

DO NOT BRING THIS BOOKLET TO THE EXAM SITE

PRE-EXAMINATION BOOKLET
FOR

FIREFIGHTER

ENTRANCE LEVEL EXAMINATION



OFFICE *of*
STATE EXAMINER

Prepared by the Office of State Examiner
Municipal Fire and Police Civil Service
Testing and System Services Division
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INTRODUCTION

One of the first steps toward becoming a firefighter is successfully passing a civil service examination which is administered by the Office of State Examiner for Municipal Fire and Police Civil Service. This booklet will provide you with important information about the examination process, helpful hints on taking tests, and sample questions that are similar to those on the Firefighter examination.

You do not need to have a previous knowledge of firefighting in order to pass this examination. The test has been designed to evaluate knowledge, skills, and abilities that are needed to successfully complete firefighter training. For example, in order to successfully complete firefighter training, you must be able to read and comprehend material on firefighting procedures. Therefore, part of the written examination contains a section of questions on reading comprehension based on material similar to that which must be read on the job.

BRIEF DESCRIPTION OF THE TEST

The Firefighter Test consists of two parts: a test in recalling printed and spoken information and a multiple-choice written examination.

Because of the hazardous nature of the job, firefighters must be able to comprehend and retain precise details even during highly charged or intense situations. The recall portion of the exam has been designed to determine how well you are able to listen to and/or observe situations where you will later be required to remember and relay information. This part of the examination will take approximately thirty minutes. Because this portion of the exam consists of recorded material, it is very important that you arrive at the exam site at least 15 minutes before the exam starting time. You will not be admitted to the exam once the examination begins.

The second part of the exam for firefighter is a multiple-choice test consisting of 77 questions which are divided into eight subject areas: basic information, maps and diagrams, problem solving, mechanical aptitude, prioritization, grammar and communication skills, math and reasoning, and reading comprehension. You will have one hour and forty-five minutes in which to complete this part of the examination.

SUBJECT AREA	PERCENTAGE OF WRITTEN TEST
BASIC INFORMATION	12%
MAPS AND DIAGRAMS	14%
PROBLEM SOLVING	9%
MECHANICAL APTITUDE	13%
PRIORITIZATION	7%
GRAMMAR AND COMMUNICATION SKILLS	13%
MATH AND REASONING	13%
READING COMPREHENSION	19%
TOTAL	100%

BASIC INFORMATION

This section is designed to evaluate your ability to recognize common terms and to assess your decision-making ability in the most basic of situations.

MAPS AND DIAGRAMS

A firefighter must have the ability to read street maps and simple diagrams in order to find a location and the best route to the location. The questions in this section require you evaluate information presented in a map or diagram, and to make decisions based upon this evaluation. When a map is involved, remember the following guidelines: All traffic laws must be observed. Always choose the most direct route. North is indicated by a legend on the map. When a diagram of a dwelling or building is involved, all necessary information is included, either on the diagram itself or in a legend accompanying it.

PROBLEM SOLVING

A firefighter must have the ability to analyze information (determine relationships between items or to recognize patterns) in order to identify problems and appropriate solutions. Each question in this section consists of a series of three different but related figures. You should determine how these figures are related and then decide which figure should be next (fourth) in the series.

MECHANICAL APTITUDE

A firefighter must possess the aptitude for learning and applying mechanical principles involved in using tools, equipment, and machinery, and in understanding the principles of building construction. The questions in this section evaluate your understanding of basic mechanical and structural concepts.

PRIORITIZATION

Sometimes a firefighter will be confronted with a situation that requires him to make decisions as to what to do first, or what should receive top priority. Each question in this section consists of four problem situations which a firefighter might encounter. You should review the choices carefully and then select the one which should be handled first. You should also assume that you are required to deal with each of the situations personally, and that you cannot deal with two situations at the same time.

GRAMMAR AND COMMUNICATION SKILLS

This section is designed to evaluate your ability to recognize and use correct English. These items will contain words or sentences in which only one choice is correctly spelled or written grammatically correct. By choosing the correct answer from the multiple choices provided, you will be able to demonstrate your knowledge of subject/verb agreement, spelling of common words, and correct word usage.

MATH AND REASONING

This section is designed to evaluate your ability to read information and arrive at a solution through mathematics. The questions in this category will require you to read and analyze word problems and then work through the information provided to mathematically arrive at a correct answer.

READING COMPREHENSION

This section is designed to evaluate your ability to read and understand technical written material. You will be presented with a section of written material and asked to answer multiple-choice questions based upon what you have read. The reading material is similar to material that a recruit must be able to read and comprehend during the first few months of employment.

HOW THE TEST IS GRADED

All exams are graded in Baton Rouge at the Office of State Examiner. Your scores on both parts of the Firefighter exam are statistically combined into a single score. To pass the examination and be considered for employment, you must score 75 or above.

HOW TO USE THIS BOOKLET

You may practice your test taking skills by answering the sample questions provided in this booklet. If you desire further practice, you may also obtain books from your local library that contain sample civil service test questions. Should you decide to use additional practice material, it would be most beneficial to practice on the questions that are similar to the sample questions in this booklet.

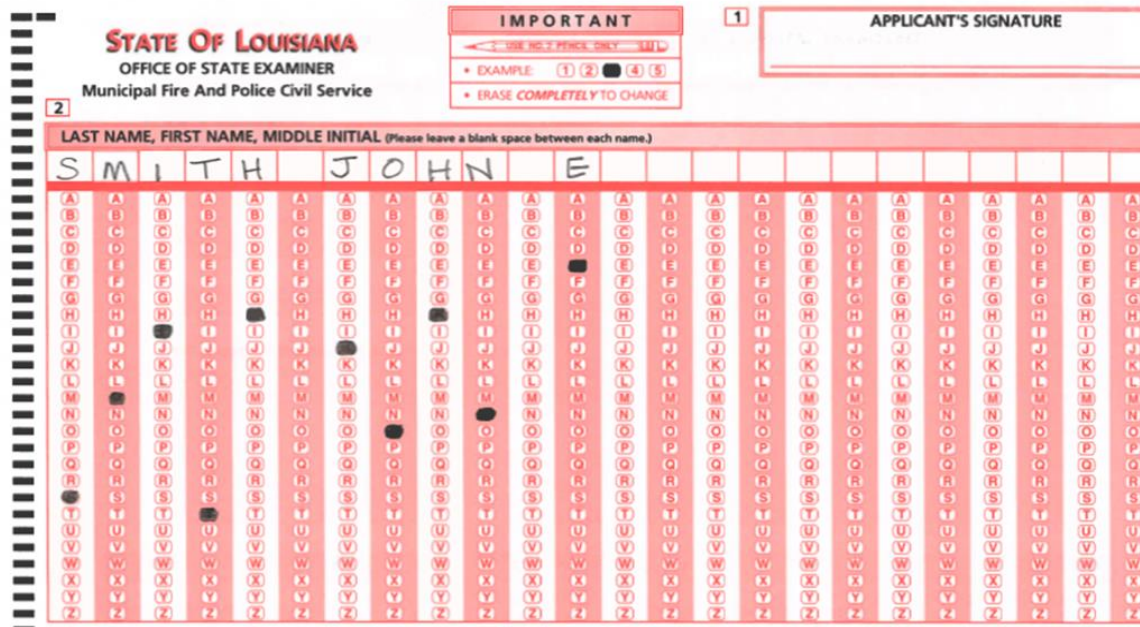
When you get to the practice exam, separate the papers that follow. Take the Scantron answer sheet and the blank scratch sheet and write your name on them (that will be explained on the next page). Give the Recall sections to someone who will read them to you as you follow the instructions. Once all Recall questions have been answered, move on to the sample written test. When you are finished, use the answer key to see which ones you answered correctly. Read the explanations for each answer. This will help in understanding why your answer was incorrect.

HOW TO USE THE SPECIAL ANSWER SHEET

When you take the Firefighter Examination, you will record your answers on a separate answer sheet rather than directly into the test booklet. A sample answer sheet and a blank scratch sheet, as well as lined notebook paper for note taking during the Recall portion of the exam, have been provided at the back of this booklet. Prior to the examination, you will be given detailed instructions on how to fill in the required information on the answer sheet. The front of the answer sheet contains personal information such as your name and social security number as well as information about the jurisdiction. You must follow the examiner's directions exactly so that your responses may be correctly scanned into the computer.

Some of the information requested on the answer sheet requires that you print information in blocks. After you have printed the required information in the blocks, you must also fill in the oval in the vertical column below each block which corresponds to the letter or number written in the block. The first row of boxes is for your name. In the example on the next page, John E. Smith entered his name in the boxes by placing one letter in each box, while skipping a space (block) between each name or initial. Once his name was correctly printed in the boxes, the oval corresponding to that letter in the column below was filled in.

In the example below under the word "IMPORTANT", answer "3" was chosen as the correct answer and the oval was filled in completely for answer choice "3." If you decide to change your answer choice, erase your original mark completely, then darken your new answer choice. Do not make any stray marks on the answer sheet.



The back of the answer sheet contains more information about the examination. On the sample answer sheet, find Box #12. This is where you will record your answers to the test questions. In recording your answer choices, you should only use the No. 2 pencils provided at the exam site and mark only one answer for each question number. It is extremely important that you make your mark dark and that you completely fill the oval with your mark.

HOW TO TAKE THE RECALL TEST

While the actual Recall Test Instructions have been recorded to standardize testing conditions, you may practice taking this type of test by having someone read the sample instructions to you. After you have practiced by having someone read the sample directions to you, compare the answers you have marked with the correct answers following the sample exam.

THERE ARE MULTIPLE PARTS TO THE RECALL TEST:

AUDIO RECALL will require that you listen to a recorded scenario, take notes as you are listening and then answer questions using your written notes.

VISUAL RECALL (two-parts) requires that you study a diagram such as an informational chart or a house plan for three or five minutes without taking notes. At the conclusion of your three or five-minute timer, you will place the diagram aside and answer the questions based on the diagram that you just saw without looking at the diagram again.

REMINDER: All of the information needed for the Recall Test will be found in the back of the booklet with the sample answer sheet and scratch sheet. Remove all of these sheets before beginning your practice exam

HOW TO TAKE THE WRITTEN MULTIPLE-CHOICE TEST

The written examination is divided into eight sections. The next part of this study guide booklet contains sample questions from each of the eight sections. Before you begin, become familiar with the helpful hints for taking a multiple-choice test:

1. Know the Rules. The Examiner will be the person in charge of the exam. Listen carefully when he/she gives the test instructions. If you have any questions, ask the Examiner. There may be others who have the same questions but are afraid to ask. You will not be allowed to use a calculator for the test nor will you be allowed to leave the room or use tobacco products during the test. You are not allowed to have a cell phone or other electronic communication devices (smart watch, pager, radio, etc.) in your possession. Please leave them in your vehicle or with the person who dropped you off at the exam site.
2. Budget Your Time. Before you begin the test, look it over and decide how much time you can spend on each section. Do not waste time trying to answer the questions that you find hard, since this may not leave you enough time to do the easier ones. All questions are counted the same. This means that you get the same credit for correctly answering the easier question as you do for the hard question. Therefore, answer easier ones first, then go back to the harder ones if you have time. The Examiner will notify you after you have been working for 1 hour and then when there are 15 minutes remaining of the exam time. Use this information to pace yourself.
3. Read the Question Carefully. Read all of the questions and directions carefully. Do not assume that you know what a question is asking after reading the first few words. Read the entire question. After you have read a question, read all of the possible answer choices. Your task is to pick out the best answer. You cannot pick out the best answer until you know all of the answer choices, so read them all.

4. Set Aside Wrong Choices. If you are not sure which answer is correct, eliminate the choices you know are wrong. If you can narrow down the number of choices, you can increase your chances of answering the question correctly.
5. Answer All Questions. Answer every test question. Even if you are unsure of the correct answer, you should still choose one of the four answer choices as you will not be penalized for guessing.
6. Check Your Answer Sheet Often. The answer sheet is numbered from top to bottom. Before you start the test, look over the answer sheet. If you have any questions, ask the Examiner before you start. While taking the test, check your answer sheet every few questions to be sure you are using the right number to mark your answer. Be particularly careful if you skip questions. Do not make any extra marks on your answer sheet. If you skip a question it is better to make a note of it on your scratch paper.
7. Do Not Write in the Test Booklet. Scratch paper will be provided. Do any figuring or make any notes on the scratch paper. Do not make any marks in or on the test booklet.
8. Do Your Own Work. Rely on your own ability. Test takers who are caught copying are disqualified. Besides, your neighbor may not know as much as you do.
9. Check Your Work. After you have answered all the questions on the test, check your work. Have you answered all the questions you were supposed to answer? Make sure you have marked the answer sheet properly. When you review the answer sheet, do not look for patterns in order of answer choices. Tests are not designed to have patterns for correct answers.

Specific hints for the various subject areas on the test:

English Usage: In this section, you must select the word which most correctly fills the blank in the sentence.

Reading Comprehension: Select the one statement which is best supported by the paragraph using only the information provided in the paragraph. Three of the choices may or may not be correct, but the information cannot be determined as correct from reading the paragraph. The correct answer is the only statement which can be determined as correct from reading the information contained in the paragraph. Read the entire excerpt before attempting to answer the questions.

Maps and Diagrams: These multiple-choice questions require the test taker to evaluate information presented in a map or diagram and to make a decision from this evaluation. When a map is involved, remember the following guidelines: All traffic laws must be observed. Always choose the most direct route. North is indicated by a legend on the map. When a diagram of a dwelling or building is involved, all necessary information is included, either on the diagram itself or in a legend accompanying it.

The Recall Test will begin on the next page. Move on to the Written Exam once you have completed all sections of the Recall Test. The only time-limit for this section will be for memorizing the Recall sheets.

(Continue to the next page.)

RECALL

AUDIORECALL – Instructions

Part of your training as a new firefighter will be in the form of a classroom lecture which will require you to listen to an oral presentation (lecture) and to take written notes about what you have heard. You must then use your notes at a later time in learning the subject matter. This portion of the test is designed to evaluate your ability to select and record (take notes on) important information from an oral presentation. Included with your practice materials (in the back of the booklet) is a one-page lecture titled "SMOKE ALARMS IN U.S. HOUSE FIRES," and two blank sheets of notebook paper. You should remove this information from your booklet and have someone read the lecture to you. As you listen, use the notebook paper to take written notes on the facts and figures discussed in the lecture.

Use your notes to answer the questions on the following page. Do not turn the page until you have heard all of the information. Once you have heard all of the information, you will not be allowed to look back at the information to answer the questions. You will use only your notes.

Begin listening to the Audio Recall Now

AUDIO RECALL QUESTIONS 1 - 5

Answer the following 5 questions by referring ONLY to the notes that you took during the lecture.

1. How often does the NFPA recommend testing smoke alarms in the home?
 - A. Once every year.
 - B. Once every six months.
 - C. Once every quarter.
 - D. Once every month.

2. Which of the following is the most desirable location to place a smoke alarm device?
 - A. On the ceiling above the kitchen stove so that kitchen fires are detected as soon as possible.
 - B. On the wall in the hallway of the home about 3 feet from the floor allowing a safe crawlspace for exit from the home in a fire emergency.
 - C. Away from the kitchen on the ceiling or the highest point of the wall.
 - D. On the ceiling or wall of the kitchen since that is where most fires begin.

3. How often does the NFPA recommend that batteries be changed in battery operated smoke detectors?
 - A. Once every month.
 - B. Once every quarter.
 - C. Once every six months.
 - D. Once every year.

4. What percent of home fire deaths were caused by fires in properties with no smoke alarms or smoke alarms that failed to operate?
 - A. 35%
 - B. 41%
 - C. 45%
 - D. 51%

5. How much lower is the risk of dying in a reported home structure fire containing a working smoke alarm as opposed to one where there is no smoke alarm present?
 - A. 40%
 - B. 45%
 - C. 50%
 - D. 55%

VISUAL RECALL #1 - Instructions

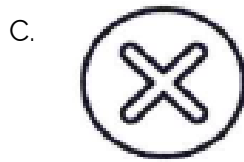
Next, remove the sheet with the codes and symbols from your practice materials. Have someone time you for 5 minutes as you memorize this information. At the end of 5 minutes, turn the codes face down and continue with the practice test.

Without looking at the codes again, answer the five questions on the following two (2) pages.

VISUAL RECALL #1 – Questions 6-10

Answer the following 5 questions based on the placard information which you have learned and memorized.

6. Which of the following placards is classified CODE 2?



7. Which of the following placards is classified as CODE 3?



8. Which of the following placards is classified as CODE 5?



9. Which of the following placards is classified as CODE 6?

A.



B.



C.



D.



10. Which of the following placards is classified as Code 1?

A.



B.



C.



D.



VISUAL RECALL #2 - Instructions

Take three (3) minutes to study the house plan provided at the back of this study guide. Once your three minutes are up, turn the house plan face down. Without looking at the house plan again, answer the three questions on the following page.

VISUAL RECALL #2 – Questions 11 – 13

11. How many bedrooms are shown in the house plan?
- A. One.
 - B. Two.
 - C. Three.
 - D. Four.
12. Which part of the house is the laundry room closest to?
- A. Front Entrance.
 - B. Pantry.
 - C. Bedroom #2.
 - D. Back Entrance.
13. How many bathrooms does this home have?
- A. One.
 - B. Two.
 - C. Three.
 - D. Four.

MULTIPLE-CHOICE EXAM

The next section contains practice questions that are very similar to those on the test. You may practice marking your answers on the sample answer sheet. A discussion of the correct answers is located at the end of this booklet.

DIRECTIONS: Read each question and its lettered answers, and decide which answer is best. Find the space lettered the same as the answer you have chosen and blacken this space with your pencil. Be sure that the space you mark is in the row numbered the same as the question you are answering. Be sure to make your marks dark and fill in the oval completely with your mark. If you decide to change an answer, erase completely and mark your new answer choice.

BASIC INFORMATION

14. In science, which of the following states of matter would a substance be in order to expand freely, having no fixed shape or volume.
 - A. Solid.
 - B. Gas.
 - C. Liquid.
 - D. Frozen.

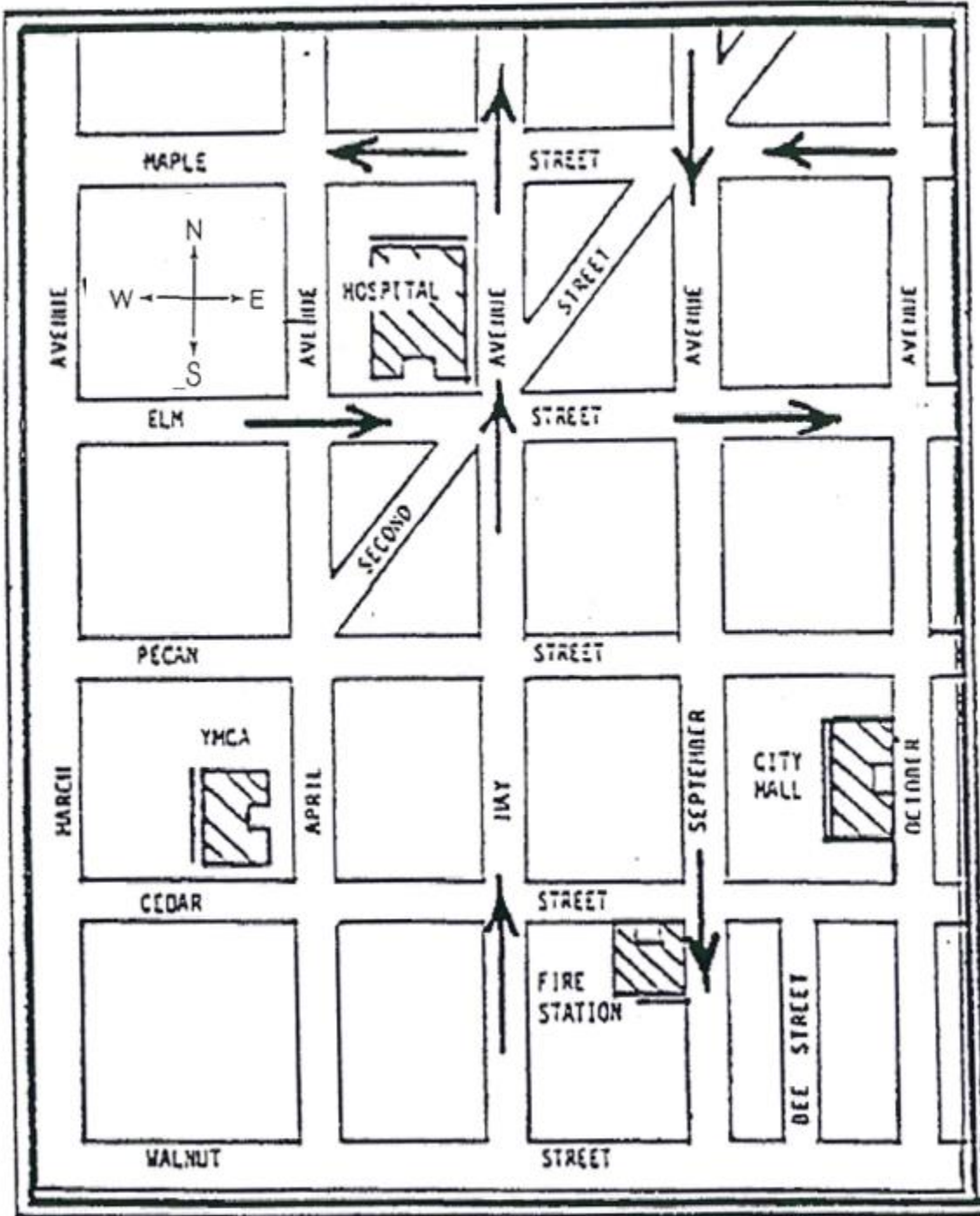
15. The process of creating an opening to allow hot gases to escape a burning structure is known as which of the following?
 - A. Ventilation.
 - B. Rollover.
 - C. Backdraft.
 - D. Combustion.

16. What three properties make up the fire triangle?
 - A. Firefighters, trucks, and firehoses.
 - B. Heat, oxygen, and fuel.
 - C. Fire, firehose, and water.
 - D. Flame, heat, and water.

17. While firefighters are called upon to stop fires and protect property, what is actually their number one priority at the scene of a fire?
 - A. To avoid danger.
 - B. To save lives.
 - C. To work with local law enforcement.
 - D. To investigate how the fire began.

MAPS AND DIAGRAMS

Use the map below to answer the next 2 questions.

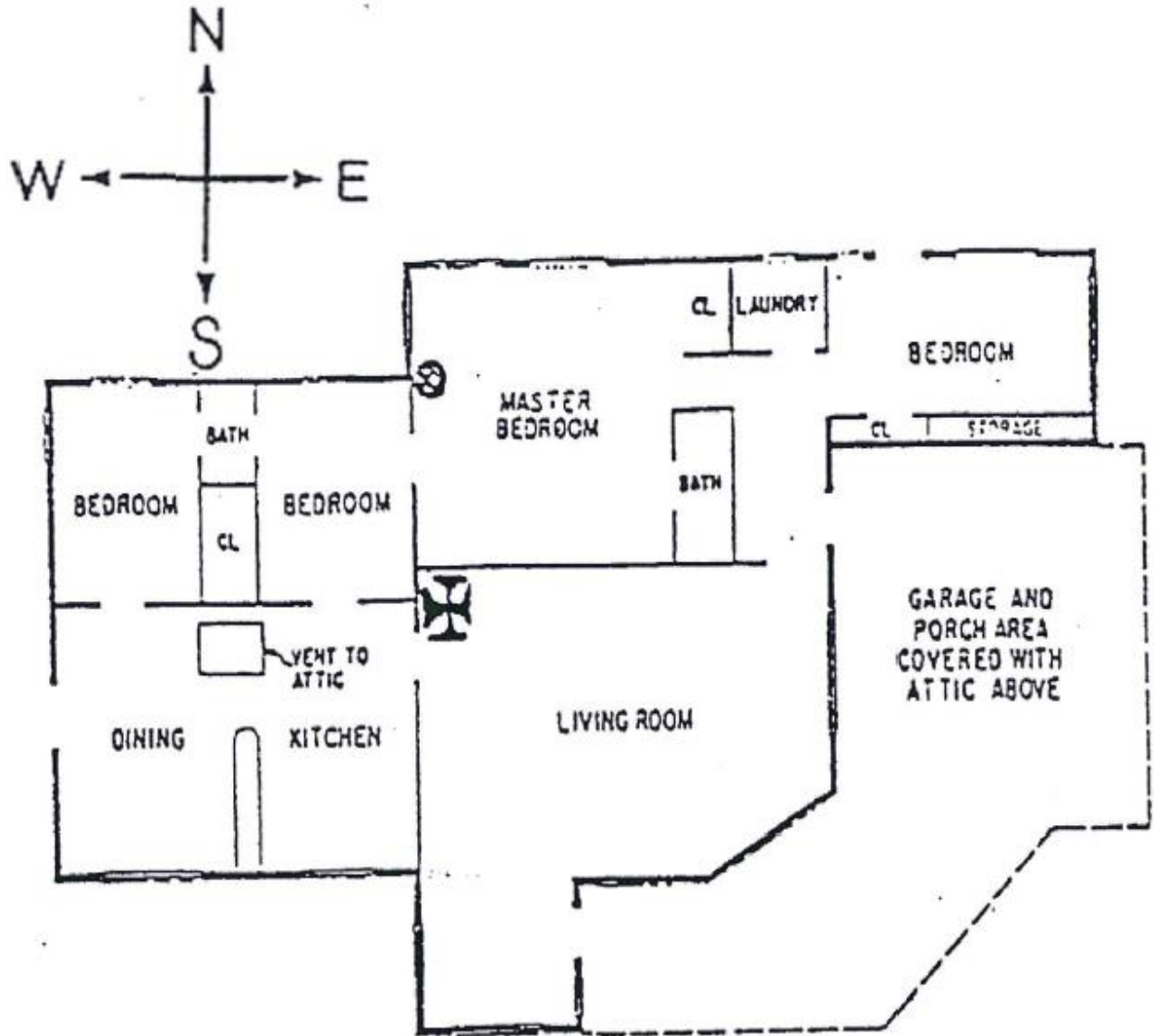


The following 2 questions refer to the map on the previous page. One-way streets are indicated by arrows pointing in the direction of traffic. If no arrows are present, the traffic flows in both directions. No U-turns are to be made in solving the problem, and all traffic laws must be observed. If a choice of routes is given, always choose the most direct route.

18. The most direct route from the YMCA building to the hospital is
- A. Cedar Street and May Avenue.
 - B. March Avenue and Elm Street.
 - C. May Avenue and Maple Street.
 - D. April Avenue and Elm Street.
19. To go from City Hall to the Fire Station by the most direct route, the best streets to use are
- A. September Avenue and Cedar Street.
 - B. August Avenue and Walnut Street.
 - C. October Avenue and Cedar Street.
 - D. September Avenue and Walnut Street.

Please continue
with your exam
on the next page.

Use the house plan provided below to answer the next 3 questions that follow.



- ⊗ A.C. POWERED SMOKE DETECTOR INSTALLED 6' 2" ABOVE FLOOR
- ⊕ ORIGIN

Use the house diagram on the previous page to answer the following 3 questions.

20. Of the following areas, the one closest to the origin of the fire is the

- A. Garage and porch area.
- B. Laundry room.
- C. Master bedroom.
- D. Dining room area.

21. In what room is the smoke detector located?

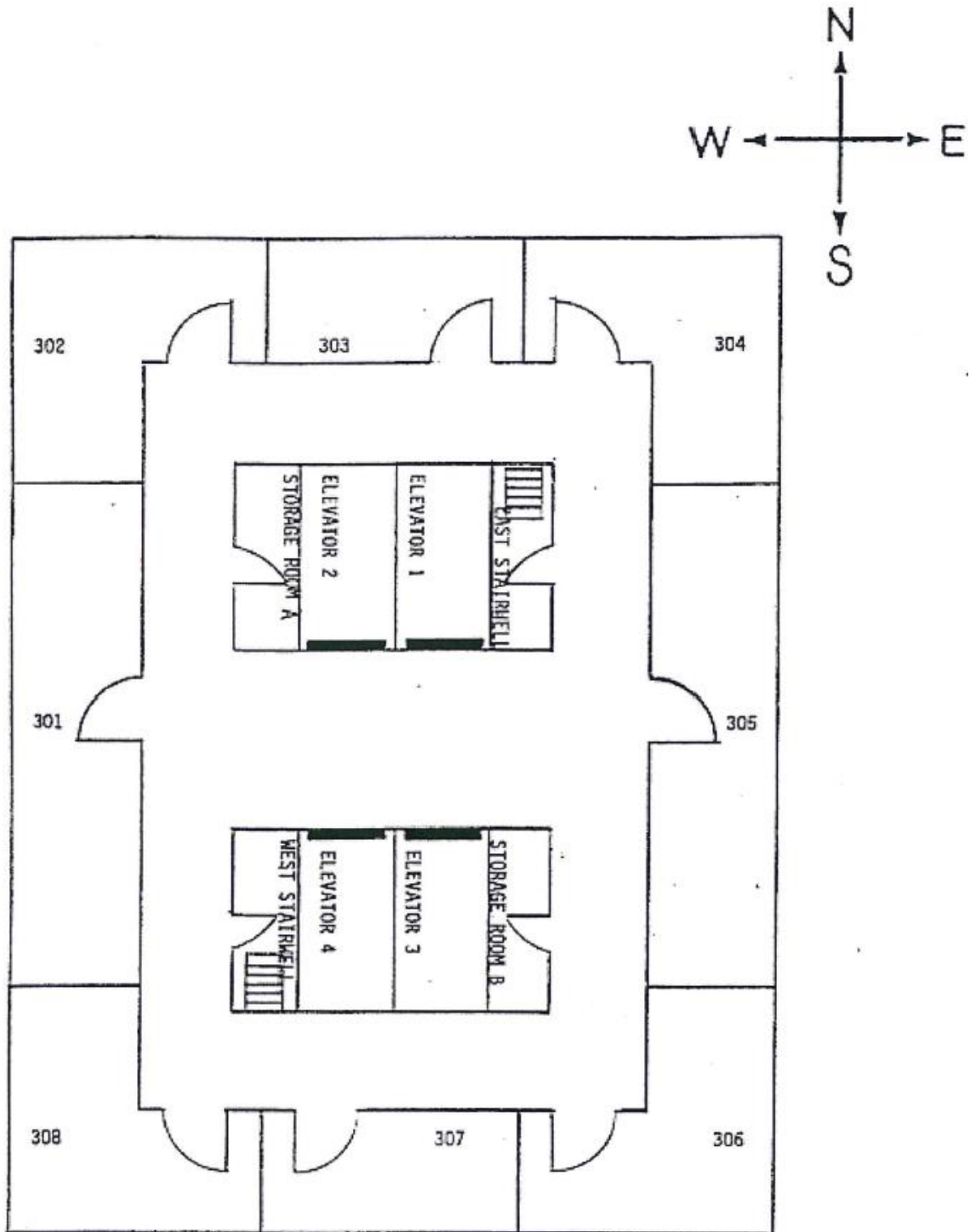
- A. The living rooms.
- B. The kitchen-dining area.
- C. The garage and porch area.
- D. The master bedroom.

22. How many bedrooms are there in the house?

- A. One.
- B. Two.
- C. Three.
- D. Four.

Please continue
with your exam
on the next page.

Use the diagram provided below to answer the next 3 questions that follow.



Use the diagram on the previous page to answer the following 3 questions.

23. You must rescue an individual who is trapped in room 307. The entire hallway is completely filled with smoke, and you cannot see where you are going. Your plan is to enter the hallway from the west stairwell, cross the hallway to the opposite wall, and keep your hand on the wall as you proceed south, feeling for doorways as you go. You will know that you have reached room 307 when you get to which door? (Note: Do not count the stairwell door as you enter the hall.)

- A. 7th door.
- B. 6th door.
- C. 3rd door.
- D. 2nd door.

24. After the rescue, your fire captain instructs you to return to the third floor, where it has been reported that there is fire in storage room A. In which direction does the door to storage room A face?

- A. South.
- B. North.
- C. West.
- D. East.

25. Fire is spreading from storage room A toward room 302. In which direction is the fire moving?

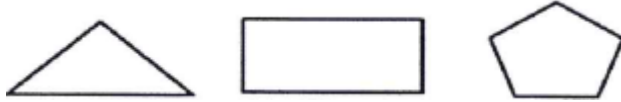
- A. Northeast.
- B. Northwest.
- C. Southeast.
- D. Southwest.

Please continue
with your exam
on the next page.

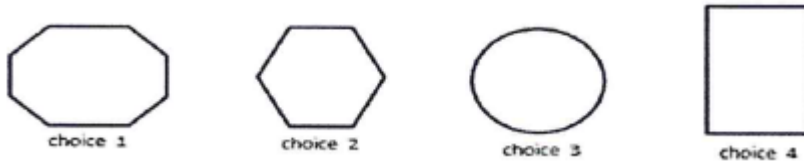
PROBLEM SOLVING

Each of the following questions consists of a series of three different but related figures. You should determine how these figures are related and which figure should be the fourth in the series.

Example:



Notice that the number of sides increased with each figure. The first figure had 3 sides, the second one had 4 sides, and the third has 5. You should therefore look at the possible answers and select a figure with six sides.

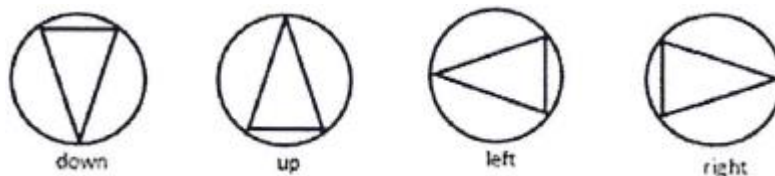


Answer choice #2 has 6 sides and would therefore be the correct answer.

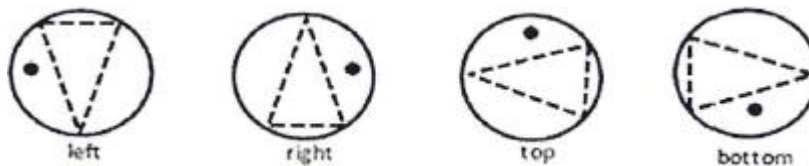
Consider another example which is a little more difficult:



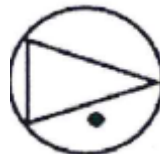
It is useful to consider the two different elements of this design (the dot and the pyramid) separately. Notice that the pyramid points down, up, and then to the left:



The next logical progression would be for the pyramid to point to the right. Now consider the dot. It first appears on the left, then the right, and finally the top. The logical place for the dot to appear next would be at the bottom. By combining the two elements of the design, the correct answer would have the pyramid pointing to the right and the dot at the bottom.



Therefore, the answer would look like this:



PROBLEM SOLVING

Answer the following 3 questions by deciding which figure should appear next in the series.

26.



A.

B.

C.

D.



27.



A.

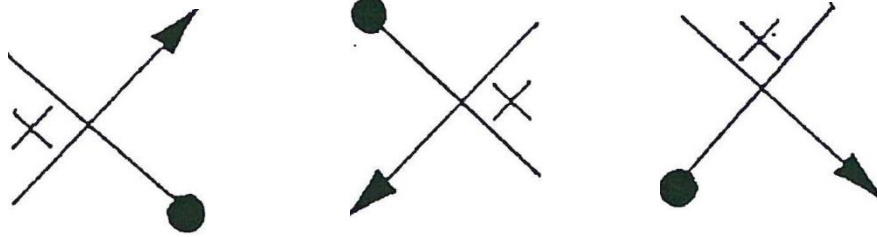
B.

C.

D.



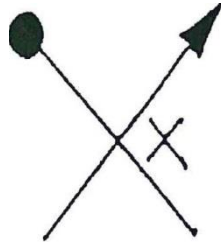
28.



A.



B.



C.



D.

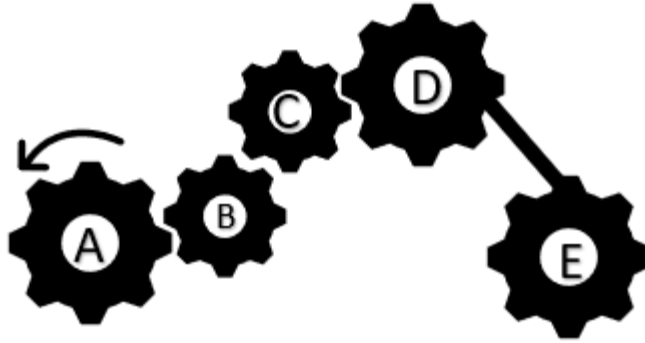


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MECHANICAL APTITUDE

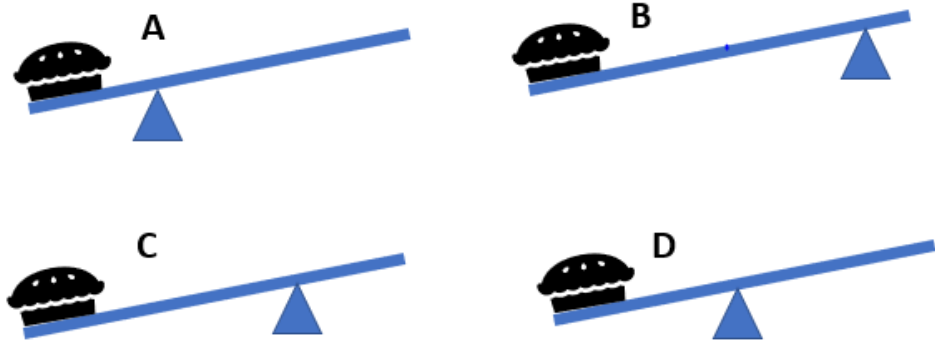
Answer the following 2 questions by studying the pictures and deciding on the correct answer.

29. If figure A is turning counter clockwise. Which gears are turning in the opposite direction?



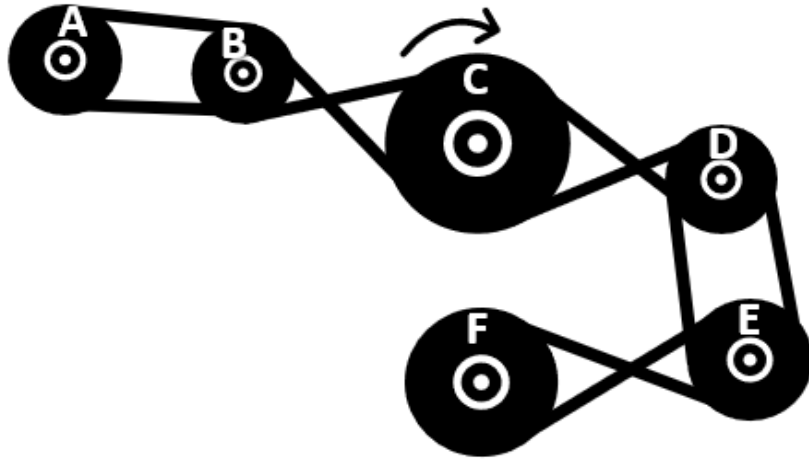
- A. B, D, E
- B. C, E
- C. B, E
- D. B, C, E

30. Alex is attempting to break the world record for World's Heaviest Pie. His pie weighs nearly 150 pounds, but he must lift the pie high enough to put onto a cart so that he can transport it to the judges table for weight in. Which image below would allow the pie to be lifted the easiest?



