not need this information. Inference questions test your ability to think about what you read and come to logical conclusions based on the information that you have read.

1. Which statement best fits the grandfather's philosophy?

A. Stop and smell the roses.
B. Easy come, easy go.
C. Never look a gift horse in the mouth.
D. Experience is the best teacher.

The correct answer is “D,” Experience is the best teacher. Statements “A,” “B,” and “C” fall along the lines of specific problems that Ben might tell his grandfather, such as how we need to take things slowly (“A”), how things that we don't ask for can also leave our lives (“B”), and how we might not want to question the things we receive for free (“C”). However, the text does not refer to specific ideas that Ben's grandfather taught him. It does say that the grandfather had learned from his problems, which is why “D” is the correct answer.

Reading Comprehension: Sample 2

Adapted from Dare to Dream: Coretta Scott King and the Civil Rights Movement by Angela Shelf Medearis

In 1948, Coretta Scott King was a young woman hoping to begin a career as an opera singer. Her mentor, Dr. Anderson, encouraged Coretta to go to New York or Boston to study music. Even though she didn't have much money, Coretta applied to the New England Conservatory in Boston and to the Juilliard School in New York. She knew that her parents would help her, but she wanted to pay for her education herself. Coretta decided to move to Boston even though she didn't have the money for her tuition at the New England Conservatory. She hoped to find a job in Boston to pay some of her expenses. Coretta was determined to make it on her own. With the money she had, she bought a train ticket to Boston.

When the train stopped in New York, Coretta called home. Her parents had a surprise for her. They told her that she had received a letter from the Noyes Foundation giving her a six-hundred-and-fifty-dollar scholarship to help pay for her musical training. Finally, she was on her way to becoming an opera singer.

Comprehension: This is a term that usually refers to all reading, but in this test, questions of comprehension are included to find out whether or not you understand basic information presented in the material you read.

2. Which of the following statements is NOT true about Coretta Scott King's life?

A. She was determined to study music.
B. She was unable to pay for her studies with her savings.
C. She was hopeful that her parents would pay her tuition.
D. She was encouraged by her mentor, Dr. Anderson.

Answer “C” is a better answer than “B.” The text states that Coretta did not want her parents to pay her tuition. The text also states that she was so determined to study music that she traveled to Boston even though she did not know how she would pay for her schooling. We also know that she was going to have difficulty covering the cost of her schooling. Finally, the second sentence states that she had a mentor, Dr. Anderson, who encouraged her. All of these statements can be verified as true or false in the text. They are part of the facts of the text.

Understand definitions or meanings from context: Sometimes, information is not DIRECTLY provided in a text but is something that can be figured out by thinking about the clues in the text. For example, you may not know the meaning of every single word in a text, but you can often figure out what a new word means by how it is used within the text.

3. In this selection, the word "conservatory" means:

A. very clear about one's direction in life
B. a place for specialized study
C. a place to build a career
D. a student center in Boston

Answer “B.” Although Coretta is clear about her direction in life, the word "conservatory" refers to a place, not an attitude or outlook. Through references to school, paying tuition, and the desire to develop a talent such as singing, it seems that "conservatory" refers to a place for studying something very specific, such as music or opera. Although Coretta will be able to build a career because she receives special training, the purpose of the place is not to build a career

but to train people with musical talents. The text does not refer to her expectation that the school will build her career; that is something she will develop after her schooling. Alternative “D” could be an answer because students, such as Coretta, will be studying in a shared space. But “D” is really too vague an answer. Alternative “B” is a more specific, accurate definition.

Apply Definition: Sometimes, a word is defined within a text through repeated usage or through reference to another object, person, or event. You will need to find the word and reread parts of the text to gain an accurate definition. Then you will use that meaning and put that word to use in a different situation.

4. In this selection, "tuition" is similar to which of the following payments?

A. buying a ticket to a movie
B. repairing a friend's roof in exchange for their service of repairing your car
C. paying a monthly fee to lease a car
D. paying a skilled computer technician to show you how to upgrade your computer

The correct answer is “D.” In all of the statements, someone offers payment and is given something in return. However, only “D” suggests that you will learn or improve a skill as a benefit of the payment. All of the other statements suggest that something will be gained but not learned. Tuition for schooling is used to learn or improve one's understanding and skills.

Example 5) Which of the following statements best describes Coretta's viewpoint on the attainment of her goals?

A. It is important to seek other people's advice but not their money.
B. Never trust people who give you money.
C. Seek advice and support as you pursue your dreams.
D. Do not ask too much of others; they may disappoint you.

The correct answer is “C.” Coretta did seek other people's advice, and the scholarship she received shows that she also sought financial aid. The text offers no indication that she did not trust anyone who supported her financially. Nor does the text suggest that she was afraid of disappointment. We do not know why she did not ask her parents for money. It would be too great an inference to believe that she was afraid they would disappoint her—or she would disappoint them.

Reading Comprehension: Sample 3

From *The Things They Carried* by Tim O'Brien

The things they carried were largely determined by necessity. Among the necessities or near-necessities were P-38 can openers, pocket knives, heat tabs, wristwatches, dog tags, mosquito repellent, chewing gum, candy, cigarettes, salt tablets, packets of Kool-Aid, lighters, matches, sewing kits, Military Payment Certificates, C rations, and two or three canteens of water. Together, these items weighed between 15 and 20 pounds, depending upon a man's habits or rate of metabolism. Henry Dobbins, who was a big man, carried extra rations; he was especially fond of canned peaches in heavy syrup over pound cake. Dave Jensen, who practiced field hygiene, carried a toothbrush, dental floss, and several hotel-sized bars of soap he'd stolen on R&R in Sydney, Australia. Ted Lavender, who was scared, carried tranquilizers until he was shot in the head outside the village of Than Khe in mid-April. By necessity, and because it was SOP (standard operating procedure), they all carried steel helmets that weighed 5 pounds including the liner and camouflage cover. They carried the standard fatigue jackets and trousers. Very few carried underwear. On their feet they carried jungle boots (2.1 pounds) and Dave Jensen carried three pairs of socks and a can of Dr. Scholl's foot powder as a precaution against trench foot.

