Please open and read the Program Overview on page 2 and the Pre-course Reading Assignments on page 3 as soon as you receive this package.

QUESTIONS? Contact APSP at:

APSP Career Institute
2111 Eisenhower Avenue, Suite 500
Alexandria, VA 22314
703-838-0083, ext. 274
ci@APSP.org
APSP.org/education
Overview of This Study Guide

Congratulations on your decision to take the CMS Certified Maintenance Specialist course! This instructor-led course is the first step in a journey that could lead to a long and rewarding career in the pool and spa service industry. This course will give you the core knowledge of pool and spa technology and systems, but much of what you get out of it will depend on what YOU put into the learning experience.

The APSP Career Institute staff and course instructors created this Study Guide to assist you in being successful in the classroom, on the certification exam, and, ultimately, in your job. Take time now to read through this Guide so you get a good idea of what it offers. As you begin your advance preparation for the course – yes, you have some reading assignments to do before the course starts – please flip to:

**Strategies for Effective Studying**, page 4, for insider tips on the 7 steps to study success.

**Time Management**, page 7, to help you organize and prepare a plan to comfortably complete your pre-class study.

**Breakdown of Questions by Unit**, page 8, to get the “lay of the land” on the Manual contents, and which units to really focus your attention on.

Set aside several hours before the course to do the assigned reading. You’ll be glad you did once you arrive at the course! You’ll have “homework” to do during the course, so having already read the key content in the Manual will save you a lot of time and allow you to focus on areas where you may need more study time.

This Study Guide will provide you with a very good idea of what to expect when you get to the course, the importance of advance preparation, and how to do your best on the certification exam. Read it carefully and take the suggestions to heart – it will pay off for you!
Pre-course Reading Assignments

The APSP Service Tech Manual, 4th Edition, is the primary text for the CMS course. Revised in 2010, this was a significant update to the Manual; so previous editions may not be used for the CMS course in the place of this 4th Edition. Also, you MUST bring your Service Tech Manual, CMS Workbook, and this Study Guide to the CMS course with you.

Once you arrive at the course, you will be assigned “homework” each day in the CMS Workbook to be completed overnight. You can make things a lot easier on yourself during the course if you’ve read the key content in the Manual before you get there.

Take a look at Unit 1, page 1 and you’ll see Learning Objectives listed for the Certified Maintenance Specialist. This is the critical knowledge you need to learn in this unit. You can find that key content by looking for the clipboard icon as you go through this and the other units. Unit 1 is important for CMS students, so you’ll see a lot of these icons in this unit — some units there will be fewer. So, here are the chapters, listed unit by unit, that you should read prior to the class:

Unit 1: Safety – Read all chapters
Unit 2: Practical Knowledge – Read all chapters
Unit 3: Water Quality – Read all chapters
Unit 4: Structures and Finishes – Read Chapter 4-1 and Chapter 4-3
Unit 5: Circulation, Filtration – Read Chapters 5-1, 5-2, 5-3 (basic terms only), and Chapter 5-5 (page 5-46 only)
Unit 6: Electrical – Read Chapters 6-1, 6-2, 6-3 (basic terms only – no math), 6-7 and 6-8
Unit 7: Pump Motors – Read Chapter 7-1 (pages 7-1 to 7-6 only)
Unit 8: Heaters and Optional Equipment – Read Chapter 8-1, 8-2 (pages 8-7 thru 8-16), 8-3 (pages 8-30 thru 8-32), 8-4 (pages 8-34 thru 8-37), 8-5 (pages 8-38 thru 8-40), 8-7, and 8-8
Unit 9: Control Systems – Read Chapter 9-1, 9-2 (pages 9-7 thru 9-10), 9-3 (9-19 thru 9-21)
Unit 10: Maintenance – Read all chapters

If you want to try the Test Your Knowledge questions at the end of each Unit, do it! The answers are in Appendix 3 in the back of the Manual.
Strategies for Effective Studying

Studying. When was the last time you had to study? If it's been a while, or if you're a little nervous about it, don't worry! We know that and we want to help make it a little less painful for you! Follow these steps and you'll be well on your way to feeling organized, well prepared, and in control.