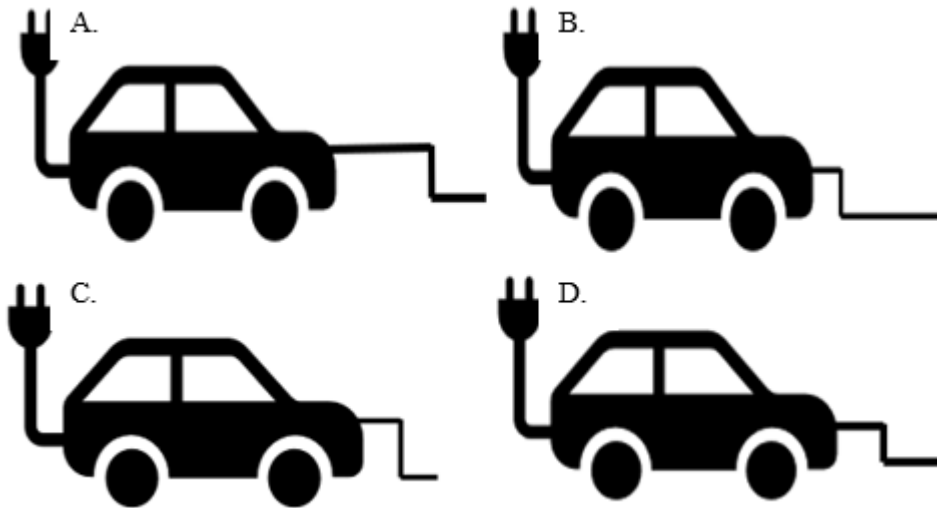
- A. A
- B. B
- C. C
- D. D

31. If Pulley C is turning clockwise as indicated, which Pulleys are turning in the opposite direction (counter-clockwise) ?



- A. A, E.
- B. A, D, F.
- C. A, B, D, E.
- D. B, D, E, F.

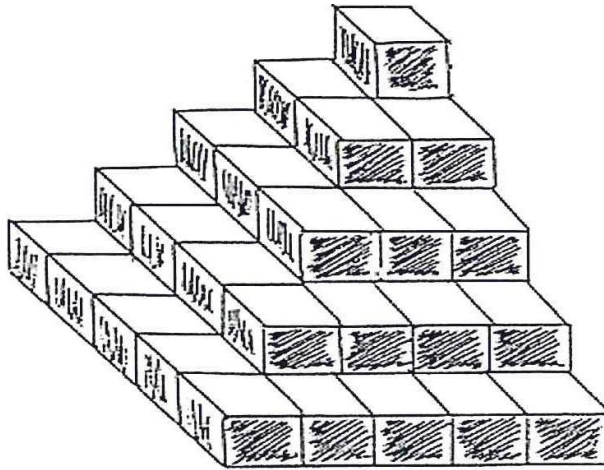
32. Jimmy is the proud owner of one of the newest electric cars. Each car on the lot comes with an additional hand crank for when there is no electricity nearby. Which of the following images represents the hand crank that would be easiest to turn in order to charge the car the fastest?



- A. A.
- B. B.
- C. C.
- D. D.

33. How many blocks are in the figure below?

- A. 45.
- B. 50.
- C. 55.
- D. 60.



PRIORITIZATION

Each of the following 3 items consist of four (4) problem situations which a firefighter might encounter. Review the choices carefully, and select the one which should be handled first. Assume that you are required to deal with each of the situations personally, and cannot deal with two situations at the same time.

34. There has been a boating accident involving two boats on a lake. Both boats still contain one person. Which should be handled first?
- A. A reporter is demanding to know what happened.
 - B. One of the boaters is lying on the bank with a simple fracture of the arm.
 - C. One of the boats is on fire and is drifting toward a refueling dock.
 - D. The owner of one of the boats wants you to save the contents of his boat before it sinks.
35. A school bus filled with children has been involved in an accident with a garbage truck. Which situation should be dealt with first?
- A. Garbage has spilled onto the street and is blocking traffic.
 - B. A fire hydrant was knocked over and water is flowing freely from it.
 - C. A child has a broken nose and is crying.
 - D. A child is having convulsions and seizures.

36. A small private plane has crashed in a residential area. Which of the following should be dealt with first?
- A. Keeping the fire under control.
 - B. Finding out who owned the airplane.
 - C. Gathering personal belongings that have been scattered over several yards.
 - D. Recovering the bodies from inside the airplane.

GRAMMAR AND COMMUNICATION SKILLS

ENGLISH USAGE

The following questions give statements that are missing a word. Select the word which correctly fills in the blank.

37. A fireman must always _____ his protective gear while battling a fire.

- A. were
- B. where
- C. wear
- D. ware

38. In a rush, Susan ran away from the taxi before paying the _____.

- A. fair
- B. fayer
- C. fare
- D. fiar

39. Teenagers are sometimes affected by _____ pressure.

- A. pier
- B. pere
- C. pear
- D. peer

SPELLING

For the next 2 questions, you are to review the words provided and choose the one word that is spelled correctly.

40.

- A. neccessary.
- B. necessery
- C. necessary
- D. nescisary

41.

- A. succesful
- B. successfull
- C. successful
- D. sucessful

CLASSIFYING INFORMATION

42. Which of the following sentences is an opinion?

- A. Flying a kite is so much fun.
- B. The kite is red.
- C. We packed a picnic.
- D. Our umbrella is 5 feet wide.

43. Which of the following sentences is a fact?

- A. Ford trucks are the best looking and most durable.
- B. Bicycles are the most fun to ride in the morning.
- C. Skateboarding is dangerous and should not be allowed.
- D. Boating accidents account for over 2,000 injuries each year.

44. Which of the following is a probability?

- A. 600 people signed up for the 3-mile run this Saturday.
- B. Ice Cream is better than custard.
- C. Flooding on the roads will delay the arrival of the Fire Department.
- D. There are 75 people employed by the Fire Department.

MATH AND REASONING

Answer the following 3 questions by performing the necessary calculations.

45. John and Marcy are building their dream home. It is a two-story home in the country. The bottom story will measure 35' X 60'. The second story has the same footprint as the first story. How many total square feet will their new home be?
- A. 2100.
 - B. 2500.
 - C. 3800.
 - D. 4200.

Using the standard order of operations for mathematics, solve the following two problems.

46. $3 + 8 \times 2 - 4 =$

- A. 13
- B. 14
- C. 15
- D. 16

47. $(11+17)-4=$

- A. 23
- B. 24
- C. 28
- D. 32

48. What is the average of the following values: 19.6, 10.5, 3.0, 6.7, 4.2?

- A. 6.9
- B. 7.5
- C. 8.8
- D. 9.2

49. The Urbandale Parks Department Manager has asked Cody (an employee of the department) to water the flower beds located in the road medians throughout the city. Cody uses the city water tank truck which has a capacity of 150 gallons. The truck is full of water when Cody leaves. Cody uses 120 gallons of water when watering the flower beds. What percentage of water in the tank was used?

- A. 60%
- B. 70%
- C. 80%
- D. 90%

50. How many seconds are in 3 hours and 47 minutes?

- A. 10,800.
- B. 12,580.
- C. 13,620.
- D. 15,400.

51. Jan has been asked to make the fruit salad for her company's annual picnic. She was given \$50 to buy the ingredients needed for the fruit salad. She will need 2 pounds of bananas, 2 bags of oranges, 2 pounds of apples, 3 pounds of grapes and 2 bags of pecans. Once Jan arrives at the market, she sees a sign that reads.....

Strawberries	2 dollars per pint
Grapes	3 dollars per pound
Bananas	50 cents per pound
Pears	1 dollar per pound
Apples	1 dollar per pound
Oranges	3 dollars per bag
Pecans	6 dollars per bag

How much will Jan spend in order to buy all of the ingredients needed for the fruit salad?

- A. \$26
- B. \$28
- C. \$30
- D. \$32

Please continue
with your exam
on the next page.

52. The maximum weight allowed on an extension ladder is 750 pounds, including personnel and equipment. How much equipment could be carried by each firefighter if there are 3 firefighters on the ladder weighing a total of 570 pounds? (Note: Assume that all firefighters will carry an equal load.)
- A. 28 pounds.
 - B. 60 pounds.
 - C. 180 pounds.
 - D. 280 pounds.
53. Fire department pumpers can pump more water through larger diameter hoses than through smaller diameter hoses. Each inch in the diameter of a hose increases the amount of water that may be pumped through the hose by 69 gallons per minute. What size hose should be used to pump 207 gallons of water more per minute than can be pumped with a 2-inch hose?
- A. 2-inch hose.
 - B. 3-inch hose.
 - C. 5-inch hose.
 - D. 6-inch hose.
54. Tom owns the local hardware store. He needs to move a stack of bricks to the other side of the store. The stack of bricks weighs 250 pounds and is too heavy for Tom to carry. Tom decides to place each of the 7" x 3" x 8" inch bricks into a wheelbarrow and move them to the other side of the store. Without considering the weight of the wheelbarrow, how much do the bricks weigh?
- A. 225.
 - B. 250.
 - C. 275.
 - D. 300.

Please continue
with your exam
on the next page.

READING COMPREHENSION

Answer the following 3 questions by reading the paragraphs and deciding which statement is best supported by the paragraph.

55. During the last 50 years, the American Fire Service has evolved from a loosely organized, social collection of individuals to the most highly organized and best trained branch of any municipal government. However, it is a well-known fact that a very large percentage of the fire service is made up of volunteer firefighters. The word "volunteer" is not intended to mean the opposite of the word "professional" when dealing with the fire service. There are volunteer firefighters who are as professional in their training and activities in the fire service as their full-time paid counterparts.

With reference to the above comparison between paid and volunteer firefighters, which of the following statements would be most correct?

- A. Paid firefighters are professionals, volunteer firefighters are amateurs.
- B. Paid firefighters are always more proficient than volunteers.
- C. Volunteers have to work harder than paid firefighters.
- D. There are volunteer firefighters who are as professional as their full-time paid counterparts.

56. Records of certain kinds are of vital importance to every business. Their loss by fire may mean the discontinuance of a going business, even though other physical property of the business can be quickly replaced. In general, it can be said that equipment designed for the protection of records from loss by fire will also be adequate against burglary.

According to the above paragraph,

- A. equipment that is adequate to protect loss of records from fire is generally useless in prevention of burglary.
- B. the loss of important records may mean that fire insurance cannot be collected.
- C. the continued existence of a business may be dependent upon preventing the loss of important records by fire or from burglary.
- D. business records have, in general, been very inadequately protected from loss by either fire or burglary.

57. Dwelling roofs are usually built of wood supporting members called "rafters" to which roof sheathing is fastened. The roof covering material is then applied to the roof sheathing. Roof coverings may be wood shingles, composition shingles, composition roofing paper, tile, slate or a built-up tar and gravel surface. The roof covering is the exposed part of the roof, and its primary purpose is to afford protections against the weather. The selection of a proper roof covering is important from a fire protection standpoint because it may be subjected to sparks and blazing branches if a nearby building should burn.

According to the above paragraph,

- A. roof sheathing may be wood shingles, composition shingles, roofing paper, tile, and slate.
- B. the primary purpose of the roof covering is to afford protection against the weather.
- C. rafters are often exposed to sparks and blazing branches if a nearby building should burn.
- D. the roof sheathing is the exposed part of the roof.

Please continue
with your exam
on the next page.

Below is an excerpt from departmental procedures on the cleaning and care of hose and couplings. Use these procedures in answering the 3 questions that follow.

A. CLEANING AND CARE OF HOSE AND COUPLINGS

1. Fire hose shall be thoroughly cleaned after use. If only dusty, the hose should be swept clean. If muddy, the hose should be washed with water and scrubbed with a broom if necessary. If the hose is not clean after scrubbing with water, a mild detergent may be used. However, no cleaning solvent nor harsh cleanser should ever be used.
2. Hose couplings should be inspected for imperfections and thoroughly cleaned after each use. All couplings should be washed with clean water, being very careful that the female end swivels properly. The use of Ivory soap in the cleaning and lubrication of coupling threads will assure smooth operation. THE USE OF OIL OR GREASE ON HOSE COUPLINGS IS PROHIBITED.
3. Care should be exercised to see that gaskets are in good condition and properly placed in the female coupling on all sizes of hose.

B. PROTECTIVE MEASURES

1. Care should be exercised not to drop couplings. Hose should be protected, as far as practical, from contact with acids, gasoline and oil, sharp objects, and extreme heat and cold. All hose should be dried thoroughly before rolling and racking.

C. REPAIRS

1. No attempt shall be made by any firefighting unit personnel to repair any fire hose, swivels, or couplings at their quarters. All fire hose and fittings needing repair shall be cleaned, dried, rolled, and sent to the fire department maintenance garage along with a written report stating the defect to the Hose-Test-Maintenance Committee who shall provide Central Records with copies.

Use the information provided on the previous page to answer the following 3 questions.

58. What method should be used first to attempt to clean a fire hose if it is muddy?

- A. The hose should be swept clean.
- B. The hose should be washed with water and scrubbed with a broom if necessary.
- C. A mild detergent should be used, followed by a cleaning solvent if necessary.
- D. A gentle-action abrasive cleaner should be used on trouble spots.

59. What should be used to lubricate coupling threads?

- A. Ivory soap.
- B. WD40.
- C. Light oil.
- D. Grease.

60. Where should gaskets be properly placed after ensuring they are in good condition?

- A. On the hose.
- B. On the male coupling.
- C. In the female coupling.
- D. In the swivel mechanism.

END OF PRACTICE TEST

CORRECT ANSWERS TO THE SAMPLE QUESTIONS

The next section of this booklet contains the correct answers and explanations to both parts of the examination. When you have answered all questions in the Practice Test, turn to this section and compare your answers with the Answer Key.

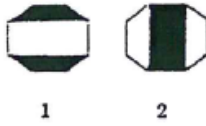
ANSWER KEY FOR THE RECALL PART OF THE FIREFIGHTER PRACTICE TEST

1. The correct answer is D.
Once every month.
2. The correct answer is C.
Away from the kitchen on the ceiling or the highest point of the wall.
3. The correct answer is C.
Once every six months.
4. The correct answer is B.
Almost forty-one percent of home fire deaths were caused by fires in properties with no smoke alarms or smoke alarms that failed to operate.
41%
5. The correct answer is D.
The risk of dying in reported home structure fires is 55 percent lower in homes with working smoke alarms than in homes with no alarms or none that worked.
6. The correct answer is D.
That placard is in Code 2.
7. The correct answer is B.
That placard is in Code 3.
8. The correct answer is A.
That placard is in Code 5.
9. The correct answer is A.
That placard is in Code 6.
10. The correct answer is B.
That placard is in Code 1.
11. The correct answer is C.
There are three bedrooms in the house plan.
12. The correct answer is D.
The laundry room is closest to the back entrance.
13. The correct answer is B.
There are two bathrooms in this home.
14. The correct answer is B.
Gas is the only state of matter that allows free expansion with no fixed shape or volume.
15. The correct answer is A.
Ventilation is the process of creating an opening to allow hot gases to escape a burning structure.
16. The correct answer is B.
Oxygen, heat, and fuel are frequently referred to as the "fire triangle." Taking any one of these away will extinguish the fire or prevent a fire.

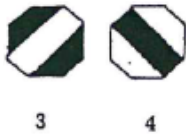
ANSWER KEY TO THE MULTIPLE-CHOICE PART OF THE FIREFIGHTER PRACTICE TEST

17. The correct answer is B.
A firefighter's main objective at the scene of any fire is to save lives above all else.
18. The correct Answer is D.
Locate both buildings on the map. The YMCA is in the second block north from the bottom left side of the map, and the hospital is one block east and three blocks north. By obeying all traffic laws, the most direct route is north on April Avenue (front of YMCA) and east on Elm Street to the hospital.
19. The correct Answer is C.
Both City Hall and the Fire Station are located in the southeast portion of the map. The most direct route from City Hall to the Fire Station would be south on October Avenue and east on Cedar Street to the Fire Station.
20. The correct answer is C.
The legend accompanying the diagram shows the symbol used for "the origin of the fire." This symbol is located in the northwest corner of the living room. The listed area closest to the origin of the fire would have to be the master bedroom, as the other areas listed are farther away.
21. The correct answer is D.
The legend also shows the symbol used to designate the location of the smoke detector. This symbol appears in only one room on the diagram, the master bedroom.
22. The correct answer is D.
Each room in the diagram is identified. By counting the number of bedrooms identified in the diagram, the total number would be four.
23. The correct answer is D.
The first door you reach would be room 308, and the next door would be 307.
24. The correct answer is C.
If the door to storage room A is in the closed position, it faces west, according to the compass provided on the diagram.
25. The correct answer is B.
Using the compass, if the fire is moving from Storage Room A toward room 302, it is moving to the northwest.

26. The correct answer is A.

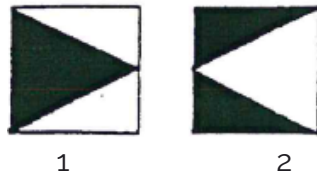


From figure 1 to figure 2, the position of the rectangle changed from horizontal to vertical (opposites). Also, the color of the rectangle changed from white to black.

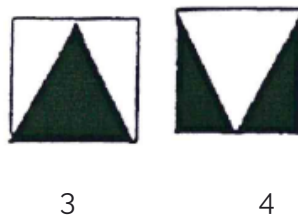


From figure 3 to figure 4, the diagonal rectangle changed to the opposite direction. Also, the color of the rectangle changed from white to black.

27. The correct answer is B.

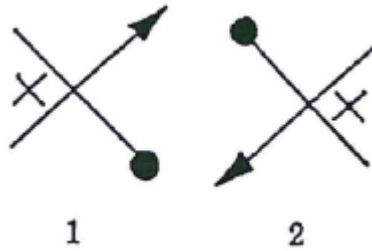


From figure 1 to figure 2, the point of the "V" changes to the opposite direction, and the "V" changes in color from black to white.

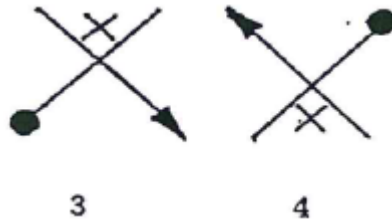


From figure 3 to figure 4, again the point of the "V" changes to the opposite direction and "V" changes color from black to white.

28. The correct answer is C.



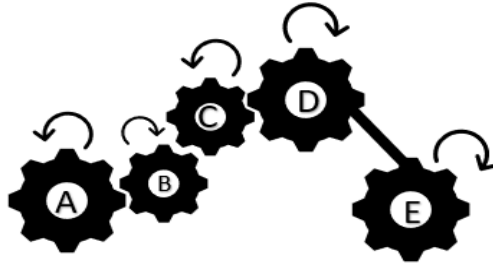
From figure 1 to figure 2, the smaller "X" moves to the opposite side of the larger "X" horizontally.



From figure 3 to figure 4, the smaller "X" has moved from the top position of the larger "X" down to the bottom position vertically.

29. The correct answer is A.

Gears B, D, and E are turning in the opposite direction. Gears D and E will always turn in the same directions because of the solid link between the two.

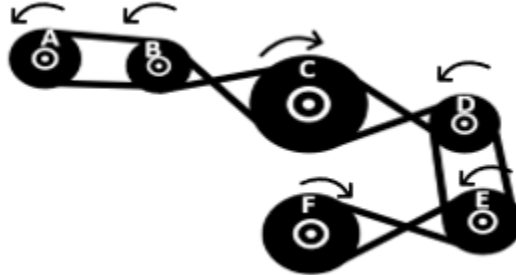


30. The correct answer is A.

Placing the triangle as close to the pie as possible, allows for more leverage on the opposite end of the board to help lift the pie.

31. The correct answer is C.

Pulleys A, B, D, and E. will turn in the opposite direction from Pulley C. Pulleys A and B will always turn in the same direction because their belts are connected at the same points on the pulley and not crossed like the other pulleys. This allows them to turn in the same direction. The same applies to Pulleys D and E.



32. The correct answer is C

Having the crank closer to the car allows for more control over the crank. A longer vertical handle allows a person to turn the crank easier and more efficiently.



33. The correct answer is C.

There are 55 blocks in the stack. The bottom contains five rows of five ($5 \times 5 = 25$). The level on top of that contains four rows of four ($4 \times 4 = 16$). The level on top of that contains three rows of three ($3 \times 3 = 9$). The level next to the top contains two rows of two ($2 \times 2 = 4$). The top level is one (1). $25+16+9+4+1=55$

34. The correct answer is C.

To prevent a possible explosion which may cause many more injuries or deaths has top priority if no one else is in a life-threatening situation.

35. The correct answer is D.

A child who is having convulsions and seizures is in the most immediate danger, and should be top priority.

36. The correct answer is A.

The recovering of bodies from inside the airplane cannot be done until the fire is under control.

37. The correct answer is C.

A fireman must always wear his protective gear while battling a fire.

38. The correct answer is C.

In a rush, Susan ran away from the taxi before paying the fare.

39. The correct answer is D.
Teenagers are sometimes affected by peer pressure.
40. The correct answer is C
Necessary
41. The correct answer is C.
Successful
42. The correct answer is A.
"Flying a kite is so much fun" is an opinion. All other choices are facts.
43. The correct answer is D.
"Boating accidents account for over 2,000 injuries per year" is a fact. All other choices are opinions.
44. The correct answer is C.
"Flooding on the roads will delay the arrival of the Fire Department." While it may seem that this would be a fact, it is not. There is no guarantee that flooding will be an issue for the Fire Department, but it is probable that it will. A. is a fact. B. is an opinion. D is a fact.
45. The correct answer is D.
If the bottom story measures 35' x 60' (2,100 square feet) and the second story has the same footprint (an additional 2,100 square feet), the total square footage of the home will be 4,200.

$$35 \times 60 = 2,100$$

$$2,100 \times 2 = 4,200$$

46. The correct answer is C.
A simple method to remember the Mathematical Standard Order of Operations is to use the phrase "Please Excuse My Dear Aunt Sally." By taking the first letter of each word in this phrase, you will get PEMDAS which stands for Parentheses, Exponents, Multiplication/Division, Addition/Subtraction. This is the order that mathematical problems should be worked in order to arrive at the correct answer.
- Therefore, $3 + 8 \times 2 - 4 =$ would be worked in the following manner. $8 \times 2 = 16$.
 $3 + 16 - 4 = 15$. The correct answer is 15. The first calculation would be the multiplication followed by addition/subtraction.
47. The correct answer is B.
Using the Standard Order of Operations, The information inside the parenthesis would be calculated first. Therefore, $11 + 17 = 28$. and $28 - 4 = 24$.
48. The correct answer is C.
By adding the numbers, we get a total of 44. Take the number 44 and divide it by how many numbers are included in the average, which is 5. 44 divided by 5 equals 8.8.

$$\begin{array}{r}
 19.6 \\
 10.5 \\
 3.0 \\
 6.7 \\
 + 4.2 \\
 \hline
 44.0
 \end{array}
 \qquad
 44 \div 5 = 8.8$$

49. The correct answer is C.

Since the truck holds 150 gallons of water when full and Cody used 120 gallons of water to water the flower beds, Cody has used 80% of the water in the tank.

120 gallons used divided by 150 gallons total capacity equals .8 by moving the decimal two places to the right, you are left with 80%.

50. The correct answer is C.

There 60 seconds in a minute and 60 minutes in an hour. Therefore, there are 3,600 seconds in an hour (60 seconds X 60 minutes). In three hours, there are 10,800 seconds. In an additional 47 minutes, there are 2,820 seconds. In three hours and 47 minutes, there are 13,620 seconds total (10,800 + 2,820 = 13,620).

51. The correct answer is C.

The cost of the fruit will be \$30.

Bananas	.50	X	2 lbs.	=	\$1
Oranges	\$3	X	2 bags	=	\$6
Apples	\$1	X	2 lbs.	=	\$2
Grapes	\$3	X	3 lbs.	=	\$9
Pecans	\$6	X	2 bags	=	<u>\$12</u>
			TOTAL		\$30

52. The correct answer is B.

If the total of 3 firefighters and equipment can be a maximum of 750 pounds, then the three firefighters can carry a total weight of 180 pounds (750 - 570). If each firefighter is carrying an equal load, then each one could carry 60 pounds (180 ÷ 3).

53. The correct answer is C.

To find out how many more inches of hose diameter needed to be added onto the 2-inch hose already in use, divide 69 into 207, which equals 3. By adding the 3 to the 2 which you already have, the correct answer is 5-inch hose.

54. The correct answer is B.

The bricks weigh the same amount whether they are stacked together or separated and thrown into a wheelbarrow individually. Their combined weight is the same, 250 pounds.

55. The correct answer is D.

The paragraph clearly points out that "volunteer" is not intended to mean the opposite of "professional" when dealing with the fire service.

56. The correct answer is C.

The paragraph does say that loss of records may result in the "discontinuance of a going business."

57. The correct answer is B.

The paragraph clearly states that the primary purpose of the roof covering is to afford protection against the weather.

58. The correct answer is B.

The paragraph A1 clearly states that if the hose is muddy, it should be washed with water and scrubbed with a broom if necessary.

59. The correct answer is A.

Paragraph A2 lists two uses for Ivory Soap. Lubricating coupling threads is mentioned as one of the uses.

60. The correct answer is C.

Paragraph A3 points out that gaskets that are in good condition are properly placed in the female coupling.

FIREFIGHTER

PRACTICE EXAM MATERIALS

NOTE: Remove all of the following pages from the booklet for use when answering the practice questions.

AUDIO RECALL

SMOKE ALARMS IN U.S. HOUSE FIRES

Smoke alarms throughout your home help play a crucial role in keeping you and your family safe by alerting you to potential dangers. Smoke alarms should be placed on the ceiling or high on a wall. They should be located away from the kitchen and at least 10 feet from the stove, to reduce false alarms.

According to the National Fire Protection Agency, smoke alarms were present in 74 percent of reported home fires between the years 2014 and 2018. When smoke alarms were present, they operated properly in 89 percent of the fires. The risk of dying in reported home structure fires is 55 percent lower in homes with working smoke alarms than in homes with no alarms or none that worked. Almost forty-one percent of home fire deaths were caused by fires in properties with no smoke alarms or smoke alarms that failed to operate.

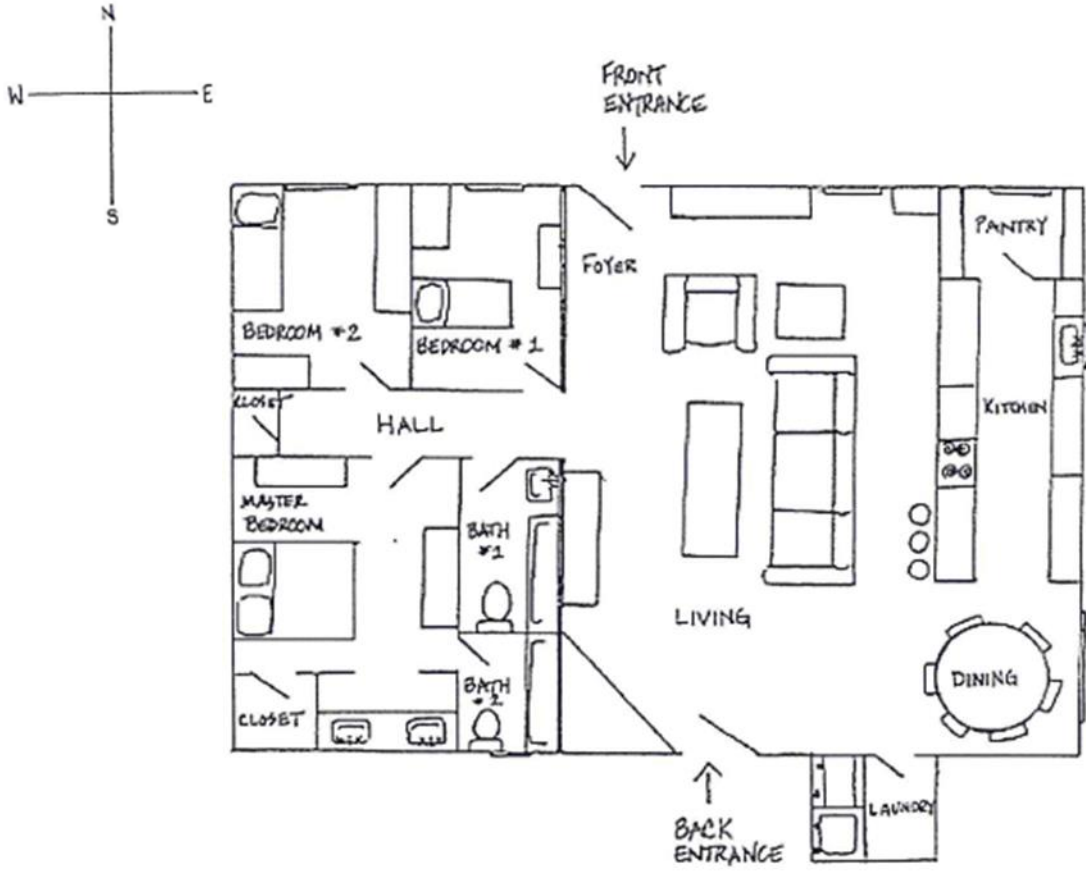
Power source issues were the most common factors when smoke alarms failed to operate. The National Fire Protection Association (NFPA) recommends changing the batteries in your smoke alarm every 6 months. NFPA also recommends testing smoke alarms at least once per month by pressing the "test" button located on the smoke alarm.

VISUAL RECALL #1 - TRAFFIC SIGN CODES

TRAFFIC SIGNS

CODE 1			
CODE 2			
CODE 3			
CODE 4			
CODE 5			
CODE 6			

VISUAL RECALL #2 – HOUSE PLAN



9

TEST NAME (CLASSIFICATION)												
(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(1)
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(2)
(C)	(C)	(C)	(C)	(C)	(C)	(C)	(C)	(C)	(C)	(C)	(C)	(3)
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(4)
(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(5)
(F)	(F)	(F)	(F)	(F)	(F)	(F)	(F)	(F)	(F)	(F)	(F)	(6)
(G)	(G)	(G)	(G)	(G)	(G)	(G)	(G)	(G)	(G)	(G)	(G)	(7)
(H)	(H)	(H)	(H)	(H)	(H)	(H)	(H)	(H)	(H)	(H)	(H)	(8)
(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(9)
(J)	(J)	(J)	(J)	(J)	(J)	(J)	(J)	(J)	(J)	(J)	(J)	(10)
(K)	(K)	(K)	(K)	(K)	(K)	(K)	(K)	(K)	(K)	(K)	(K)	(11)
(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(12)
(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(13)
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(14)
(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(15)
(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(16)
(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(Q)	(17)
(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(18)
(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(19)
(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(T)	(20)
(U)	(U)	(U)	(U)	(U)	(U)	(U)	(U)	(U)	(U)	(U)	(U)	(21)
(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(22)
(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(23)
(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(24)
(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(Y)	(25)
(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(26)

10

BOOKLET NUMBER					
(0)	(0)	(0)	(0)	(0)	(0)
(1)	(1)	(1)	(1)	(1)	(1)
(2)	(2)	(2)	(2)	(2)	(2)
(3)	(3)	(3)	(3)	(3)	(3)
(4)	(4)	(4)	(4)	(4)	(4)
(5)	(5)	(5)	(5)	(5)	(5)
(6)	(6)	(6)	(6)	(6)	(6)
(7)	(7)	(7)	(7)	(7)	(7)
(8)	(8)	(8)	(8)	(8)	(8)
(9)	(9)	(9)	(9)	(9)	(9)

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TEST DATE					
(0)	(0)	(0)	(0)	(0)	(0)
(1)	(1)	(1)	(1)	(1)	(1)
(2)	(2)	(2)	(2)	(2)	(2)
(3)	(3)	(3)	(3)	(3)	(3)
(4)	(4)	(4)	(4)	(4)	(4)
(5)	(5)	(5)	(5)	(5)	(5)
(6)	(6)	(6)	(6)	(6)	(6)
(7)	(7)	(7)	(7)	(7)	(7)
(8)	(8)	(8)	(8)	(8)	(8)
(9)	(9)	(9)	(9)	(9)	(9)

12

TEST ANSWERS (1-192)																							
1	a	b	c	d	e	49	a	b	c	d	e	97	a	b	c	d	e	145	a	b	c	d	e
2	a	b	c	d	e	50	a	b	c	d	e	98	a	b	c	d	e	146	a	b	c	d	e
3	a	b	c	d	e	51	a	b	c	d	e	99	a	b	c	d	e	147	a	b	c	d	e
4	a	b	c	d	e	52	a	b	c	d	e	100	a	b	c	d	e	148	a	b	c	d	e
5	a	b	c	d	e	53	a	b	c	d	e	101	a	b	c	d	e	149	a	b	c	d	e
6	a	b	c	d	e	54	a	b	c	d	e	102	a	b	c	d	e	150	a	b	c	d	e
7	a	b	c	d	e	55	a	b	c	d	e	103	a	b	c	d	e	151	a	b	c	d	e
8	a	b	c	d	e	56	a	b	c	d	e	104	a	b	c	d	e	152	a	b	c	d	e
9	a	b	c	d	e	57	a	b	c	d	e	105	a	b	c	d	e	153	a	b	c	d	e
10	a	b	c	d	e	58	a	b	c	d	e	106	a	b	c	d	e	154	a	b	c	d	e
11	a	b	c	d	e	59	a	b	c	d	e	107	a	b	c	d	e	155	a	b	c	d	e
12	a	b	c	d	e	60	a	b	c	d	e	108	a	b	c	d	e	156	a	b	c	d	e
13	a	b	c	d	e	61	a	b	c	d	e	109	a	b	c	d	e	157	a	b	c	d	e
14	a	b	c	d	e	62	a	b	c	d	e	110	a	b	c	d	e	158	a	b	c	d	e
15	a	b	c	d	e	63	a	b	c	d	e	111	a	b	c	d	e	159	a	b	c	d	e
16	a	b	c	d	e	64	a	b	c	d	e	112	a	b	c	d	e	160	a	b	c	d	e
17	a	b	c	d	e	65	a	b	c	d	e	113	a	b	c	d	e	161	a	b	c	d	e
18	a	b	c	d	e	66	a	b	c	d	e	114	a	b	c	d	e	162	a	b	c	d	e
19	a	b	c	d	e	67	a	b	c	d	e	115	a	b	c	d	e	163	a	b	c	d	e
20	a	b	c	d	e	68	a	b	c	d	e	116	a	b	c	d	e	164	a	b	c	d	e
21	a	b	c	d	e	69	a	b	c	d	e	117	a	b	c	d	e	165	a	b	c	d	e
22	a	b	c	d	e	70	a	b	c	d	e	118	a	b	c	d	e	166	a	b	c	d	e
23	a	b	c	d	e	71	a	b	c	d	e	119	a	b	c	d	e	167	a	b	c	d	e
24	a	b	c	d	e	72	a	b	c	d	e	120	a	b	c	d	e	168	a	b	c	d	e
25	a	b	c	d	e	73	a	b	c	d	e	121	a	b	c	d	e	169	a	b	c	d	e
26	a	b	c	d	e	74	a	b	c	d	e	122	a	b	c	d	e	170	a	b	c	d	e
27	a	b	c	d	e	75	a	b	c	d	e	123	a	b	c	d	e	171	a	b	c	d	e
28	a	b	c	d	e	76	a	b	c	d	e	124	a	b	c	d	e	172	a	b	c	d	e
29	a	b	c	d	e	77	a	b	c	d	e	125	a	b	c	d	e	173	a	b	c	d	e
30	a	b	c	d	e	78	a	b	c	d	e	126	a	b	c	d	e	174	a	b	c	d	e
31	a	b	c	d	e	79	a	b	c	d	e	127	a	b	c	d	e	175	a	b	c	d	e
32	a	b	c	d	e	80	a	b	c	d	e	128	a	b	c	d	e	176	a	b	c	d	e
33	a	b	c	d	e	81	a	b	c	d	e	129	a	b	c	d	e	177	a	b	c	d	e
34	a	b	c	d	e	82	a	b	c	d	e	130	a	b	c	d	e	178	a	b	c	d	e
35	a	b	c	d	e	83	a	b	c	d	e	131	a	b	c	d	e	179	a	b	c	d	e
36	a	b	c	d	e	84	a	b	c	d	e	132	a	b	c	d	e	180	a	b	c	d	e
37	a	b	c	d	e	85	a	b	c	d	e	133	a	b	c	d	e	181	a	b	c	d	e
38	a	b	c	d	e	86	a	b	c	d	e	134	a	b	c	d	e	182	a	b	c	d	e
39	a	b	c	d	e	87	a	b	c	d	e	135	a	b	c	d	e	183	a	b	c	d	e
40	a	b	c	d	e	88	a	b	c	d	e	136	a	b	c	d	e	184	a	b	c	d	e
41	a	b	c	d	e	89	a	b	c	d	e	137	a	b	c	d	e	185	a	b	c	d	e
42	a	b	c	d	e	90	a	b	c	d	e	138	a	b	c	d	e	186	a	b	c	d	e
43	a	b	c	d	e	91	a	b	c	d	e	139	a	b	c	d	e	187	a	b	c	d	e
44	a	b	c	d	e	92	a	b	c	d	e	140	a	b	c	d	e	188	a	b	c	d	e
45	a	b	c	d	e	93	a	b	c	d	e	141	a	b	c	d	e	189	a	b	c	d	e
46	a	b	c	d	e	94	a	b	c	d	e	142	a	b	c	d	e	190	a	b	c	d	e
47	a	b	c	d	e	95	a	b	c	d	e	143	a	b	c	d	e	191	a	b	c	d	e
48	a	b	c	d	e	96	a	b	c	d	e	144	a	b	c	d	e	192	a	b	c	d	e

SCRATCH PAPER

NAME:	
MAILING ADDRESS: Include CITY, STATE and ZIP CODE	
EMAIL ADDRESS:	
PHONE NUMBER:	