6. Who are these people and where are they?

A. They are archeologists going on a field trip in the jungles of Asia.
B. They are soldiers in Europe during World War I.
C. They are soldiers in the desert during the Persian Gulf War.
D. They are soldiers in the jungles of Vietnam during the Vietnam War.

The answer is “D.” They carry Military Payment Certificates and C-rations, which indicate they are likely to be soldiers rather than archeologists, eliminating answer “A.” They were wearing jungle boots, took their R&R in Australia, and were near a village called Than Khe, which eliminates both Europe and the Middle East (answers “B” and “C”) and supports answer “D.”

7. If you were accompanying these people on their trip, and you ran out of your own rations, which of these people would probably have extra food?

A. Dave Jensen
B. Ted Lavender
C. Henry Dobbins

The answer is “C.” The keyword in this question is “probably.” Although all three of the men carried rations, the best alternative is answer “C” because Henry Dobbins carried extra food, such as peaches in syrup. In addition to food, Dave Jensen carried soap and other forms of hygiene supplies, eliminating answer “A.” Ted Lavender carried a normal ration of food along with tranquilizers, eliminating answer “B.”

8. Which of these people would be most likely to be able to clean the wounds of someone who had gotten hurt?

A. Dave Jensen
B. Ted Lavender
C. Henry Dobbins

The best answer is “A.” The keywords in this question are “most likely.” Dave Jensen "practices field hygiene" and carries bars of soap. Ted Lavender carries tranquilizers, but since these

would not necessarily help someone to CLEAN a wound, this eliminates “B.” Henry Dobbins carries food, eliminating “C.”

9. Which of the following is probably NOT true according to the passage?

A. It is important to carry along things that make life a little more comfortable.
B. The things a person carries will protect them from death.
C. The things a person carries can tell you something about who that person is.
D. Each person has a different idea of what necessities are.

The answer is “B.” The fact that people carried comfort items (peaches, soap, and tranquilizers) makes “A” true about the passage and therefore eliminates it as an answer. The things they carried failed to protect them from death: The passage says that Ted Lavender died, which supports “B” as the correct answer. It is true that we can learn something about the people from what they carry (answer “C”). We might be able to conclude that Ted was scared and Dave was finicky. But the fact that this statement is true eliminates it as an answer. Finally, “D” is also true. Each of the men had a different idea of what they wanted to have along with them; however, the question is asking for what is NOT true, so this eliminates “D.”

The questions that have "NOT" in them are often difficult to complete. One strategy is to look at all the answers to see if there is a pattern. For example, three of the answers, “A,” “C,” and “D,” are true about the text. Once you have eliminated the other choices since they are true, the only answer remaining is “B.” Checking “B,” you find that this is NOT true about the text and is, therefore, the right answer for the exam. Also, pay attention to the usage of certain words as clues. For example, when checking answer “B,” you will find the use of the word “will” in the sentence indicates that no matter what items the person brings, those items will guarantee that person protection from death. Yet another strategy is to change the words of the question in your mind (“Which of these items is FALSE?”) while you are reading the answers.

Subtest 5—Mechanical Aptitude

For the purposes of this subtest, mechanical aptitude is defined as the ability to manipulate three-dimensional objects in space. This portion of the exam is designed to test your knowledge of basic mechanical equipment and its operation. Test questions will focus on the basic working principles of gears, levers, pulleys, and knots, and spatial and mechanical reasoning. Illustrations will be used as part of the questions.

Mechanical Aptitude: Terms and Facts

Questions regarding some of the following facts and terms will be asked on this portion of the multiple-choice phase of the examination.

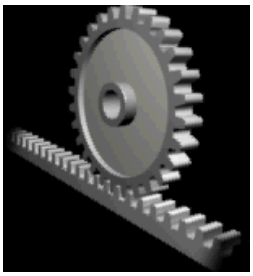
Counterweight: a weight of equal size or force to balance a weight pulling in the opposite direction
Complicated machines: machines that have many moving parts
Force: strength or power, such as a push or a pull, applied to an object to cause movement
Friction: the force created when two objects touch or rub each other resisting movement between them
Gravity: the natural force that pulls all things toward the center of the earth
Load: an object you want to move
Simple machines: machines that have few moving parts
Torque: a twisting force that causes turning or a rotating movement
Work: moving an object from one place to another

Mechanical Aptitude: Gears


spur gears


bevel gears

worm gear

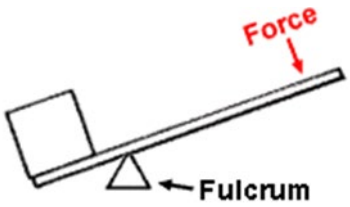

rack and pinion

Gearwheel (gear): a wheel with teeth around its edge that interlock with the teeth of another gearwheel to create movement.
Bevel gears have toothed wheels with sloping faces that mesh at a particular angle.
Spur gears have toothed wheels that mesh to connect parallel shafts.
Worm gears have a shaft with a screw thread.

