Registration form

CONFINED SPACE $250.00

48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL $50.00

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 or License #_____Exp. Date_____

Please circle/check which certification you are applying the course CEU's.
Water Distribution ___ Collections ___ Other _____

Technical Learning College TLC 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.

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.

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 or neglect or damage caused by this CEU education training or course material suggestion or error. 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.

State Approval Listing Link, check to see if your State accepts or has pre-approved this course. Not all States are listed. Not all courses are listed. If the course is not accepted for CEU credit, we will give you the course free if you ask your State to accept it for credit.

Professional Engineers; Most states will accept our courses for credit but we do not officially list the States or Agencies. Please check your State for approval.

State Approval Listing URL…
http://www.tlch2o.com/downloads/PDF/CEU%20State%20Approvals.pdf

You can obtain a printed version of the course manual from TLC for an additional $169.95 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.

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.

For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

CERTIFICATION OF COURSE PROCTOR

Technical Learning College requires that our students who takes a correspondence or home study program course must pass a proctored course reading, quiz and final examination. The proctor must complete and provide to the school a certification form approved by the commission for each examination administered by the proctor.

Instructions. When a student completes the course work, fill out the blanks in this section and provide the form to the proctor with the examination.

Name of Course:_____

Name of Licensee:_____

Instructions to Proctor. After an examination is administered, complete and return this certification and examination to the school in a sealed exam packet or in pdf format.

I certify that:

1. I am a disinterested third party in the administration of this examination. I am not related by blood, marriage or any other relationship to the licensee which would influence me from properly administering the examination.
2. The licensee showed me positive photo identification prior to completing the examination.
3. The enclosed examination was administered under my supervision on _____. The licensee received no assistance and had no access to books, notes or reference material.
4. I have not permitted the examination to be compromised, copied, or recorded in any way or by any method.
5. Provide an estimate of the amount of time the student took to complete the assignment.

Time to complete the entire course and final exam. _____

Notation of any problem or concerns:

Name and Telephone of Proctor (please print):

_____

_____

Signature of Proctor

Confined Space Answer Key

Name_____

Phone _____

Did you check with your State agency to ensure this course is accepted for credit?
No refunds.
You are responsible to ensure this course is accepted for credit. No refunds.
Method of Course acceptance confirmation. Please fill this section

Website __ Telephone Call___ Email____ Spoke to_____

Did you receive the approval number, if applicable? _____

What is the course approval number, if applicable? _____

You can electronically complete this assignment in Adobe Acrobat DC.

Please Circle, Bold, Underline or X, one answer per question. A **felt tipped pen** works best.

1. A B	20. A B C D	39. A B C D	58. A B C D
2. A B C D	21. A B C D	40. A B C D	59. A B C D
3. A B C D	22. A B C D	41. A B C D	60. A B C D
4. A B C D	23. A B C D	42. A B	61. A B C D
5. A B C D	24. A B	43. A B C D	62. A B C D
6. A B C D	25. A B C D	44. A B C D	63. A B C D
7. A B C D	26. A B C D	45. A B C D	64. A B C D
8. A B C D	27. A B C D	46. A B C D	65. A B C D
9. A B C D	28. A B C D	47. A B	66. A B C D
10. A B C D	29. A B C D	48. A B C D	67. A B C D
11. A B C D	30. A B C D	49. A B C D	68. A B C D
12. A B C D	31. A B C D	50. A B C D	69. A B C D
13. A B C D	32. A B C D	51. A B	70. A B C D
14. A B C D	33. A B C D	52. A B C D	71. A B C D
15. A B C D	34. A B C D	53. A B C D	72. A B C D
16. A B C D	35. A B C D	54. A B	73. A B C D
17. A B C D	36. A B C D	55. A B C D	74. A B
18. A B C D	37. A B C D	56. A B C D	75. A B
19. A B C D	38. A B C D	57. A B C D	76. A B

77. A B C D
78. A B C D
79. A B
80. A B
81. A B
82. A B C D
83. A B C D
84. A B C D
85. A B C D
86. A B
87. A B C D
88. A B
89. A B
90. A B
91. A B
92. A B
93. A B C D
94. A B C D
95. A B C D
96. A B C D
97. A B C D
98. A B C D
99. A B C D
100. A B
101. A B C D
102. A B
103. A B
104. A B C D
105. A B
106. A B C D
107. A B C D
108. A B C D
109. A B
110. A B
111. A B
112. A B
113. A B C D
114. A B C D
115. A B C D
116. A B C D
117. A B
118. A B
119. A B C D
120. A B C D
121. A B C D
122. A B C D
123. A B
124. A B
125. A B C D
126. A B C D
127. A B C D
128. A B C D
129. A B C D
130. A B C D
131. A B
132. A B C D
133. A B C D
134. A B C D
135. A B
136. A B C D
137. A B C D
138. A B
139. A B C D
140. A B C D
141. A B C D
142. A B C D
143. A B C D
144. A B C D
145. A B C D
146. A B
147. A B
148. A B
149. A B C D
150. A B C D
151. A B C D
152. A B
153. A B
154. A B
155. A B
156. A B C D
157. A B C D
158. A B C D
159. A B C D
160. A B
161. A B
162. A B C D
163. A B
164. A B C D
165. A B C D
166. A B C D
167. A B C D
168. A B C D
169. A B C D
170. A B C D
171. A B
172. A B
173. A B C D
174. A B C D
175. A B C D
176. A B C D
177. A B C D
178. A B C D
179. A B C D
180. A B C D
181. A B C D
182. A B C D
183. A B C D
184. A B C D
185. A B C D
186. A B C D
187. A B C D
188. A B C D
189. A B C D
190. A B C D
191. A B C D
192. A B C D
193. A B C D
194. A B C D
195. A B
196. A B C D
197. A B C D
198. A B C D
199. A B C D
200. A B
201. A B C D
202. A B C D
203. A B C D
204. A B C D
205. A B C D
206. A B C D
207. A B C D
208. A B C D

209. A B C D
210. A B C D
211. A B C D
212. A B C D
213. A B C D
214. A B C D
215. A B C D
216. A B C D
217. A B C D
218. A B
219. A B C D
220. A B C D
221. A B C D
222. A B C D
223. A B
224. A B
225. A B C D
226. A B
227. A B
228. A B C D
229. A B C D
230. A B C D
231. A B C D
232. A B C D
233. A B C D
234. A B C D
235. A B C D
236. A B C D
237. A B C D
238. A B C D
239. A B C D
240. A B C D
241. A B C D
242. A B C D
243. A B C D
244. A B C D
245. A B
246. A B C D
247. A B C D
248. A B
249. A B C D
250. A B C D
251. A B C D
252. A B C D
253. A B C D
254. A B C D
255. A B C D
256. A B C D
257. A B
258. A B C D
259. A B C D
260. A B C D
261. A B C D
262. A B C D
263. A B C D
264. A B C D
265. A B C D
266. A B C D
267. A B C D
268. A B C D
269. A B C D
270. A B
271. A B C D
272. A B
273. A B C D
274. A B C D
275. A B C D
276. A B C D
277. A B C D
278. A B C D
279. A B C D
280. A B C D
281. A B C D
282. A B C D
283. A B C D
284. A B C D
285. A B C D
286. A B C D
287. A B C D
288. A B C D
289. A B C D
290. A B C D
291. A B C D
292. A B C D
293. A B C D
294. A B C D
295. A B C D
296. A B C D
297. A B C D
298. A B C D
299. A B C D
300. A B C D
301. A B C D
302. A B C D
303. A B C D
304. A B C D
305. A B
306. A B
307. A B C D
308. A B
309. A B C D
310. A B C D
311. A B C D
312. A B
313. A B C D
314. A B C D
315. A B C D
316. A B C D
317. A B C D
318. A B C D
319. A B C D
320. A B C D
321. A B C D
322. A B C D
323. A B C D
324. A B C D
325. A B
326. A B C D
327. A B C D
328. A B C D
329. A B C D
330. A B
331. A B C D
332. A B C D
333. A B C D
334. A B C D
335. A B C D
336. A B C D
337. A B C D
338. A B C D
339. A B C D
340. A B C D

341. A B C D	356. A B C D	371. A B C D	386. A B C D
342. A B C D	357. A B C D	372. A B C D	387. A B C D
343. A B C D	358. A B C D	373. A B C D	388. A B C D
344. A B C D	359. A B C D	374. A B C D	389. A B C D
345. A B C D	360. A B C D	375. A B C D	390. A B C D
346. A B C D	361. A B C D	376. A B C D	391. A B C D
347. A B C D	362. A B	377. A B C D	392. A B C D
348. A B C D	363. A B C D	378. A B C D	393. A B C D
349. A B C D	364. A B C D	379. A B C D	394. A B C D
350. A B C D	365. A B C D	380. A B C D	395. A B C D
351. A B C D	366. A B C D	381. A B C D	396. A B C D
352. A B C D	367. A B C D	382. A B C D	397. A B C D
353. A B C D	368. A B	383. A B C D	398. A B C D
354. A B C D	369. A B C D	384. A B C D	399. A B C D
355. A B C D	370. A B C D	385. A B C D	400. A B C D

Amount of Time for Course Completion – How many hours you spent on course?

Must match State Hour Requirement _____ (Hours)

I understand that I am 100 percent responsible to ensure that TLC receives the Assignment and Registration Key and that it is accepted for credit by my State or Providence. I understand that TLC has a zero tolerance towards not following their rules, cheating or hostility towards staff or instructors. I need to complete the entire assignment for credit. There is no credit for partial assignment completion. My exam was proctored. I will contact TLC if I do not hear back from them within 2 days of assignment submission. I will forfeit my purchase costs and will not receive credit or a refund if I do not abide with TLC's rules. I will not hold TLC liable for any confined space injury or death.

Please Sign that you understand and will abide with TLC's Rules.

_____

Signature

Please write down any questions you were not able to find the answers or that have errors.

Please e-mail or fax this survey along with your final exam

CONFINED SPACE CEU 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.

Please rate the difficulty of your course.
Very Easy 0 1 2 3 4 5 Very Difficult

Please rate the difficulty of the testing process.
Very Easy 0 1 2 3 4 5 Very Difficult

Please rate the subject matter on the exam to your actual field or work.
Very Similar 0 1 2 3 4 5 Very Different

How did you hear about this Course? _____

What would you do to improve the Course?

_____

_____

Any other concerns or comments.

_____

_____

When Finished with Your Assignment

REQUIRED DOCUMENTS
Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions
If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX
If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**

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 course contains general OSHA's federal rule requirements. Please be aware that each state implements safety regulations that may be more stringent than OSHA's regulations. Check with your state environmental/health agency for more information. These rules change frequently and are often difficult to interpret and follow. Be careful to be in compliance with your regulatory agencies and do not follow this course for any compliance concerns.

For Texas TCEQ Wastewater Licensed Operators Important Information

Wastewater/Collections Rule Changes

Rule Changes and Updates for Domestic Wastewater Systems

On Nov. 4, 2014, TCEQ commissioners adopted revisions to 30 Texas Administrative Code (TAC), Chapter 217, Design Criteria for Domestic Wastewater Systems, and "re-adopted" previously repealed rules in 30 TAC, Chapter 317, Design Criteria Prior to 2008.

Some of the changes to Chapter 217 include:

- Adding new definitions and clarifying existing definitions;
- Adding design criteria and approval requirements for rehabilitation of existing infrastructure;
- Adding design criteria for new technologies, including cloth filters and air lift pumps;
- Making changes to reflect modern practices, standards and trends;
- Modifying rule language to improve readability and enforceability; and
- Modifying the design organic loadings and flows for a new wastewater treatment facility.

SUBCHAPTER A: ADMINISTRATIVE REQUIREMENTS §§217.1 - 217.18

Effective December 4, 2015 §217.1. Applicability. (a) Applicability. (1) This chapter applies to the design, operation, and maintenance of: (A) domestic wastewater treatment facilities that are constructed with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (B) treatment units that are altered, constructed, or re-rated with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (C) collection systems that are constructed with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (D) collection system units that are altered, constructed, or re-rated with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (E) existing domestic wastewater treatment facilities that do not have a current Texas Pollutant Discharge Elimination System permit or a Texas Land Application Permit and are required to have an active wastewater permit; (F) existing wastewater treatment facilities and collection systems that never received approval for plans and specifications from the executive director; and (G) collection system rehabilitation projects covered in §217.56(c) and §217.69 of this title (relating to Trenchless Pipe Installation; and Maintenance, Inspection, and Rehabilitation of the Collection System). (2) Domestic wastewater treatment facilities, treatment units, collection systems, and collection system units with plans and specifications approved by the executive director that were received on or after August 28, 2008 and before the effective date of this chapter must comply with the rules in this chapter, as they existed immediately before the effective date of the amendments to this chapter.

The rules in Texas Commission on Environmental Quality Page 2 Chapter 217 - Design Criteria for Domestic Wastewater Systems effect immediately before the effective date of the amendments to this chapter are continued in effect for that purpose. (3) This chapter does not apply to: (A) the design, installation, operation, or maintenance of domestic wastewater treatment facilities, treatment units, collection systems, or collection system units with plans and specifications that were approved by the executive director on or before August 27, 2008, which are governed by Chapter 317 of this title (relating to Design Criteria Prior to 2008) or design criteria that preceded Chapter 317 of this title; and (B) systems regulated by Chapter 285 of this title (relating to On-Site Sewage Facilities); or collection systems or wastewater treatment facilities that collect, transport, treat,

or dispose of wastewater that does not have the characteristics of domestic wastewater, although the wastewater may contain domestic wastewater.
(b) The executive director may grant variances from new requirements added by the amendments of this chapter to a person who proposes to construct, alter, or re-rate a collection system or wastewater treatment facility if the plans and specifications for the project are submitted within 180 days after the date the amendments to this chapter are effective, provided the plans and specifications comply with the rules in effect immediately prior to the amendment. Adopted November 4, 2015 Effective December 4, 2015

The link to the rules is available on the TCEQ website at
https://www.tceq.texas.gov/rules/indxpdf.html

For Texas Students Only….

Please sign and date this notice

Printed Name

_____

Signature Date

_____

Texas Students Only
Acknowledgement of Notice of Potential Ineligibility for License
You are required to sign and return to TLC or your credit will not be reported.

Name: _____

Date of Birth: _____

Email Address: _____

By signing this form, I acknowledge that Technical Learning College notified me of the following:

- the potential ineligibility of an individual who has been convicted of an offense to be issued an occupational license by the Texas Commission on Environmental Quality (TCEQ) upon completion of the educational program;
- the current TCEQ Criminal Conviction Guidelines for Occupational Licensing, which describes the process by which the TCEQ's Executive Director determines whether a criminal conviction:
- renders a prospective applicant an unsuitable candidate for an occupational license;
- warrants the denial of a renewal application for an existing license; or
- warrants revocation or suspension of a license previously granted.
- the right to request a criminal history evaluation from the TCEQ under Texas Occupations Code Section 53.102; and
- that the TCEQ may consider an individual to have been convicted of an offense for the purpose of denying, suspending or revoking a license under circumstances described in Title 30 Texas Administrative Code Section 30.33.

Enrollee Signature: _____ Date: _____

Name of Training Provider/Organization: Technical Learning College

Contact Person: Melissa Durbin Role/Title: Dean

Confined Space CEU Training Course Assignment

The Confined Space CEU course assignment is 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 receipt of this manual to complete it in order to receive your Professional Development Hours (PDHs) or Continuing Education Unit (CEU). A score of 70 % or better is necessary to pass this course. If you should need any assistance, please email or fax all concerns and the completed ANSWER KEY to info@tlch2o.com.

Select one answer per question. Please utilize the answer key. (s) on the answer will indicate either plural and singular tenses.

Safety Section

Confined Space Entry Program
Purpose
1. The Confined Space Entry Program is provided to protect authorized employees that will enter confined spaces from safety or health hazards associated with confined spaces.
A. True B. False

Scope
2. According to the text, you are required to recognize _____ associated with confined spaces.
A. Internal configurations C. The dangers and hazards
B. Permit-Required Confined Spaces D. None of the above

Definitions
Confined space:
3. A confined space is large enough or so configured that an employee can _____.
A. Have sufficient oxygen C. Recognize serious safety or health hazards
B. Bodily enter and perform work D. None of the above

4. A confined space has limited or restricted means for _____.
A. An internal configuration C. Hazardous atmosphere
B. Entry or exit D. None of the above

5. A confined space is not designed for _____.
A. An internal configuration C. Continuous employee occupancy
B. Hazardous atmospheres D. None of the above

6. A permit required confined space (permit space) contains or has a potential to contain a _____.
A. Recognized external configuration C. Entry or exit
B. Hazardous atmosphere D. None of the above

7. A permit required confined space (permit space) contains a material that has _____.
A. Authorized entrants C. The potential for engulfing an entrant
B. Non-hazardous atmospheres D. None of the above

8. A permit required confined space (permit space) has an internal configuration such that _____ could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
A. An entrant C. An internal configuration
B. Non-hazardous atmosphere D. None of the above

9. A permit required confined space (permit space) contains any other recognized serious safety or _____.
A. Engulfing problems C. Health hazard
B. Strange atmospheres D. None of the above

10. Each _____ must be marked "Confined Space - Entry Permit Required".
A. Permit-Required Confined Space C. Entry or exit
B. Non-hazardous atmosphere D. None of the above

Confined Space Hazards
11. Fatalities and injuries constantly occur among construction workers who are required to enter _____.
A. An external configuration C. Confined spaces
B. Non-hazardous atmosphere D. None of the above

12. Workers encounter both inherent and _____ within confined workspaces.
A. An external configuration C. Non-hazardous atmosphere
B. Induced hazards D. None of the above

Inherent Hazards
13. _____ are associated with specific types of equipment and the interactions among them. These hazards can be electrical, thermal, chemical, mechanical, etc.
A. Inherent hazards C. Non-recognized serious safety or health hazards
B. Hazardous gases D. None of the above

14. Inherent hazards include high voltage, radiation generated by equipment, _____, omission of protective features, high or low temperatures, high noise levels, and high-pressure vessels and lines.
A. Defective design C. An internal configuration
B. Non-hazardous atmosphere D. None of the above

15. Inherent hazards usually cannot be eliminated without degrading or shutting down the system or equipment. Therefore, emphasis must be placed on _____.
A. Hazard control methods C. Non-continuous employee occupancy
B. Non-hazardous atmospheres D. None of the above

Induced Hazards
16. _____ result from a multitude of incorrect decisions and actions that occur during the actual construction process.
A. Induced hazards C. Build-up of explosive gases
B. Below-grade locations D. None of the above

17. Some examples of induced hazards are: omission of protective features, physical arrangements that may cause unintentional worker contact with electrical energy sources, oxygen-deficient atmospheres created at the bottom of pits or shafts, lack of safety factors in structural strength, and _____.

A. Common confined spaces C. Extreme temperatures
B. Flammable atmospheres D. None of the above

Typical Examples of Confined Workspaces

18. Confined workspaces in construction contain _____.

A. Purging agents C. Both inherent and induced hazards
B. Below-grade location D. None of the above

Vaults

19. Workers must enter _____ found on the construction jobsite to perform a number of functions.

A. Common confined spaces C. A variety of vaults
B. Hazards D. None of the above

20. The restricted nature of vaults and their frequently _____ are reasons that vaults have an assortment of safety and health problems.

A. Purged atmosphere C. Explosive atmosphere
B. Below-grade location D. None of the above

Oxygen-Deficient Atmosphere

21. The ever-present possibility of _____ is one of the major problems confronting construction workers while working in vaults.

A. A common confined space C. An oxygen-deficient atmosphere
B. Vaults D. None of the above

Explosive or Toxic Gases, Vapors, or Fumes

22. _____ produce toxic fumes which are confined in the limited atmosphere of a confined space.

A. Purging agents C. Welding and soldering
B. Below-grade locations D. None of the above

Electrical Shock

23. _____ results because the contractor has not provided an approved grounding system or the protection afforded by ground-fault circuit interrupters or low-voltage systems.

A. Common confined space C. An oxygen-deficient atmosphere
B. Electrical shock D. None of the above

Purging

24. Purging agents such as nitrogen and argon may enter a vault from adjacent areas. These agents may displace the oxygen in the vault and asphyxiate workers almost immediately.

A. True B. False

Materials Falling In and On

25. According to the text, a _____ normally considered a problem associated with confined spaces is material or equipment which may fall into the vault.

A. Common confined space C. Oxygen-deficient atmosphere
B. Hazard D. None of the above

26. If the _____ were removed, materials could fall into the vault, causing injury to the workers inside.
A. Purging agents C. Explosive gases
B. Manhole covers D. None of the above

Condenser Pits
27. Because of their large size, condenser pits found in the construction of nuclear power plants are often overlooked as _____.
A. Common confined spaces C. Potentially hazardous confined spaces
B. Hazards D. None of the above

28. Condenser pits create large containment areas for the accumulation of toxic fumes and gases, or for the creation of _____ when purging with argon, Freon, and other inert gases.
A. Purging agents C. Build-up of explosive gases
B. Oxygen-deficient atmospheres D. None of the above

29. Workers above will create other _____ by dropping equipment, tools, and materials into the condenser pit.
A. Hazards C. Problems with the pumps
B. Collection places D. None of the above

Manholes
30. Manholes are necessary to provide a means of entry into and exit from vaults, tanks, and pits, but these confined spaces may present _____ which could cause injuries and fatalities.
A. Serious hazards C. Sumps
B. Ventilation ducts D. None of the above

31. _____ are associated with manholes. For example, workers could fall into manholes when covers are missing.
A. Nitrogen purges C. A variety of hazards
B. Collection places D. None of the above

Pipe Assemblies
32. The pipe assembly is one of the _____ encountered throughout the construction site,
A. Electrical shock risks C. Most frequently unrecognized types of confined spaces
B. Ventilation ducts D. None of the above

33. Once inside a pipe assembly, workers are faced with _____, often caused by purging with argon or another inert gas.
A. Nitrogen purge or dry air C. Potential oxygen-deficient atmospheres
B. Collection places D. None of the above

34. The worker in a pipe may be subject to toxic atmospheres from _____ generated by the worker in the pipe, or by other workers operating outside the pipe at either end.
A. Electrical shock C. Sumps
B. Welding fumes D. None of the above

35. Pipes have _____ which provide little room for the workers to move about and gain any degree of comfort while performing their tasks.
A. Nitrogen purge or dry air C. Generally restricted dimensions
B. Collection places D. None of the above

36. _____ is another problem to which the worker is exposed when inside a pipe assembly.
A. Electrical shock C. Welding fumes
B. Ventilation ducts D. None of the above

37. The worker may suffer _____ caused by heat within the pipe run.
A. Heat prostration C. Problems with the pumps
B. Exposure to toxic gases D. None of the above

Ventilation Ducts
38. Ventilation ducts create a _____ which moves heated and cooled air and exhaust fumes to desired locations in the plant.
A. Collection place C. Shortcut to other areas
B. Complex network D. None of the above

39. Depending on where the ventilation ducts are located, _____.
A. Nitrogen purge or dry air may be found C. Oxygen deficiency could exist
B. Collection places could exist D. None of the above

40. Other problems associated with work inside ventilation ducts are electrical shock hazards and _____.
A. Heat stress C. Welding fumes
B. Water D. None of the above

Tanks
41. Tanks are _____ that are used for a variety of purposes, including the storage of water and chemicals.
A. Nitrogen purge locations C. Another type of confined workspace
B. Collection places D. None of the above

42. According to the text, oxygen-deficient atmospheres, along with toxic and explosive atmospheres created by the substances stored in the tanks, present hazards to workers.
A. True B. False

43. Heat in tanks may cause _____, particularly on a hot day.
A. Heat prostration C. Problems with pumps
B. Equipment failure D. None of the above

44. The _____ often requires workers to climb ladders to reach high places on the walls of the tank.
A. Electrical shock potential C. Nature of the tank's structure
B. Ventilation duct D. None of the above

Sumps
45. Workers may encounter _____ when entering sumps.
A. Nitrogen purge or dry air C. An oxygen-deficient atmosphere
B. Problems with pumps D. None of the above

46. Because of the wet nature of the sump, the use of power tools inside may create _____ hazards.
A. Electrical shock C. Slipping
B. Inadequate lighting D. None of the above

Containment Cavities

47. Containment cavities are characterized by little or no air movement. Ventilation is always a problem, and the possibility of oxygen deficiency exists.

A. True B. False

48. Welding and other gases may easily collect in containment cavities, creating _____.

A. Toxic atmospheres C. Confined workspaces
B. Poor ventilation D. None of the above

Electrical Transformers

49. Before electrical transformers are opened, they must be _____ by pumping in air.

A. Nitrogen purged C. Well vented
B. Collection places D. None of the above

50. Before entering a transformer, testing for _____ is mandatory.

A. Welding fumes C. Oxygen deficiency and for toxic atmospheres
B. Ventilation D. None of the above

Heat Sinks

51. Heat sinks are larger pit areas that contain cooling water in the event there is a problem with the pumps located at the plant water supply that would prevent cooling water from reaching the nuclear reactor core.

A. True B. False

52. When inside the heat sink, workers are exposed to welding fumes and electrical hazards, particularly because water accumulates in the _____.

A. Bottom of the sink C. Equipment
B. Top of the sink D. None of the above

53. It is difficult to communicate with workers in the _____ because radio signals are deadened by the rebar in the walls of the structure.

A. Pump station C. Collection places
B. Heat sink D. None of the above

Unusual Conditions

Confined Space within a Confined Space

54. One of the most hazardous confined spaces of all is a confined space within a confined space.

A. True B. False

55. The _____ associated with the outer confined space and those of the inner confined space both require testing, monitoring, and control.

A. Potential hazards C. Manholes
B. Access passages D. None of the above

56. Often, only the outer space is evaluated for potential hazards. Workers are also faced with _____ when they enter the inner space.

A. Poor lighting C. Potentially hazardous conditions
B. Excavations D. None of the above

57. Workers entering a vessel inside an access pit should do so only after both spaces have been evaluated and _____.
A. Purged C. Proper control measures established
B. Accessed D. None of the above

Hazards in One Space Entering another Space
58. According to the text, during an examination of _____, situations are often encountered which are not always easy to evaluate or control.
A. Tanks C. Confined spaces in construction
B. Excavations D. None of the above

59. A room that classifies as a confined space may be relatively safe for work. However, access passages from other areas outside or adjacent to the room could, at some point, allow the transfer of _____ into the "safe" room.
A. Hazardous agents C. Unauthorized workers
B. Equipment and tools D. None of the above

60. Welding fumes and other _____ generated in one room may easily travel through a pipe into another area, causing that area to change from a safe to an unsafe workplace.
A. Toxic materials C. Noise
B. Construction debris D. None of the above

61. In a situation where hazards in one space may enter another, a serious problem is that workers working in the "safe" area are not aware of the _____.
A. Oxygen Level C. Hazards leaking into their area
B. Access passages D. None of the above

Permitted Confined Space Entry Program
62. Subpart P (of OSHA's Construction Regulations) applies to all _____ in the earth's surface.
A. Open excavations C. Pits
B. Vaults D. None of the above

63. According to the text, all trenches are _____.
A. Too narrow for work C. Safe for short-term work
B. Excavations D. None of the above

64. According to the text, all excavations are _____.
A. Permit-required C. Access passages
B. Not trenches D. None of the above

Permit Required Confined Space Entry General Rules
65. According to the text, only authorized and trained employees may enter a _____ or act as safety watchmen/attendants.
A. Hazard C. Confined space
B. Pipe D. None of the above

66. Employees are not permitted to smoke _____ or near the entrance/exit area.
A. Near air and oxygen monitors C. In a confined space
B. During a side entry D. None of the above

67. A watchmen or attendant must be present at all times during _____.
A. Confined space entries C. Air monitoring
B. Access passages D. None of the above

68. According to the text, constant visual or voice communication will be maintained between the safety watchmen and employees entering _____.
A. Inner spaces C. A confined space
B. Access passages D. None of the Above

69. According to the text, no _____ will be made or work conducted below the level of any hanging material or material that could cause engulfment.
A. Monitoring of entrant status C. Identification of authorized entrants
B. Bottom or side entry D. None of the above

70. _____ is required before workers are allowed to enter any permit-required confined space. Oxygen levels in the confined space must be between 19.5 and 23.5 percent.
A. Air and oxygen monitoring C. Communication
B. A supervisor D. None of the above

71. Air and oxygen monitoring will check the levels of oxygen, explosive gasses, and carbon monoxide. Entry will not be permitted if explosive gas is detected above one-half the _____.
A. Nitrogen level C. Lower Explosive Limit (LEL)
B. Argon level D. None of the above

72. When covers are removed, all _____ will be protected by a barricade to prevent injuries to others.
A. Air and oxygen monitoring C. Openings to confined spaces
B. Side entries D. None of the above

Confined Space Duties and Responsibilities
Employees
73. Employees must not _____ that have not been evaluated for safety concerns.
A. Follow program requirements C. Enter any confined spaces
B. Report hazards D. None of the above

Management
74. Management must provide annual confined space training to all employees that may need it.
A. True B. False

75. Management must annually review the confined space entry program and all entry permits.
A. True B. False

Rescue or Training Department
76. The Rescue or Training Department must provide proper equipment for entry and rescue teams.
A. True B. False

Entry Supervisor
77. Entry supervisors must coordinate all entry procedures, tests, _____, equipment, and other activities related to the permit space entry.
A. Publicity C. Permits
B. News media D. None of the above

78. Before endorsing the permit and allowing entry to begin, the _____ must check that all appropriate entries have been made on the permit, all tests specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place.
A. Entry supervisor C. Unauthorized persons
B. Attendant D. None of the above

79. The rescue workers must terminate the entry and cancel the permit when the entry is complete or there is a need for terminating the permit.
A. True B. False

80. The entry supervisor must verify that rescue services are available and that the means for summoning them are operable.
A. True B. False

Entry Attendants
81. A responsibility of the entry attendant is to know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
A. True B. False

82. A responsibility of the entry attendant is to be aware of _____ of hazard exposure on entrants.
A. The attendants' primary duty C. Possible behavioral effects
B. Worker training D. None of the above

83. A responsibility of the entry attendant is to continuously maintain an accurate count of entrants in the permit space and ensure a means to _____.
A. Timely complete the work C. Accurately identify authorized entrants
B. Add workers when needed D. None of the above

84. A responsibility of the entry attendant is to remain outside the permit space during entry operations until _____.
A. Assistance is requested C. Relieved by another attendant
B. Safety equipment arrives D. None of the above

85. A responsibility of the entry attendant is to _____ as necessary to monitor entrant status and alert entrants of the need to evacuate.
A. Communicate with entrants C. Check the work progress
B. Encourage entrants D. None of the above

86. A responsibility of the entry attendant is to monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space, and order the entrants to immediately evacuate if the attendant detects a prohibited condition.
A. True B. False

87. A responsibility of the entry attendant is to summon rescue and other emergency services as soon as the attendant _____ to escape the permit space hazards.
A. Identifies entrant status C. Determines the entrants need assistance
B. Gets approval to summon rescue D. Accurately unauthorized entrants

88. A responsibility of the entry attendant is to perform non-entry rescues as specified by that rescue procedure and entry supervisor.
A. True B. False

Duties of the Person Authorizing or in Charge of the Entry
Note: This section further explains the duties of the Entry Supervisor.

89. If the person who would otherwise issue an entry permit is in charge of the entry and present during the entire entry, a written permit is still required even if that person uses a checklist.
A. True B. False

90. The person in charge of the entry may also serve as the Entrant at the site.
A. True B. False

Special Considerations During A Permit Required Entry
91. Welding, drilling, or sludge removal work being performed in a permit entry confined space could cause the atmosphere in the space to change.
A. True B. False

92. In situations such as welding, drilling, or sludge removal, continuous air monitoring of the confined space throughout the time of the entry is not required.
A. True B. False

93. If the _____ leave the confined space for any significant period of time, the atmosphere of the confined space must be retested before the workers are allowed to reenter the confined space.
A. Workers C. Unauthorized persons
B. Attendants D. None of the above

Unauthorized Persons
94. Actions must be taken when _____ approach or enter a permit space while entry is under way.
A. Authorized workers C. Unauthorized persons
B. Rescue Workers D. None of the above

95. _____ must be warned to stay away from the permit space,
A. Authorized workers C. Entrants
B. Unauthorized persons D. None of the above

96. If _____ have entered the space, they must be advised to exit immediately.
A. Authorized workers C. Unauthorized persons
B. Entrants D. None of the above

97. If unauthorized persons have entered the permit space, inform the _____ and the entry supervisor.
A. Authorized entrants C. Unauthorized persons
B. Attendant D. None of the above

Entrants
98. According to the text, all _____ must be authorized by the entry supervisor to enter permit spaces, have received the required training, have used the proper equipment, and observed the entry procedures and permit requirements
A. Workers C. Unauthorized persons
B. Entrants D. None of the above

99. Entrants are required to know the _____ that may be faced during entry.
A. Spaces C. Unauthorized persons
B. Hazards D. None of the above

100 Entrants must know information on the mode, signs or symptoms, and consequences of exposure.
A. True B. False

101. Entrants are required to communicate with the _____ as necessary to enable the attendant to monitor their status and alert them of the need to evacuate the space if necessary.
A. Inspectors C. Unauthorized persons
B. Attendant D. None of the above

102. Entrants are required to alert the attendant whenever the entrant recognizes any warning signs or symptoms of exposure to a dangerous situation, or whenever any prohibited condition is detected.
A. True B. False

103. Entrants must exit the permit space as quickly as possible when given an order to evacuate by the attendant or entry supervisor.
A. True B. False

Permit Required Confined Space Entry General Rules

Confined Space Entry Permits

104. According to the text, Confined Space Entry Permits must be completed before any employee _____.
A. Begins work C. Enters a permit-required confined space
B. Leaves the permit space D. None of the above

105. Before entry, the Confined Space Entry Permit must be completed and signed by an authorized member of management.
A. True B. False

106. _____ will expire before the shift is completed or if any pre-entry conditions change.
A. Air and oxygen monitoring C. Confined Space Entry Permits
B. Project schedules D. None of the above

107. _____ will be maintained on file for 12 months.
A. Air and oxygen monitoring data C. Confined Space Entry Permits
B. Project schedules D. None of the above

Contractor Entry

108. According to the text, all work by _____ that involves the entry into confined spaces will follow the procedures of this program.
A. Management C. Non-company employees
B. Supervisors D. None of the above

109. Specific hazards of the confined spaces to be entered must be provided to contractor management prior to beginning entry or work.
A. True B. False

Confined Space Training and Education

110. According to the text, OSHA's General Industry Regulation, §1910.146 Permit-required confined spaces, contains requirements for practices and procedures to protect employees in general industry from the hazards of entry into permit-required confined spaces. This regulation does not apply to construction.

A. True B. False

111. According to the text, OSHA's Construction Safety and Health Regulations Part 1926 do not contain a permit-required confined space regulation. Subpart C, §1926.21 Safety training and education specifies training for personnel who are required to enter confined spaces and defines a "confined or enclosed space."

A. True B. False

§1926.21 Safety training and education. (Partial)

112. §1926.21(b)(6)(i) states: All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.

A. True B. False

113. According to §1926.21(b)(6)(ii), "_____" means any space having a limited means of egress, which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere.

A. Confined or enclosed space C. Hazardous work area
B. Confined space hazard D. None of the above

114. According to §1926.21(b)(6)(ii), _____ include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, and pipelines.

A. Confined or enclosed spaces C. Hazardous work areas
B. Confined space hazards D. None of the above

115. OSHA's Construction Regulations also contain requirements dealing with _____ in underground construction, underground electric transmission and distribution work, excavations, and welding and cutting.

A. Confined or enclosed spaces C. Hazardous work areas
B. Confined space hazards D. None of the above

116. American National Standard ANSI Z117.1-1989, Safety Requirements for Confined Spaces, provides _____ to be followed while entering, exiting and working in confined spaces at normal atmospheric pressure.

A. Guidelines C. Minimum safety requirements
B. Suggestions D. None of the above

Your Employer is Responsible for Certain Training Requirements

GENERAL

117, It is the responsibility of your employer to ensure that all workers who must enter a permit entry confined space in the course of their work are informed of appropriate procedures and controls for entry into such spaces.

A. True B. False

TRAINING FOR AUTHORIZED ENTRANTS

118. Your employer must ensure that all authorized entrants have received appropriate training prior to entering any permit entry confined space.
A. True B. False

119. Each worker must be trained to recognize hazards before entering and must understand the need to perform _____ to determine if it is safe to enter.
A. A permit review C. Appropriate testing
B. Plan review D. None of the above

120. Each worker must be taught how to properly use all personal protective equipment required for entry or rescue. Workers must also be taught how to properly use _____ and shields.
A. Air monitors C. Protective barriers
B. Tripods D. None of the above

121. Each worker must be trained to evacuate the confined space as rapidly as possible without help whenever ordered by the attendant, whenever _____, or whenever workers recognize the warning signs of exposure to substances in the confined space.
A. The shift ends C. An automatic evacuation alarm is activated
B. The attendant leaves D. None of the above

122. _____ must be trained in any special work practices or procedures that are necessary for permit entry confined space work.
A. Unauthorized persons C. Each worker
E. Each supervisor D. None of the above

TRAINING FOR PERSONS AUTHORIZING OR IN CHARGE OF ENTRY

123. According to the text, the person authorizing or in charge of entry shall be trained to recognize the effects of exposure to hazards that could be in the confined space.
A. True B. False

TRAINING FOR ATTENDANT

124. The attendant at a permit entry confined space must be trained in the company's emergency action plan.
A. True B. False

125. The attendant at a permit entry confined space must be trained in the proper use of the communications equipment furnished for communicating with _____ entering the confined space or for summoning emergency or rescue services.
A. Contractors C. Authorized workers
B. Unauthorized persons D. None of the above

126. The attendant at a permit entry confined space must be trained in _____ for summoning rescue or other emergency services.
A. Assigning personnel C. Authorized procedures
B. Using contractors D. None of the above

127. The attendant at a permit entry confined space must be trained to recognize the unusual actions of _____ which could indicate that they could be experiencing a toxic reaction to contaminants that could be present in the space.
A. Contractors C. A worker
B. Unauthorized persons D. None of the above

128. The attendant at a permit entry confined space must have rescuer training if the _____ will function as a rescuer also.
A. Contractor C. Attendant
B. Paramedics D. None of the above

129. The attendant at a permit entry confined space must have the same training as the workers who enter the confined space, if the permit specifies that the duty of the attendant will rotate among the _____ authorized to enter the confined space.
A. Contractors C. Workers
B. Rescuers D. None of the above

Other Hazards
Flammable Atmospheres
130. Enriched oxygen atmospheres, vaporization of flammable liquids, byproducts of work, and chemical reactions can all create _____.
A. Confined spaces C. A flammable atmosphere
B. Chemical reactions D. None of the above

131. When there is inadequate ventilation in a confined space, combustible gases or vapors will accumulate.
A. True B. False

132. Since many gases are _____, they will seek lower levels as in pits, sewers, and various types of storage tanks and vessels.
A. Heavier than air C. Toxic substances
B. Vapors D. None of the above

133. Lighter than air gases may rise and develop a _____ if trapped above the opening in a closed top tank.
A. Toxic cloud C. Flammable concentration
B. Toxic atmosphere D. None of the above

134. Flammable or explosive conditions within a confined space can be generated from the _____.
A. Atmosphere C. Byproducts of work procedures
B. Chemical reactions D. None of the above

135. Spontaneous chemical reactions in a confined space is a major cause of explosions in areas that contain combustible gas.
A. True B. False

136. One example of a chemical reaction forming a flammable atmosphere is when dilute sulfuric acid reacts with iron to form _____.
A. Nitrogen C. Acetylene
B. Hydrogen D. None of the above

137. In a dry state, compounds such as acetylene-metal compounds, peroxides, and nitrates have the potential to explode upon percussion or exposure to _____.
A. Toxic fumes C. High charges of static electricity
B. Increased temperature D. None of the above

138. Another class of chemical reactions that form flammable atmospheres arise from deposits of carbon, ferrous oxide, ferrous sulfate, iron, etc. that can be found in tanks used by the chemical and petroleum industry.
A. True B. False

139. According to the text, _____ are usually found during the process of loading, unloading, and conveying grain products, nitrated fertilizers, finely ground chemical products, and any other combustible material.
A. Toxic fumes C. Combustible dust concentrations
B. Confined spaces D. None of the above

140. High charges of static electricity can cause certain substances to _____ of sufficient energy to produce sparks and ignite a flammable atmosphere.
A. Release hydrogen C. Accumulate electrostatic charges
B. Form compounds D. None of the above

141. When the right air or oxygen to dust or gas mixture is present, sparks may also _____.
A. Produce toxic fumes C. Cause explosions
B. Be present in a confined space D. None of the above

Toxic Atmospheres
142. The entire spectrum of gases, vapors, and finely-divided airborne dust in industry can be regarded as _____.
A. High charges of static electricity C. Spontaneous chemical reactions
B. Toxic in a confined space D. None of the above

143. The sources of toxic atmospheres encountered may arise from: 1. The manufacturing process; 2. The product stored; or 3. The _____ in the confined space.
A. Toxic fumes C. Decomposition of organic matter
B. Operation performed D. None of the above

144. Mechanical and/or human error during loading, unloading, formulation, and production may also produce toxic gases which are _____.
A. Found in tanks C. Not part of the planned operation
B. Reactive D. None of the above

145. Carbon monoxide (CO) is an odorless, colorless gas that is formed from _____ such as wood, coal, gas, oil, and gasoline.
A. Decomposition of organic matter C. Incomplete combustion of organic materials
B. CO_2 D. None of the above

146. CO is an insidious toxic gas because of its poor warning properties.
A. True B. False

147. CO may be fatal at as little as 1000 ppm or 10% in air, and is considered dangerous at 200 ppm or 2%.
A. True B. False

148. According to the text, CO is a relatively abundant colorless, odorless gas. Therefore, any untested atmosphere must be suspect. It must also be noted that a safe reading on a combustible gas indicator does not ensure that CO is not present.
A. True B. False

149. Because CO may form as a result of chemical reactions or work activities, fatalities due to CO poisoning are not confined to _____.
A. Confined spaces C. Vaults
B. Any particular industry D. None of the above

150. Carbon monoxide results as a product of _____ when silo gas forms in grain storage elevators.
A. Organic materials C. Decomposition
B. CO_2 D. None of the above

151. Increased _____ levels resulting from the recirculation of diesel exhaust emissions can be prevented by strict control of the ventilation and the use of catalytic converters.
A. Organic C. Pollution
B. CO D. None of the above

Procedures for Atmospheric Testing - 1910.146 App B
OSHA Requirement
Sub-Part Title: General Environmental Controls
152. According to text, atmospheric testing is required for two distinct purposes: Planning rescue operations and verification that acceptable entry conditions for entry into that space exist.
A. True B. False

153. According to 1910.146 App B, (1) Evaluation testing: The atmosphere of a confined space should be analyzed for corrosive atmospheres to identify and evaluate any atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space.
A. True B. False

154. Evaluation and interpretation of these data, and development of the entry procedure, should be done by, or reviewed by, a technically qualified professional based on evaluation of all serious hazards.
A. True B. False

155. According to 1910.146 App B, (2) Verification testing: The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions.
A. True B. False

156. Results of testing should be recorded on the permit in the space provided adjacent to the stipulated _____.
A. Descent into atmospheres C. Acceptable entry condition
B. Evaluation of all serious hazards D. None of the above

157. According to 1910.146 App B, (3) Duration of testing: Measurement of values for _____ should be made for at least the minimum response time of the test instrument specified by the manufacturer.
A. Primary irritants C. Each atmospheric parameter
B. Combustible gases D. None of the above

158. According to 1910.146 App B, (4) Testing stratified atmospheres: When monitoring for entries involving a descent into atmospheres that may be stratified, the _____ should be tested a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side.
A. Acceptable entry condition C. Atmospheric envelope
B. Evaluation of all serious hazards D. None of the above

159. If a sampling probe is used, rate of progress of the entrant should be slowed to accommodate the _____.
A. Primary irritants C. Sampling speed and detector response
B. Corrosive atmospheres D. None of the above

160. According to 1910.146 App B, (5) Order of testing: A test for oxygen is performed first because most combustible gas meters are CO_2 dependent and will signal acceptable entry conditions in an oxygen deficient atmosphere.
A. True B. False

161. After testing for oxygen, combustible gases are tested for next. If tests for toxic gases and vapors are necessary, they are performed last.
A. True B. False

Irritant (Corrosive) Atmospheres
162. According to the text, irritant or corrosive atmospheres can be _____.
A. Primary irritants C. Divided into primary and secondary groups
B. Combustible gases D. None of the above

163. A primary irritant is one that may produce systemic toxic effects in addition to surface irritation.
A. True B. False

164. Chlorine, ozone, hydrochloric acid, hydrofluoric acid, sulfuric acid, nitrogen dioxide, ammonia, and sulfur dioxide are examples of _____.
A. Primary irritants C. Detector responses
B. Combustible gases D. None of the above

165. _____ may produce systemic toxic effects in addition to surface irritation.
A. A secondary irritant C. Corrosive atmospheres
B. Evaluation of all serious hazards D. None of the above

166. Benzene, carbon tetrachloride, ethyl chloride, trichloroethane, trichloroethylene, and chloropropene are examples of _____.
A. Primary irritants C. Secondary irritants
B. Combustible gases D. None of the above

167. _____ can be found in plastics plants, chemical plants, the petroleum industry, tanneries, refrigeration industries, paint manufacturing, and mining operations.
A. Chemical reactions C. Irritant gases
B. Normal atmosphere D. None of the above

168. According to the text, prolonged exposure at irritant or corrosive concentrations in a confined space may produce _____.
A. Oxygen deprivation C. Little or no evidence of irritation
B. Oxygen by nitrogen D. None of the above

Asphyxiating Atmospheres

169. The composition of _____ is approximately 20.9% oxygen, 78.1% nitrogen, and 1% argon with small amounts of various other gases.
A. Chemical reactions C. Irritant gases
B. Normal atmosphere D. None of the above

170. Oxygen is consumed during _____, as in welding, heating, cutting, and brazing.
A. Oxygen deprivation C. Combustion of flammable substances
B. Oxygen by nitrogen D. None of the above

171. Oxygen may also be consumed during chemical reactions such as the formation of rust (iron oxide).
A. True B. False

172. Helium, argon, and nitrogen are examples of gases that are used to displace air, and therefore reduce the oxygen level.
A. True B. False

173. _____ may also be used to displace air. This gas can occur naturally in sewers, storage bins, wells, tunnels, wine vats, and grain elevators.
A. Chemical reactions C. Carbon dioxide
B. Normal atmosphere D. None of the above

174. Certain gases are also used as inerting agents to displace flammable substances and _____.
A. Oxygen deprivation C. Retard pyrophoric reactions
B. Oxygen by nitrogen D. None of the above

175. Although nitrogen is frequently referred to as a non-toxic inert gas, the use of _____ to inert a confined space has claimed more lives than carbon dioxide.
A. Chemical reactions C. Irritant gases
B. Nitrogen D. None of the above

176. The total displacement of _____ will cause immediate death.
A. Toxic atmosphere C. Flammable substances
B. Oxygen by nitrogen D. None of the above

Carbon Dioxide

177. Since _____ have specific gravities greater than air, these gases may lie in a tank or manhole for hours or days after opening.
A. Chemical reactions C. Carbon dioxide and argon
B. