

Registration form

**pH Fundamentals CEU Training Course \$40.00
48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL \$20.00**

Start and finish dates: _____

You will have 90 days from this date in order to complete this course

List number of hours worked on assignment must match State requirement. _____

Name _____ **Signature** _____

I have read and understood the disclaimer notice on page 2. Digitally sign XXX

Address: _____

City _____ **State** _____ **Zip** _____

Email _____ **Fax (____)** _____

Phone:
Home (____) _____ **Work (____)** _____

Operator ID # _____ **Exp. Date** _____

Please circle/check which certification you are applying the course CEU's/PDH's.

Wastewater Collection _____ Wastewater Treatment _____ Distribution _____

Water Treatment _____ Other _____

Technical Learning College PO Box 3060, Chino Valley, AZ 86323
Toll Free (866) 557-1746 Fax (928) 272-0747 info@tlch2o.com

If you've paid on the Internet, please write your Customer# _____

Please invoice me, my PO# _____

**Please pay with your credit card on our website under Bookstore or Buy Now.
Or call us and provide your credit card information.**

DISCLAIMER NOTICE

I understand that it is my responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. I understand State laws and rules change on a frequent basis and I believe this course is currently accepted in my State for CEU or contact hour credit, if it is not, I will not hold Technical Learning College responsible. I also understand that this type of study program deals with dangerous conditions and that I will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. I will call or contact TLC if I need help or assistance and double-check to ensure my registration page and assignment has been received and graded.

You can obtain a printed version of the course manual from TLC for an additional \$59.95 plus shipping charges.

AFFIDAVIT OF EXAM COMPLETION

I affirm that I personally completed the entire text of the course. I also affirm that I completed the exam without assistance from any outside source. I understand that it is my responsibility to file or maintain my certificate of completion as required by the state or by the designation organization.

Grading Information

In order to maintain the integrity of our courses we do not distribute test scores, percentages or questions missed. Our exams are based upon pass/fail criteria with the benchmark for successful completion set at 70%. Once you pass the exam, your record will reflect a successful completion and a certificate will be issued to you.

Do not solely depend on TLC's Approval list for it may be outdated.

Some States and many employers require the final exam to be proctored.

<http://www.abctlc.com/downloads/PDF/PROCTORFORM.pdf>

A second certificate of completion for a second State Agency \$25 processing fee.

All downloads are electronically tracked and monitored for security purposes.

We will stop mailing the certificate of completion so we need either your fax number or e-mail address. We will e-mail the certificate to you, if no e-mail address; we will fax it to you.

pH Fundamentals Answer Key

Name _____

Phone _____

You are solely responsible in ensuring that this course is accepted for credit by your State. **No refunds.** Did you check with your State agency to ensure this course is accepted for credit?

Method of Course acceptance confirmation. Please fill this section

Website ___ Telephone Call ___ Email ___ Spoke to _____

Do not solely depend on TLC's Approval list for it may be outdated.

What is the approval number if Applicable? _____

You are responsible to ensure that TLC receives the Assignment and Registration Key. Please call us to ensure that we received it.

*You can use Adobe Acrobat DC Program to complete the assignment.
Please circle, underline, bold or X only one correct answer*

- | | |
|-----------------|-----------------|
| 1. A B C D E F | 17. A B C D E F |
| 2. A B C D E F | 18. A B C D E F |
| 3. A B C D E F | 19. A B C D E F |
| 4. A B C D E F | 20. A B C D E F |
| 5. A B C D E F | |
| 6. A B C D E F | |
| 7. A B C D E F | |
| 8. A B C D E F | |
| 9. A B C D E F | |
| 10. A B C D E F | |
| 11. A B C D E F | |
| 12. A B C D E F | |
| 13. A B C D E F | |
| 14. A B C D E F | |
| 15. A B C D E F | |
| 16. A B C D E F | |

**Please fax the answer key to TLC
(928) 272-0747**

Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of \$50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line. Thank you...

pH FUNDAMENTALS CEU TRAINING COURSE

CUSTOMER SERVICE RESPONSE CARD

NAME: _____

E-MAIL _____ PHONE _____

PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.

Very Easy 0 1 2 3 4 5 Very Difficult

2. Please rate the difficulty of the testing process.

Very Easy 0 1 2 3 4 5 Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.

Very Similar 0 1 2 3 4 5 Very Different

4. How did you hear about this Course? _____

5. What would you do to improve the Course?

How about the price of the course?

Poor _____ Fair _____ Average _____ Good _____ Great _____

How was your customer service?

Poor _____ Fair _____ Average _____ Good _____ Great _____

Any other concerns or comments.

pH Fundamentals CEU Training Course Assignment

The Assignment (Exam) is also available in Word on the Internet for your Convenience, please visit www.ABCTLC.com and download the assignment and e-mail it back to TLC.

You will have 90 days from the start of this course to complete in order to receive your Professional Development Hours (**PDHs**) or Continuing Education Unit (**CEU**). A score of 70 % is necessary to pass this course. We prefer if this exam is proctored. No intentional trick questions. If you should need any assistance, please email all concerns and the completed manual to info@tlch2o.com.

We would prefer that you utilize the enclosed answer sheet in the front, but if you are unable to do so, type out your own answer key. Please include your name and address on your Answer Key and make copy for yourself. You can e-mail or fax your Answer Key along with the Registration Form to TLC. **(S) Means answer may be plural or singular. Multiple Choice Section, One answer per question and please use the answer key.**

1. What is the theory that states that an acid is a substance that produces Hydronium ions when it is dissolved in water, and a base is one that produces hydroxide ions when dissolved in water?
A. Newton's
B. Alkalinity
C. Lord Calvin's
D. Amadeus
E. Arrhenius
F. None of the Above
2. What is the term associated with a charged species, an atom or a molecule, that has lost or gained one or more electrons?
A. A proton
B. Ion
C. Anti-matter
D. An electron
E. A cation
F. None of the Above
3. What is a substance that has the ability to reduce other substances and is reductive in nature?
A. Protons
B. An electron donor
C. Anti-matter
D. Electrons
E. Cations
F. None of the Above
4. In chemistry, pH is a measure of the acidity or basicity of an aqueous solution. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline. Pure water has a pH very close to?
A. 5
B. 6
C. 7
D. 7.7
E. 7.5
F. None of the Above
5. According to the manual, which of the following parameter/methods/measurements determine a parameter using a concentration cell with transference by measuring the potential difference?
A. Primary pH standard values
B. Alkalinity
C. pH
D. pH measurement(s)
E. Measurement of pH
F. None of the Above

6. Mathematically speaking, pH is the negative logarithm of the activity of the (solvated) hydronium ion, often expressed as the measurement of?

- A. Electrons
- B. Alkalinity
- C. Hydronium ion concentration
- D. Cation measurement(s)
- E. Ions
- F. None of the Above

7. When measuring alkalinity in determining a stream's ability to neutralize acidic pollution from rainfall or wastewater, this measurement can be one of the best measures of the sensitivity of the stream to acid inputs.

- A. True
- B. False

8. One definition of pH is that it is defined as the decimal logarithm of the reciprocal of the _____, a_{H^+} , in a solution.

- A. Hydrogen ion activity
- B. Ion-selective electrode(s)
- C. (Solvated) hydronium ion
- D. Brønsted–Lowry acid–base theory
- E. Acid-base behavior
- F. None of the Above

9. With respect to standard buffer values, when more than two buffer solutions are used the electrode can be calibrated by fitting observed pH values to a straight line.

- A. True
- B. False

10. Commercial standard buffer solutions usually comes with information about value and a correction factor to be applied for what temperatures?

- A. 4 °C
- B. 25 °C
- C. 39 °F
- D. 10 °C
- E. 70 °F
- F. None of the Above

11. Because the pH scale is logarithmic, therefore pH is?

- A. Universal indicator
- B. A dimensionless quantity
- C. A Spectrophotometer
- D. Excess of Ion concentrations
- E. A set of non-linear equations
- F. None of the Above

12. What is the new pH scale is referred to as?

- A. Total scale
- B. POH
- C. P3H
- D. Ph₃
- E. POE
- F. None of the Above

13. Alkalinity is able to neutralize _____ and is measured in a quantitative capacity in an aqueous solution.

- A. Acid
- B. Base
- C. pH
- D. pH measurement(s)
- E. Bond formation
- F. None of the Above

14. When using a visual comparison of the test solution with a standard color chart, measuring pH values should be done to the?

- A. Universal indicator
- B. Colorwheel measurement
- C. Nearest whole number
- D. Spectrophotometer Example
- E. Lab test
- F. None of the Above

15. According to the manual, this device/method/calculation consists of a mixture of indicators that shows a continuous color change from pH 2 to pH 10.

- A. Universal indicator
- B. Colorimeter or spectrophotometer
- C. Spectrophotometer
- D. Excess of alkaline earth metal concentrations
- E. A set of non-linear simultaneous equations
- F. None of the Above

16. For strong acids and bases no calculations are necessary except in extreme situations. The pH of a solution containing a weak acid requires the solution of a quadratic equation.

- A. True
- B. False

17. If the pH of a solution contains a weak base, this may require?

- A. The solution of a cubic equation
- B. The solution of a linear equation
- C. The solution of a squared equation
- D. A set of linear simultaneous equations
- E. A set of non-linear simultaneous equations
- F. None of the Above

18. While the general case requires the pH solution of?

- A. The solution of a cubic equation
- B. The solution of a linear equation
- C. The solution of a squared equation
- D. A set of linear simultaneous equations
- E. A set of non-linear simultaneous equations
- F. None of the Above

19. Since pH is a logarithmic scale, a difference of one pH unit is equivalent to a _____ difference in hydrogen ion concentration

- A. 1
- B. 2
- C. 5
- D. 10
- E. 100
- F. None of the Above

20. According to the text, what is the pH of pure water at 50 °C?

- A. 7.7
- B. 8.0
- C. 9.0
- D. 6.55
- E. 7.00
- F. None of the Above