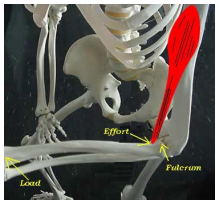
It is important to note the following;

- If gearwheels are the same size, they turn at the same speed.
- If one gear is bigger than the other, the big gear can be used to speed up or slow down movement or increase or decrease the force.
- Two spur gears interlocking will turn in the opposite direction of one another.
- A larger spur gear turns with less speed but with greater force than a smaller spur gear.

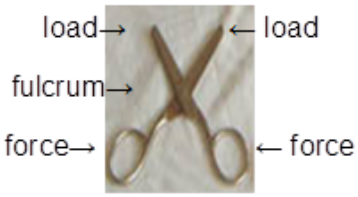
Mechanical Aptitude: Levers



Load (the box) Lever (the bar)



Elbow: a lever in the human body



Pair of Levers

Lever: a simple machine that consists of a rigid bar that pivots on a supporting piece to pry up or lift a weight on one end by means of pushing or pulling force on the other end.
A fulcrum or pivot is the point or support on which a lever pivots.

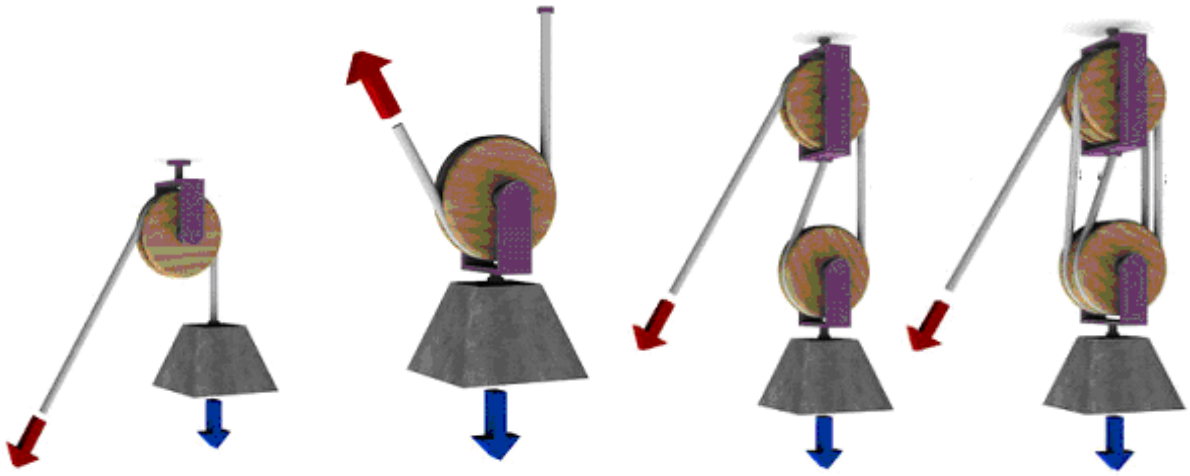
An inclined plane is a simple machine that consists of a flat surface, such as a plank or a ramp, set at an angle that is less than 90 degrees.

A pair of levers, such as scissors or pliers, has two lever arms joined at a pivot.

It is important to note the following about levers:

- When the pivot of a lever is further away from the load, the force needed to lift the load is greater than the weight of the load.
- When the pivot of a lever is in the middle of the lever, the force needed to lift the load is equal to the weight of the load.
- When the pivot of a lever is moved closer to the load, the force needed to lift the load is less than the weight of the load.

Mechanical Aptitude: Pulleys



simple pulley moveable pulley compound pulley block and tackle pulley

A pulley is a wheel with a rope looped around it, and the rope fits a groove that runs around the edge of the wheel.

A compound pulley consists of two or more pulleys working together to decrease the effort needed to lift the load.

A block and tackle is a compound pulley system that has more than one pulley wheel. The top pulley wheel, the block, is attached to a set point. The bottom pulley wheel, the tackle, is suspended on a rope passing through the block.

A double pulley is a compound pulley system with two pulley wheels; pulling the rope raises the lower wheel and the load. With two wheels, only half the effort is needed to lift the load, but the rope has to be pulled twice as far.

A fixed pulley is a pulley that stays attached in one place.
A moveable pulley is a pulley that is attached to a load.
A simple pulley changes the direction of the effort on a load. You pull up instead of down or vice versa. It consists of one wheel and rope. The amount of force required to raise the load is equal to its weight.

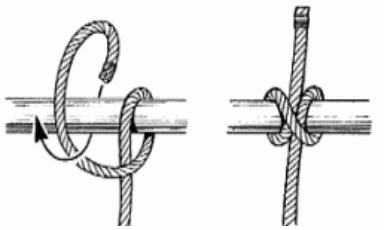
It is important to note the following about pulleys:

- If the pulley is fixed, then the force required to lift the load is equal to the weight.
- If the pulley moves with the weight, then the force is equal to half of the weight.
- Another way of thinking about this is to divide the weight by the number of rope sections supporting it to obtain the force needed to lift it.

Mechanical Aptitude: Knots

square knot

cow hitch



clove hitch

figure-eight knot

Square knot: The square knot is a simple binding knot used to secure a rope or line around an object. It is formed by tying a left-handed overhand knot and then a right-handed overhand knot, or vice versa.
Cow hitch: The cow hitch is a hitch knot used to attach a rope to an object. The cow hitch contains a pair of half-hitches tied in opposing directions, as compared to the clove hitch in which the half-hitches are tied in the same direction.
Clove hitch: The clove hitch is particularly useful where the length of the running end needs to be adjustable since feeding in rope from either direction will loosen the knot to be tightened at a new position.
Figure-eight knot: The figure-eight knot is very important in sailing, rock climbing, and rescue operations as a method of stopping ropes from running out of retaining devices.

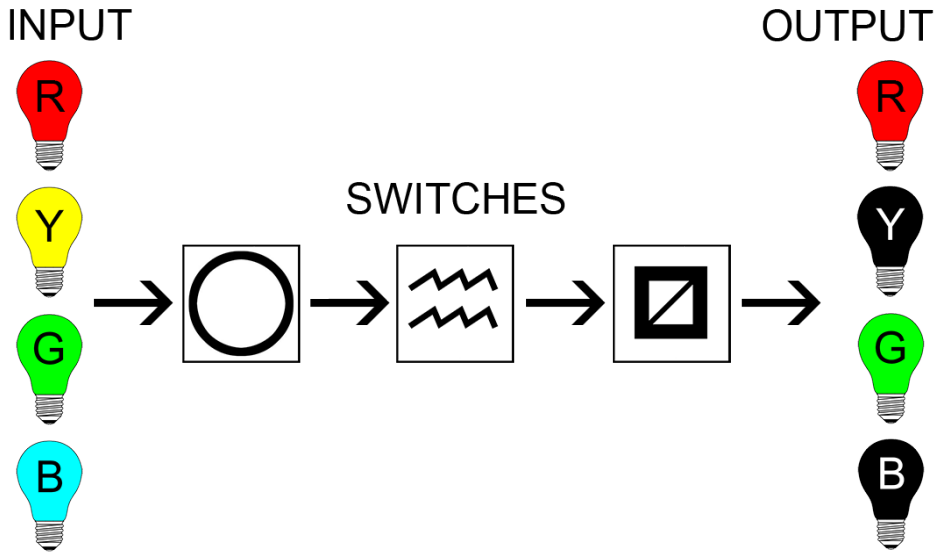
It is important to note the following;

- Knots weaken the rope in which they are made. When knotted rope is strained to its breaking point, it almost always fails at the knot or close to it unless it is defective or damaged elsewhere.
- Relative knot strength, also called knot efficiency, is the breaking strength of a knotted rope in proportion to the breaking strength of the rope without the knot.
- In knots that are meant to grip other objects, failure can be defined as the knot moving relative to the gripped object. While the knot itself does not fail, it ceases to perform the desired function.

Mechanical Aptitude: Mechanical Reasoning

For each of the mechanical reasoning questions, you will see a flow chart like the one below labeled FIGURE 000. Take note of the input, switches, and output.

FIGURE 000



The key below shows four switches and their effects on the four colored inputs.

KEY

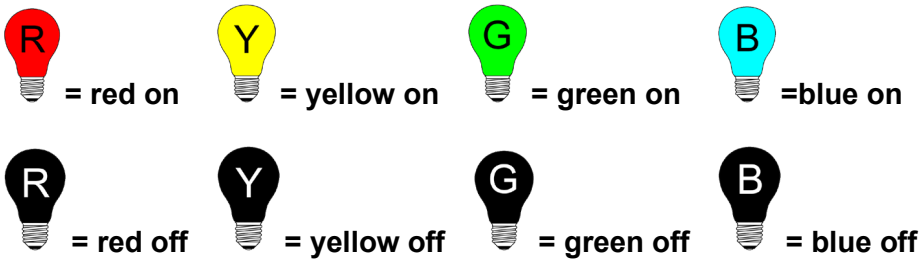
Switch: 
Function: All colors remain unchanged.
Error: Red remains unchanged. All other colors turned off.
Error Code: A

Switch: 
Function: Red and yellow remain unchanged. Green and blue turned off.
Error: Green and blue remain unchanged. Red and yellow turned off.
Error Code: B

Switch: 
Function: Turns on red and green. Yellow and blue remain unchanged.
Error: Turns on yellow and blue. Red and green remain unchanged.
Error Code: C

Switch: 
Function: Toggles all colors *(Any bulb on turned off; any bulb off turned on)*.
Error: Toggles red and blue. Yellow and green remain unchanged.
Error Code: D

No Error
Error Code: E



Use the key to diagnose which switch (if any) is broken based on the resulting error.
In the example labeled **FIGURE 000**, all of the inputs (red, yellow, green, and blue) are on.

1. When these inputs pass through the first switch and the switch is working properly, all colors remain unchanged.

However, if the switch is broken, only red remains on, and all other colors are turned off.
Each switch builds on the previous switch.

2. Thus, this modified input then passes through the second switch. If the switch is working properly, red and yellow remain unchanged, and green and blue are turned off.

However, if the switch is broken, green and blue remain unchanged, and red and yellow are turned off.
Remember, each switch builds on the previous switch.

3. Finally, this modified input passes through the third switch. If the switch is working properly, red and green are turned on, and yellow and blue remain unchanged.

However, if the switch is broken, yellow and blue are turned on, and red and green remain unchanged.

To clarify, you will need to compare the input with the output to determine which of the switches, if any, is broken.

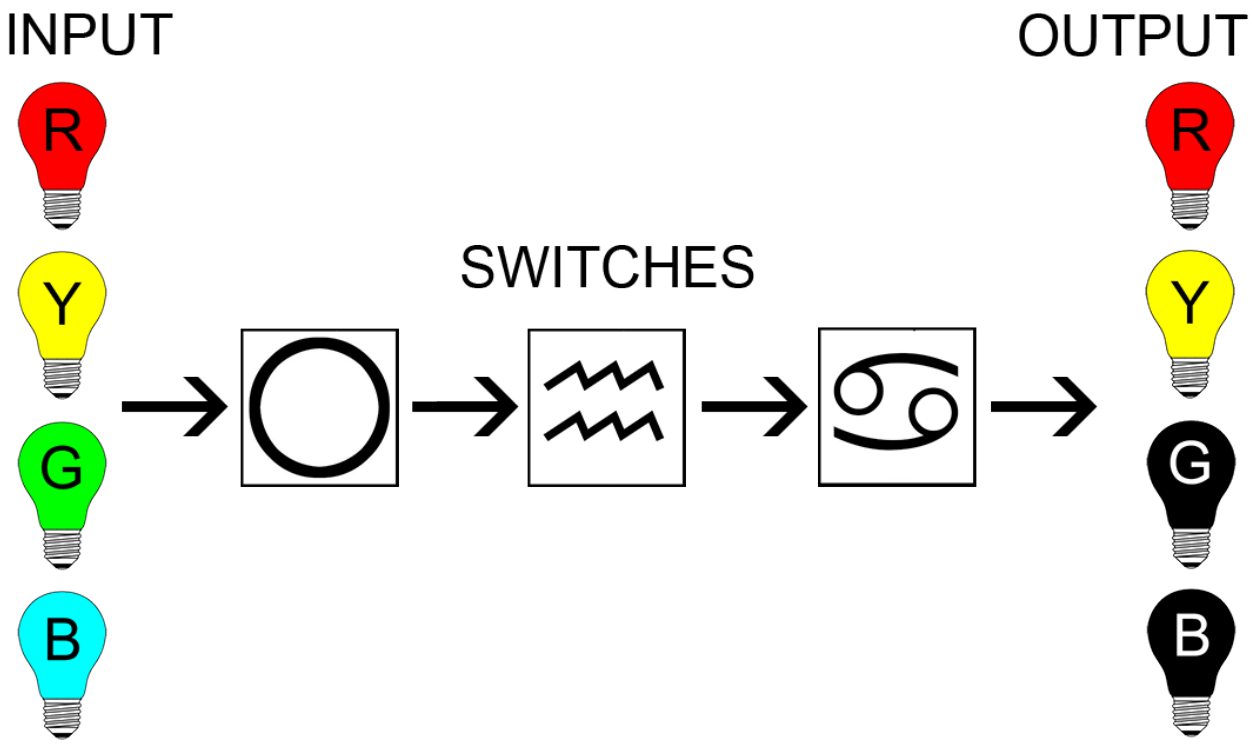
In the case of **FIGURE 000**, it is the first switch,  , that is broken. Thus, the error code according to the key is "**A,**" and the answer for your answer sheet would also be "**A.**"

Note that the fourth switch (not used in this example) "toggles" the lights. It switches a color off if it is on and switches a color on if it is off.

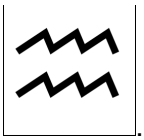
A good test-taking strategy for solving these problems is to determine what the theoretical output would be if all switches worked properly and then deduce which switch, if any, must be broken to produce the actual output.

Mechanical Reasoning Sample Questions

1. Determine which switch is broken and use the key to select the corresponding error code.

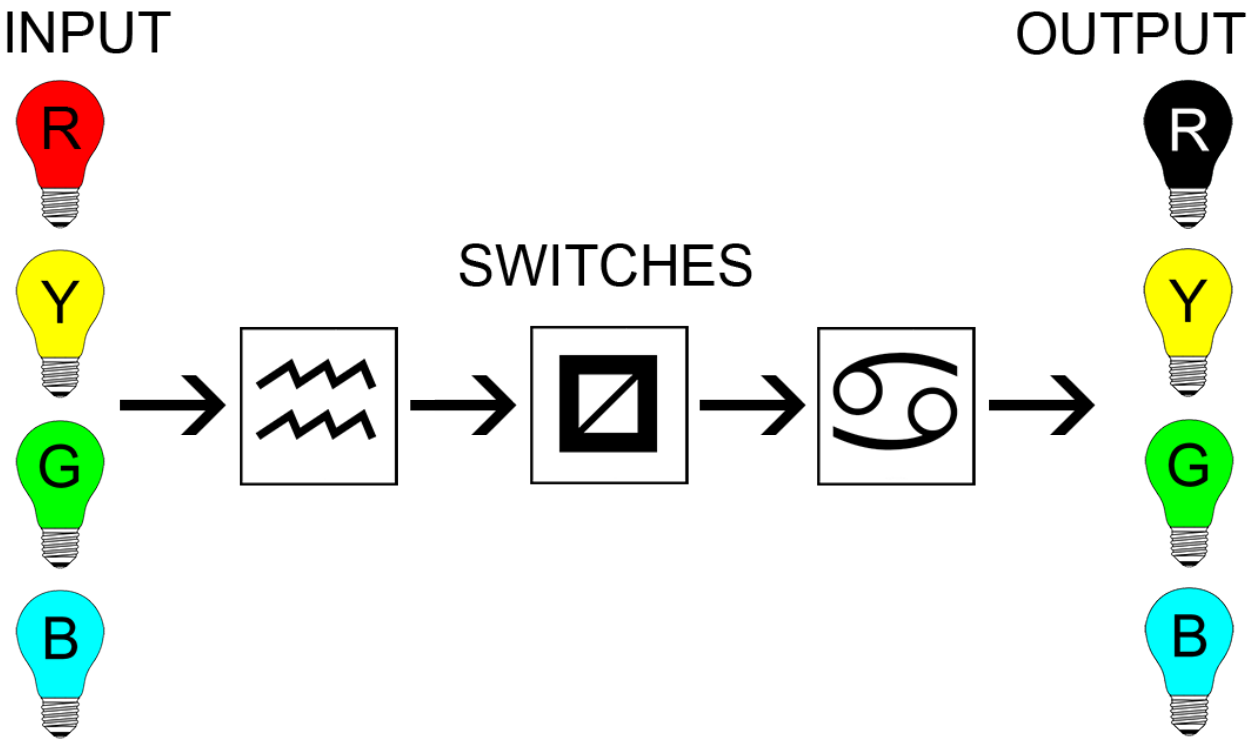


A. A
B. B
C. C
D. D
E. E

The answer is “B.” The error is in the second switch represented by this symbol:  .

The best way to approach the mechanical reasoning items is first to determine what the output would look like if there were no errors in the switches. If all switches functioned properly, the output would have shown red and yellow off and blue and green on. Next, work through each switch. An error in the first switch (A) produces a result with red on and yellow, blue, and green off. Thus, there is no error in the first switch. An error in the second switch (remember the colors are unchanged through the first switch) leaves green and blue unchanged while switching off red and yellow. The third switch toggles all colors, resulting in red and yellow being turned on while green and blue are turned off. Thus, “B” is the correct answer.

2. Determine which switch is broken and use the key to select the corresponding error code.



A. A
B. B
C. C
D. D
E. E

The answer is “D.” The error is in the third switch represented by this symbol:  .

The best way to approach the mechanical reasoning items is first to determine what the output would look like if there were no errors in the switches. If all switches functioned properly, the output would have shown only blue on and red, yellow, and green off. Next, work through each switch. An error in the first switch (B) produces a result with only yellow on and red, green, and blue off. Thus, there is no error in the first switch. An error in the second switch (C) turns on yellow and blue with red and green unchanged. This would produce a result where only green is on and all other colors are off. Thus, there is no error in the second switch. An error in the third switch (D) toggles red and blue while leaving yellow and green unchanged. This produces the same output as pictured above with red off and all other colors on. Thus, “D” is the correct answer.

A Quick Overview of the Answer Sheets

There are some important things you will need to know about the booklet and answer sheet:

- There will be two separate answer sheets: one for the SJT subtest and one for the remaining subtests.
- When you have chosen the answer to a prompt (test question or SJT response), find the number of that prompt on the answer sheet and fill in the lettered circle that matches the answer you have picked. Verify that your answer aligns with the correct prompt.
- Blacken the circle you have picked with a heavy pencil mark. Be certain to darken the circle completely.
- Erase completely any answers you wish to change. Do not cross them out.
- Do not make any unnecessary marks on your answer sheet.
- You should not mark more than one answer to any prompt. In all test sections, multiple answers will be scored as wrong answers.

Calculators and dictionaries are prohibited during the examination process.

The Firefighter Oral Assessment Mechanism (FOAM) is a video-based examination that tests your problem sensing and resolution skills and interpersonal relations skills. You will watch six scenarios, and at the conclusion of each scenario, you will respond verbally as if you were a firefighter or medic in that situation. The scenarios are set in fire-related environments, meaning they occur in locations involving firefighters and fire situations. However, no medical, fire suppression or other knowledge that is learned in the fire training academy will be assessed. This exam is not intended to test for fire-related policies or procedures. The evaluation of your responses measures problem sensing and resolution skills and interpersonal relations skills.

FOAM Test Administration

Before you take the examination, CSC staff will explain the process to a small group of candidates. CSC will show the group a sample scenario, and the group will have an opportunity to ask questions related to the structure and format of the examination.

You will then be seated in an individual room to take the examination, and you will remain seated throughout the test. A test staff member will start the test video and begin a video recording. The staff member will read your person identification number. You should verify that this is your person identification number. This verbal recording of your identification number serves as the confirmation of your identity. Once confirmed, the staff member will exit the room. Your responses to the test video will be video recorded for scoring at a later date.

The test video begins with additional instructions and one practice scenario. You will have the opportunity to respond to this practice scenario as a warm-up for the actual test. No one will view your response to the practice video. The practice response gives you a chance to get comfortable with the process.

There are six different test scenarios. These scenarios simulate situations that a firefighter or medic may encounter. The scenarios involve peer firefighters, fire officers (chain of command), and members of the public. These scenarios will be shown as a video in the form of a series of still pictures with audio voice-overs. Note that this is NOT an interactive video, so the people on the screen will not talk back to you. Each scenario lasts one to two minutes, and you should direct your response to the last person(s) shown on the screen at the end of the scenario.

At the end of each scenario, the words “Respond Now” will appear at the bottom of the screen. You will have 40 seconds to respond. You are not required to use the full 40 seconds; however, your response should:

1) Be complete.
2) Demonstrate an understanding of the situation.
3) Effectively communicate a plan for solving the problem.

Respond as if you are present in the scenario and talking to real people. This is not an interview. Candidates who respond by saying what they would do (“I would calm everyone down, I would resolve the problem”) instead of talking to the people on the screen will not receive points for those actions. “Would do” statements do not demonstrate that a candidate can carry out the actions.

While you may ask questions of the people in the scenarios when appropriate, do not use questions alone as your response. To receive a good score, you should respond in a manner that demonstrates a resolution to the situation.

When your 40-second response time has expired, the next scenario will begin. The entire test will take approximately 25 minutes to complete once you are seated in your test room.

A video camera will record your responses. At a later date, a panel of evaluators (two Division of Fire personnel and one civilian) will assess your responses based on the scoring dimensions described below.

Scoring FOAM

You will be scored on two dimensions: 1) Problem Sensing and Resolution and 2) Interpersonal Relations. Both dimensions are graded using a five-point scale, with a five being the highest score.

Scoring Dimension 1: Problem Sensing and Resolution

The dimension of Problem Sensing and Resolution assesses your ability to critically evaluate a situation and comprehend it in its proper perspective, identify underlying and obvious issues, assess alternative solutions, and consider the implications of problems and solutions.

There are multiple ways to approach the problems in each scenario. You are not expected to know how the Columbus Division of Fire would solve any of these problems. Use your life experiences when dealing with the people in each scenario and make sure you are clear about how you are solving or beginning to solve the problems presented. Draw on your involvement with friends, family, classmates, and co-workers to help you deal with these situations.

Scoring Dimension 2: Interpersonal Relations

This dimension assesses your ability to establish and maintain cooperative and constructive relationships, consider the feelings and needs of others, and respect the views of others.

Your body language, tone of voice, and words are all assessed as part of this score. Your facial expression should match your words. If you are attempting to talk to a co-worker who is having problems at work and needs to be consoled, your expression should be sympathetic instead of laughing or smirking. If you are attempting to persuade someone, you might lean forward and talk sincerely instead of yelling at them or being sarcastic.

FOAM Preparation Tips

Prepare and practice in advance of the FOAM exam to feel more comfortable in the test environment. One sample scenario and response is provided on the Civil Service Commission website at: https://www.columbus.gov/civilservice/uniformed-fire-series/Firefighter/

Once you view the practice scenario and sample response, consider the types of situations that may be presented. Concentrate on customer relations experiences that you have had or experiences with co-workers, friends, or family in which a problem or verbal conflict arose. Consider situations that are shown in a television show or on the internet. Focus on a problem that involves people and requires a response or conversation. While you practice for this test, write down situations that you have observed in real life or on television. Then practice responding to those situations as if you are taking the test.

Practice in front of a mirror, with a friend watching (who does not respond), or video record your response. If you partner with a family member, friend, or colleague, ask them to provide you feedback regarding how well you resolved the problem and the interpersonal skills you

displayed. Ask them to read the information on the scored dimensions in the previous section to guide their feedback to you. This test is not scored like a multiple-choice exam in which there is a single correct response; instead, you can demonstrate your problem sensing and resolution skills and interpersonal relations with a variety of solutions to the situations.

By practicing your responses, you will gain familiarity with the process, a sense of how to continue a response while solving a problem, and an understanding of how much information you can give in 40 seconds. Since the FOAM test is not interactive, the individuals in the scenarios will not provide you with feedback or responses that help you gauge the effectiveness or impact of your responses. Practicing your responses when you are not getting immediate feedback will help you feel more comfortable with the testing process.

Tips to Guide your Response to the FOAM Scenarios

Consider the following tips to guide your response in each segment of FOAM scenarios. Each scenario consists of three segments:
1) watching the scenario
2) responding to the scenario
3) waiting for the next scenario

While watching a scenario:

Listening and observing are important parts of FOAM. While you are watching the scenario, there are several things that you should be doing to formulate an appropriate response.

- Watch and listen to the video. As the scenario unfolds, you should listen to the characters and be attentive to the visual cues given in the scenario.
- Identify the main problem and any underlying problems that are presented.
- Formulate your response. Begin to develop alternatives on the best way to resolve the immediate situation. Consider whether you should address any long-term issues or underlying concerns.
- Ask yourself, “Do I need any additional information to resolve the situation?” If you do, you can ask the questions during your response. Even though the characters will not respond, the evaluators scoring the exercise will know that you have acknowledged the specific information that would help bring the situation to a resolution.
- Decide on the proper attitude for the situation. As you formulate a solution to the scenario, ask yourself, “How should the character(s) be approached?” The situation could call for a stern response or a gentle, comforting response. You will want to display the most appropriate interpersonal approach for the situation.

During your response:

When the scenario is over, the video will display the words, “Respond Now.” Pay careful attention to the screen. Your time begins when these words are displayed. During your response, consider the following:

- Respond to the character displayed on the screen and continue to look at the screen.
- Provide a solution or suggestions for a solution to the character(s) displayed on the response screen.
- Respond with appropriate behaviors for the situation and the character(s) to whom you are talking.
- Control your facial expressions, tone of voice, and body language to help you communicate your intended message.
- You may ask questions. However, you will not get any response, so quickly continue with your response.
- You may direct the person on the scenario to do something.

- You should focus your response on the person(s) displayed on the final screen, which displays “Respond Now.”
- Do not respond until you are instructed to do so.
- Remain seated for the entire test.

After your Response:
After you complete your response to a scenario, wait for the next scenario to begin. After your response to each scenario, consider the following:

- Maintain attention on the screen. You will not want to miss anything in the next scenario.
- If you complete your response before the end of the 40-second allotted time, wait for the next scenario to begin.
- If you think of something that may help resolve the current scenario while waiting for the next exercise—say it. Evaluators will consider your entire 40-second response time.
- When the next scenario begins, do not try to evaluate your last response. Pay close attention to the scenario on the screen so you can do your best in each scenario.
- You will not be scored for anything before or after the 40-second response times.
- You will not be scored for anything you do during the scenario’s non-response time.
- When the test is over, follow the directions on the screen. This will alert the test staff that you have completed your examination.

FOAM Test Taking Tips Summary
The following is a summary of the key tips to remember during FOAM.

- There is no particular dress requirement. However, graphic t-shirts should be worn with caution. Use your best judgment.
- Respond to the practice scenario at the beginning of your test. Take advantage of this opportunity to get comfortable with the video test format before the actual test scenarios begin.
- Think about what you want to say before you begin to speak. There is no penalty for waiting a few seconds to compose your thoughts.
- Speak slowly and distinctly. Sometimes people speak quickly when nervous, so make a conscious effort to slow down. Know your tendencies and adjust accordingly. The 40 seconds provided should be enough time to address the issues. Remember, the people in the scenarios will not be talking back to you, which gives you the entire 40 seconds to talk uninterrupted.
- A timer will be on the screen as you respond. Concentrate on providing as much information as you can during the time provided.
- Address the key issues in your resolution of the problem.
- Demonstrate appropriate emotions for the issues.
- Do not think of your test performance as acting. Instead, pay careful attention to the scenario as it is presented, place yourself in the situation, and respond appropriately.
- Distinguish between scenarios that require a more serious, calm response and those that require a less serious but sensitive response. Remember that firefighter is a public service position and that every citizen, co-worker, or supervisor that addresses you expects an appropriate response.
- Ensure that a portion of your response includes a resolution to the problem. Interpersonal relations are important, but interpersonal relations alone will not solve the problem. Include both dimensions in your response.
- Avoid the use of vague terms, such as “we’ll take care of it” or “we’ll go from there.”

Keys to a good score
The key to a good score involves the three **P**s: Problem, People, & Plan.

- **P**roblem: Identify the **P**roblem.
- **P**eople: Address the **P**eople appropriately.
- **P**lan: Present your **P**lan to resolve the problem.

Phase III—Firefighter Mile

The Firefighter Mile consists of 10 events. There is no break between events. The events require cardiovascular fitness, muscle strength, muscular endurance, flexibility, and stamina. Each event will be timed. During all events, you will wear a 40-pound weighted vest, which approximates the weight of the clothing, equipment, and breathing apparatus that a firefighter normally wears during these types of activities. For the first event, you will wear an additional 40-pound weighted vest to simulate carrying additional necessary equipment.

Important Notes Regarding the Firefighter Mile

- Before this phase of the examination, all candidates who pass the multiple-choice phase and the FOAM phase of the exam will be notified of their Firefighter Mile test dates, along with dates when you can practice the actual Firefighter Mile events before the test.

- Wear clothing appropriate for physically demanding work.

- Wear sneakers or rubber-soled shoes.

- You will be provided with a forty-pound weighted vest during this phase of the exam. You must wear the forty-pound vest provided to you. You will also be provided with gloves.

- You may not use any extraneous equipment (e.g., harness, straps) that may help you in an event. You may use only the material and equipment provided for the test event. However, personal safety appliances (e.g. knee brace, ankle brace, back brace) will be allowed, but they will not be provided.

- You might want to avoid wearing shorts as multiple events are performed on the floor.

Because the Firefighter Mile is physically demanding, you are urged to drink plenty of fluids at the beginning of the day, before the test, and until the time you are tested. Avoid drinking caffeinated beverages. You are also advised to stretch and warm-up before participating in the test.

The events are described in the sequence they are to be completed in a separate preparation guide along with a video of each event provided at:

https://www.columbus.gov/civilservice/uniformed-fire-series/Firefighter/

Confidentiality

The content of the examination is confidential. Once you have taken the examination, do not share information with other candidates. Sharing information about the content of this exam may give other candidates an unfair advantage. Scores differing by one or two points may mean the difference between becoming a firefighter and not becoming a firefighter. Providing information to other candidates may be grounds for disqualification. Finally, there are several different versions of the firefighter exam; the ones you receive may differ from those given to other candidates.

Final Firefighter Examination Results

Individuals who achieve results above each hurdle for all three phases of the examination will be placed on the firefighter eligible list. The scores from FOAM, with the addition of applicable veteran's preference points, will be used to band eligible candidates into three bands. When the city begins the next portions of the selection process, individuals assigned to the highest band will be considered before individuals assigned to the lower bands. Once the highest score band is reduced to fewer than five individuals, the next higher score band is combined with the highest score band until selections are made.

Summary

The job of a firefighter involves emergency situations. Therefore, it should not be entered into lightly. A firefighter has a great deal of responsibility, so the selection process to become a Columbus Firefighter is extensive.

The descriptions of the steps in the selection process are on the Civil Service Commission website at Firefighter Exams - City of Columbus, Ohio. It is important to adequately prepare for each phase of the examination and the overall process. The Multiple-Choice and FOAM phases will be administered on the same day, and the Firefighter Mile will be administered on a different day for those who are successful with the first two phases. After the eligible list is established, the selection process will likely continue at a slower pace. The number of firefighters hired is difficult to predict since it is contingent upon the number of retirements, the annual budget, and other factors that are continually updated. Therefore, the background process only moves as fast as the needs of the Division. Patience and perseverance are important before you receive a notice. For example, if the personal history questionnaire is your next step, begin obtaining information that will be asked of you. If the stress test is your next step, be in your best physical condition. Update your email or street address if such changes occur so that contact with you is not lost.

The information provided in this test guide may seem overwhelming, but it is offered NOT to discourage you but rather to educate and provide you with realistic information. Many people begin the process of becoming a firefighter but do not continue once they learn there is a great deal of hard work, dedication, and responsibility involved. The City of Columbus takes great pride in our uniformed firefighters who work hard every day to uphold the standards set by the Columbus Division of Fire. Each step of the selection process was carefully constructed and is necessary to ensure that citizens and visitors of Columbus are kept safe every day. Stay informed by taking advantage of the information provided by Civil Service so that you perform your best. If Civil Service Commission staff can be of assistance, please call us at 614-645-0879. By staying informed, preparing for the process, and committing to this process, you will significantly increase your likelihood of success.

Thank you for your interest in employment with the City of Columbus

References:

Ardley, Neil. (1995). *How things work: 100 ways parents and kids can share the secrets of technology.* Dorling Kindersley.
Oxlade, C. (1998). *Young scientist concepts and projects.* Gareth Stevens Publishing.
Walker, S., & Feldman, R. (2002). *Pulleys.* Lerner Publications Company.