**Step 1 – Assemble your tools.**
First, you need to take a little shopping trip, or maybe your office manager has these items to give to you. Either way, you'll need:

a. “Post-it Notes” – either the smallest squares or the small flags/tabs. You don't need a lot – one small package should be plenty.

b. Yellow highlighter – avoid darker colors that can obscure the text.

c. Basic calculator – If it is silent, and can add, subtract, multiply and divide, it’ll work for this course. Only silent, non-programmable calculators are permitted in the exam. Cell phone calculator functions may not be used during the exam, so get yourself the basic calculator and use it throughout the course and exam.

d. Loose-leaf paper – and maybe a little binder for the paper. Using loose-leaf paper for any note-taking allows you to reshuffle the paper for use in studying. Write on just one side so you don’t forget something on a back side.

**Step 2 – Maximize your time investment – get organized from the start.**

a. Start your assigned reading with the Post-its at hand. As you begin a new Unit create a tab, writing the number and title of the unit on the tab, so you can go quickly to that page when you need to later. For Unit 1 place the tab at the top of the page, just below the right top corner, and then work down the right side as you tab each successive unit. Make it look organized and you'll be able to move through the Manual quickly and efficiently. You can use the tabs in the Workbook too, if you like.

b. Bring your Post-its to the class, too. If there's a key concept covered you may want to make a tab and label it for quick reference during the exam.

**Step 3 – Get the lay of the land – page through the Manual first**

a. Take a look at Page 4 of this Study Guide for the reading assignments and then page through the Service Tech Manual to look at the sections assigned. Now look at the breakdown of questions for each Unit. Clearly, there are Units that are considered to be more important for the CMS candidate than others – and those are the ones with the most exam questions associated with them; Water Quality, Circulation and Filtration, Heaters and Accessories, and Maintenance. So, you need to prioritize these in your preparation.

b. Look at the Appendices in the back of the Service Tech Manual. The Glossary is a great resource if you come across an unfamiliar term. Look it up! The General Index will be a great tool during the exam to look up a key word if you’re having trouble answering a question and need to find it in the text. There's even a Troubleshooting Index that takes the General Index to the next level of detail. Put a tab on the key Appendices.

c. Finally, check out the first page of each Unit. Each has a list of CMS Learning Objectives – the key concepts you need to know. You'll see that little clipboard icon throughout the Units whenever a learning objective is covered in the text. Pay attention to these – you may even want to use your highlighter on them as you find them in the reading.
Step 4 – Do the assigned reading before the class – just do it.

a. The time invested will be worth it in the long run. Believe me, at the end of the first and second days of the class you’ll want to just do your homework and get some sleep – not catch up on the reading you should have done ahead. Save yourself some long nights and do the reading before you arrive.

b. Keep your notebook at hand as you read. If a concept or problem is new to you or you’re not quite clear on it, write it in your notebook and note the page. That way, you will be reminded to ask a question about it in class if you still have questions after the instructor covers it.

c. If you’re new to pool and spa maintenance you should plan to spend at least an hour reading the content in each of the four key Units (those with 8 questions or more on the exam), and a little less time than that on each of the remaining units.

d. Hold it! That’s about 8 hours of reading before the class even starts?! It might be, depending on how quickly you read and understand the content. It would be easy to make excuses – too busy, too little time – for not doing the assigned reading before arriving at the class. But the benefits to you are immense if you invest the time.

e. Go easy on the highlighting during your reading. Keep the highlighter use for the classroom. As the instructor goes through the lessons, use the highlighter to bring attention to the critical content he/she covers. This will help you focus on the most important concepts.

Step 5 – It’s time for class! Caffeine-up and Grab a Seat – in the front row

a. Make the most of the class. Seriously, a little caffeine and a seat in the front row are going to help you make the most of the classroom instruction. You’ll be alert, close to the screen for optimal viewing, and you’ll be the first to get your questions answered. That’s called maximizing the experience.

b. Have your Service Tech Manual open and follow along in the book, as best you can, as the instructor goes through the PowerPoint presentation on the screen. There are page references on each slide so you can always get oriented quickly if you lose your place.

c. Use your highlighter to mark important content covered by the instructor. Use your Post-its to tab REALLY important content (you’ll know it when you hear it). Take a note if there is content you want to be sure to study later. Sometimes even just recording a page number and a word or two in your notes is enough of a reminder to go back to it.

d. Be an active learner in the classroom – it will help you stay alert and focused on the instruction. If the instructor asks a question, put up your hand. If you’ve done your reading and are paying attention, chances are, you’ll have the right answer. If something is unclear, put up your hand and ask. There are no “dumb” questions. And try not to just hold questions until the break – the instructor needs a break, too!

e. Take 5 minutes of each break to go back over the content just covered and make any notes of key concepts while it’s all still fresh in your mind. You may feel like they just opened the fire hose of information on you— taking a few minutes to look over the Unit may help you organize your thoughts, jot down some notes, and focus in on the key concepts.
Step 6 – Make the homework count

a. You will be assigned some homework from the CMS Workbook at the end of Days 1 and 2. This is an opportunity, not a chore! The workbook questions will require that you go back over the content taught during the day and will reinforce the learning. This is the best way to really check that you’ve learned the concept.

b. Resist the temptation to share answers with other participants. Yes, it will get you through the homework more quickly; but you won’t be benefitting from finding the answer yourself.

c. What’s the value of finding the answer yourself? Well, one advantage is on the exam. There will surely be questions that you need to look up. You’re working against the clock… 75 questions in 90 minutes. The tabs you’ve put in make that look-up a little bit quicker. But really knowing where to go back and find an answer comes ONLY from having paged through the manual and, quite literally, remembering where you saw it. That’s where doing the homework pays off on the exam.

Step 7 – The final push

a. Spend the night before the exam re-reading your class notes, writing any important notes into the back of your Workbook, and ensuring your Manual is well organized with tabs or flags to mark your way.

b. If you have classroom instruction on the day of the exam make sure you spend your lunch break going over the new material to ensure you’ve got it marked as needed. Spend any free study time before the exam reviewing the four main units.

c. Relax! If you’ve followed the steps outlined above you’ll be well on your way to a very successful date with the CMS exam.

The strategies just described will help you be a more successful student in the CMS course. Here are a few final study tips that will help you produce better results.

- **Do your reading during daylight hours.** Research shows that 60 minutes of study during the day is equivalent to 90 minutes of study at night.

- **Plan blocks of time to study.** Generally 1 hour blocks work best. 50 minutes of reading/study, followed by a 10 minute break.

- **Set a goal for the study period.** Create a schedule and then set a goal for completing a certain unit or portion of a unit. Hold yourself accountable.

- **Know your learning type.** Think about what works best for you when you’re trying to learn something new. Visual learners prefer to read the material or see photos or graphics to learn new material — the Service Tech Manual and the PowerPoint slides will likely be their primary focus of attention. Auditory learners learn best through group discussion or listening to the instructor’s description of the systems and procedures. Tactile learners learn best by doing – they prefer a hands-on approach. Since this is a classroom course, those who prefer to learn by doing will benefit from reading ahead of the course and then applying that knowledge on the job site by actually doing the work described in the manual. Once you know your learning style, you can adjust your study accordingly.

- **Use the Manual as a tool, not a crutch.** You’ll be taking an “open book” exam. Unless you’ve been in the pool/spa service industry for many years, it would be foolish to think that, because it’s an “open book” exam, you can just roll in, sit through the class, and then pass the test by opening the Manual and looking up each answer. It’s a timed test, and if you have to look up all the answers, you will run out of time. Bottom line — you need to walk into the exam prepared, and use the manual as a back-up on the toughest questions.
Time Management

Your time management before you arrive at the course is probably more important than how you manage your time once you’re there. So, let’s assume the following time management goals during the course:

• Arrive 15 minutes early to get checked in, seated, and caffeinated.
• Arrive back from breaks promptly.
• Spend at least 10 minutes of the lunch break reviewing the morning’s instruction.
• After a dinner break, head to a quiet spot to complete the homework assigned and study for the exam.
• Use the lunch break preceding the exam to ensure your Manual and Workbook are well organized for the exam.

The hard part is finding time to do the assigned reading and other suggested preparation before you arrive at the course. Time is fleeting, but here are some ideas that might help you carve out the necessary prep time:

• Look at your schedule leading up to the course and identify at least 8 one-hour study periods in the 2 weeks leading up to the course start date. Put those periods on your calendar and stick by the schedule. If you have to miss a period, make an immediate adjustment and add a replacement period.

• Limit your advance study/reading to one hour blocks. If you’re not used to extended stretches of technical reading, one hour’s worth of content will be all you can really absorb. If you find you’re not making enough progress in each period, adjust and either add 15 minutes to each period, or add a few more 1 hour periods to your calendar.

• Select a location where you can read/study effectively. If you have children at home, this might mean visiting the local library “quiet room” to get your reading completed. Will your employer allow you some time “on the job” to do the reading at the office? If so, find a quiet spot and do it there.

• If you find yourself procrastinating, try these tips to get back on track:
  • Give yourself a little reward for each unit you complete.
  • Ask someone to check up on you – peer pressure, or boss pressure, works!
  • Use a daily TO DO list or create a daily schedule and put your reading in a priority position. Resolve to abide by the list/schedule!
  • If you still find yourself off track, then track your time for a day to find out why you’re struggling. This may help in other aspects of your life, too.

• Take it seriously. This is your career we’re talking about. Nobody ever complained about having “studied too much” for this exam. Most people like being well prepared and then going through the exam quickly and easily. It feels good!

  By failing to prepare, you are preparing to fail.
  Benjamin Franklin
### Breakdown of Exam Questions by Unit

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topic</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Safety</td>
<td>7 questions</td>
</tr>
<tr>
<td>2</td>
<td>Practical Knowledge</td>
<td>4 questions</td>
</tr>
<tr>
<td>3</td>
<td>Water Quality</td>
<td>17 questions</td>
</tr>
<tr>
<td>4</td>
<td>Structures and Finishes</td>
<td>3 questions</td>
</tr>
<tr>
<td>5</td>
<td>Circulation and Filtration</td>
<td>15 questions</td>
</tr>
<tr>
<td>6</td>
<td>Electrical Requirements (includes lighting)</td>
<td>5 questions</td>
</tr>
<tr>
<td>8</td>
<td>Heaters &amp; Optional Equipment</td>
<td>6 questions</td>
</tr>
<tr>
<td>9</td>
<td>Control Systems</td>
<td>6 questions</td>
</tr>
<tr>
<td>10</td>
<td>Maintenance</td>
<td>12 questions</td>
</tr>
</tbody>
</table>

**75 questions total**

Review the Learning Objectives on the first page of each Unit in the Service Tech Manual and focus on the content that covers those objectives. Plan your study time on each Unit with this breakdown in mind. Units 3, 5, 8, and 10 deserve a lot of attention!

### The Course Agenda

Each offering of the CMS Certified Maintenance Specialist course will be unique. Even if the instructor remains the same, the student needs and questions will be different, the examples given by the instructor will vary, and even the schedule and sequence of the lessons may be different. But there are key components that will remain the same in every course offering:

- Course textbooks
  - CMS Workbook
- Instructional materials – APSP CMS Program PowerPoint slides
- Content to be covered – The slides and texts will cover the course material

You should have the course textbooks – the **APSP Service Tech Manual, 4th Edition** and the **CMS Workbook** – having arrived with this Study Guide. These texts form the core of the program and the Manual is also used for the CST Certified Service Technician course, and to prepare for the CSP Certified Service Professional exam. An investment in this Manual can pay off for years to come as a resource and a textbook when advancing your career.
The instructional materials provided to each CMS instructor include the PowerPoint presentations for each lesson. The instructor’s use of our CMS PowerPoint slides ensures that you are receiving the content needed to be successful in this course. The next section goes into more detail about the slides themselves.

You will notice references in this Study Guide to the 2.5 day course. This Study Guide presumes you are enrolled in an intensive 2.5 day course (versus the “night school” or “Saturday school” options, which spread the course over several weeks) since this is the most popular method of delivering the course. Of course, most of the tips and strategies are applicable to any type of program schedule.

These materials – the Manual, Workbook, and PowerPoint slides – work hand-in-hand to provide you with the core knowledge necessary to be a pool/spa maintenance specialist. The textbook is your ongoing resource, while the PowerPoint lessons give you the depth of understanding you need to use this information in your day-to-day work life. Whichever program format you are using, these core materials will ensure you’re getting a comparable learning experience to others enrolled in the CMS program.

**THE PowerPoint SLIDES**

The CMS PowerPoint slides are used by all of our instructors and ensure that your class will cover all the key content necessary for you to be successful on the exam and in your work. This is a sample slide from the program. Note the page reference in the bottom right corner. This allows you to easily follow along with the instruction in your Manual.

There are also “Test Your Knowledge” slides that quiz you at the end of a lesson. Be prepared to call out your answer when these pop up.

If you see any slides that don’t have the APSP copyright running down the CMS right border, they may be supplemental materials provided by your instructor. Ask the instructor about it to be sure. Supplemental materials are fine, but you will not be tested on the content.
The CMS Workbook

The CMS Workbook was created to help you focus on the key concepts in each lesson from the Service Tech Manual. The workbook may be used as a resource in the exam, so you can make notes throughout. Each lesson has the same key elements:

- Lesson Summary
- Learning Objectives grid
- Key terms
- Review Questions (different from the Test Your Knowledge questions in the Manual)
- Putting the lesson to work

Lessons from this Workbook will be assigned as homework during the course. As you do your assigned reading before the course, nothing is stopping you from also completing the key terms section of the lessons. This puts you a little bit ahead of the game once you get to the course. Save the review questions as homework, though. You may find that the classroom instruction will enhance your response to these questions beyond what you might have gotten just from the Manual text.

Take a look at the Lesson 1 Learning Objectives grid on page 4. Once you finish a lesson, come back to the grid on the first page of the lesson and “grade” yourself. If you don’t feel confident that you’ve got a good command of the knowledge expected, make a note and be sure to raise this issue with the instructor the next morning. Don’t leave questions unasked – it does you no good in the class, on the exam, or in your work.

Key terms, review questions and “putting the lesson to work” questions are all there to make sure you’re able to define the components (key terms), understand how they work in theory (review questions), and then put it in to practice on the job (putting the lesson to work). As you do your assigned reading, check out the “putting the lesson to work” questions, since some of them require you to check something there at the office, or in your truck. Go ahead and complete those questions. Tactile learners who “learn by doing” may find this especially useful for reinforcing the concepts covered in the reading.

You may not take any loose papers or notes into the exam. However, you may take the Manual and Workbook into the exam. So use the last few blank pages in the workbook to record any notes you think you may need during the exam.

Test-taking Tips

Once again, assemble your tools. You’ll need your Service Tech Manual, your CMS Workbook, a silent, non-programmable calculator, and two No. 2 pencils, for the exam. Preparing for the CMS exam itself requires that you think about several factors that may affect your performance:

- “Open book” format
- Multiple-choice questions
- Test anxiety
- Disability
Let’s look at each of these considerations and strategies for handling them.

“Open Book” Format
You can be lulled into a false sense of security knowing that you will have your Service Tech Manual and CMS Workbook available to you during the exam. You still need to have completed the reading and the homework and listened to the lectures to be successful. As mentioned previously, this is a timed test. You have 75 questions and 90 minutes to complete it. If you have to look up each answer, you WILL run out of time. Here’s a step-by-step test-taking strategy that will keep you on the right track to do your best!

1. Start the exam with the Manual and workbook closed, but well-organized using the tab system.

2. You can write in the exam booklet, so begin the exam with the intent of first completing the questions you know without opening the Manual. Mark those you skip with a question mark (?) in the margin.

3. Resist the temptation to open the book to “double-check” the questions you answer on the first pass. Save double-checking for the end, if time permits.

4. Once you’ve gone through the exam answering the “easy” questions, go back to the beginning, and tackle the ones you skipped.

5. Look for a key word or concept for the question – do you know which Unit to check? If you’ve studied the Manual, probably yes. In fact, you may be able to turn right to the appropriate page in that Unit. But, if you’re unsure where the answer might be, check that keyword or concept in your General Index for a page reference in that Unit.

6. Don’t spend more than a minute or two on any single question. If you’re struggling to find the answer, note the closest page reference on the test booklet next to the question, keep the question mark there, and come back to it later.

7. Finish your “second pass” through the exam, looking up answers as quickly as possible and moving on if you can’t find it.

8. The third pass is for the questions that have really stumped you. Hopefully, there aren’t too many of those, and you can find the answers with another minute of looking. If time is growing short, make an educated guess (see the next section).

9. If there’s still time left, you can now go back and double check calculations or those questions you did on the first pass and just want to be sure about.

10. Pay attention to the ½-hour time checks. You should have completed your first and second pass by the end of the first hour or close to it. That leaves you 30 minutes or so to work on the tough questions and then do a double check on calculations before you finish.

11. Don’t be upset when you see people getting up to leave… there’s no prize for being out the door first. Use the time given and do the job right.
Multiple-Choice Questions

The CMS exam is all multiple-choice questions and you are directed to choose the best answer to each question. There will be 4 possible responses to each question, labeled A, B, C, and D. Here are some test-taking strategies that are proven to help you be successful on a multiple-choice test:

1. Read the entire question and all of the answers before selecting a response. It sounds simple, but eagerness and rushing can cause some people to skim the question and then choose an answer to a question not actually asked.

2. As mentioned above, go through the exam and answer those of which you are certain, and mark those you skip with a (?) question mark. On the second pass, as you answer the questions you need to look up, erase your (?) mark. Leave it on those that will be considered on your third pass.

3. As you go through the exam, cross out the clearly wrong answers as part of a process of elimination. This way you are always increasing your odds of selecting a correct response.

4. Make sure the question and answer have the same “flow.” If an answer doesn’t agree grammatically with the question, you can usually eliminate it.

5. Some people cover the answers as they read the question, and anticipate the correct answer before looking at the choices. If the answer you thought of is there, then it is likely correct.

6. Your first response is usually your best choice, unless you discover you’ve misread the question. Don’t change an answer unless you’re sure you misunderstood, or did the wrong calculation the first time.

7. Watch for questions that use the word "NOT" in the question. This word will always be in bold and in capital letters, but you still need to read carefully.

8. A blank answer is a wrong answer. Always make a selection. If you are unsure, eliminate the clearly wrong answers, and then make an educated choice from those remaining. Part of the rationale of the first, second, and third pass is to ensure you’ve answered all the questions you know easily. The last thing you want is to run out of time before seeing the last 10 questions – and end up picking random answers in the last 30 seconds to questions you may have known!

9. A few exam notes: You may not write in your Manual or Workbook during the exam – no notes related to the exam may be taken out of the testing room. And, no, you cannot keep your test booklet. Everything is turned in at the end of the exam.

Handling Test Anxiety

There are a lot of reasons why you might experience test anxiety. Many of those who take the CMS exam have been out of school for a few years and aren’t used to studying or taking tests. Some have just never done well on written tests in school, and are nervous about taking any test, despite having plenty of industry knowledge and experience. And for others, this is all new content and a new career, so the thought of taking a test on it can really put some “butterflies in the stomach.” Any of these reasons, or others, can cause stress.
and anxiety levels to increase as test time approaches. If this describes you – or you think it might, come test time – here are some strategies to handle that anxiety.

1. **Prepare in advance.** The best way to reduce stress is to come in prepared. If you’ve done your assigned reading, listened to the lectures, and done your homework, you should be feeling pretty good about your chances on the exam… and rightfully so.

2. **Set realistic expectations.** You don’t need a 100% to pass! Take a little pressure off yourself. If you get a few questions wrong, that’s okay – you’ll still pass the exam.

3. **Get some sleep.** Come into the course well-rested and resist the temptation to stay up late partying during the course.

4. **Exercise.** Burn off some nervous energy by exercising in the morning. You’ll probably sleep better at night, too.

5. **Relax.** Everybody needs some “downtime,” and sometimes you need to actually schedule it in to your day. During the course, if you feel yourself getting wound up, spend half your lunch break taking a walk or sitting outside. Take a good dinner break before you tackle the homework and use that time to just “chill.”

6. **Use positive self-talk.** If you find yourself really getting spun up about the upcoming exam, consciously take control of your thoughts and redirect them to successes you’ve experienced, or peaceful and relaxing settings you enjoy. Keep a list if you need to and pull it out. The positive feelings that come from reliving your past accomplishments or a place of real peace will help you refocus and calm yourself. You can do this.

Test anxiety is a real problem for some people. Maybe not for you. But if you know one of your colleagues or classmates is really concerned about the exam, and may be experiencing this kind of anxiousness or anxiety, why not offer to get together and study? You’ll both benefit from the content review and you’ll have a chance to offer some positive messages to help bolster his/her spirit. You’ll be glad you did.

**Special Course and Test Accommodations for Individuals with Disabilities**

If you have a mental or physical disability that impacts your ability to access this course or take the CMS exam under the standard conditions, please contact the APSP Career Institute staff to discuss your special needs. APSP is committed to meeting the needs of any student with a documented disability. Call the Career Institute staff at **703-838-0083, ext. 274** to confidentially discuss any accommodations needed for your participation.

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Answers to practice questions:

1 - C, 2 - D, 3 - D, 4 - C, 5 - B, 6 - C, 7 - A, 8 - C, 9 - C, 10 - D
The Exam Answer Sheet

The answer sheet is where you’ll record your answers so that your exam can be scored electronically. You will receive instructions from the test administrator (proctor) on how to record your answers and supply the necessary personal information. A few things to note:

- Make sure you have two No. 2 pencils for the exam – in case one breaks.
- There are only 4 choices per question, so just ignore the (E) choices on the form.
- Check under the section labeled “Students” for information on filling in your answers properly.
- There are no “True or False” questions.
- If you change an answer during the exam, erase the first choice fully, so it doesn’t confuse the scoring machine.
- Erase any stray marks on the answer sheet before turning it in.
- You are welcome to ask questions of the test proctor at any time during the exam. You may not, however, speak to anyone else during the exam.
- Once you have finished the exam, turn in all your test materials to the proctor, and then leave the room.

Practice Questions

The CMS exam consists of 75 multiple choice questions. Your CMS Workbook asks open-ended questions to encourage you to investigate the subject and give as detailed an answer as possible. The PowerPoint lessons include some open-ended review questions that you and your classmates will answer in class. So, to practice answering some multiple-choice questions and utilize the strategies you’ve read about in this Study Guide, here are some practice questions for the exam. The answers can be found on page 13 – but no peeking!

1. Which of the following is a TRUE statement about the Virginia Graeme Baker Pool and Spa Safety Act?
   A. The Act took effect in 2005 and will expire in 2012.
   B. The Act requires every residential pool to install compliant drain covers.
   C. Local and state laws regarding drain covers and flow rates may be stricter than the VGB law.
   D. The Act requires public pool owners to install new energy-efficient pumps.

2. Calculate the surface area of a rectangular pool with a length of 40 feet and a width of 20 feet.
   A. 60 ft.
   B. 60 sq. ft.
   C. 800 ft.
   D. 800 sq. ft.
3. Which of the following is NOT a factor in determining water balance?
   A. TA
   B. pH
   C. TDS
   D. CyA

4. Which of the following should be tested first when conducting a routine water test on a residential pool?
   A. Cyanuric acid
   B. Calcium hardness
   C. Chlorine
   D. pH

5. Which of the following is NOT a common reason to install coping around a concrete pool?
   A. Provides a finished top to a pool shell
   B. Supports the bond beam
   C. Acts as an anti-splash device
   D. Serves as hand grip for bathers

6. What is the minimum backwash rate when using a high-rate sand filter?
   A. 5 gpm
   B. 10 gpm
   C. 15 gpm
   D. 20 gpm

7. The flow of electric current is measured in...
   A. Amps
   B. Volts
   C. Therms
   D. Ohms

8. Which of the following activities does NOT need to be done daily on a residential pool?
   A. Test the sanitizer and pH levels
   B. Check the water level
   C. Add a sequestering agent
   D. Collect debris

9. In a spa, high temperatures, along with aeration, can produce what result?
   A. Need to shock the spa daily
   B. Low pH
   C. High pH
   D. Staining of the surfaces

10. Which of the following is NOT a possible function of a valve actuator?
    A. Turn 2-way valve from normal to backwashing
    B. Direct pool water to a waterfall feature
    C. Turn diverter valve to switch operating modes
    D. Drive high speed operation, such as spa jets

(Answers on page 13)
Enjoy the CMS course, and good luck on your exam!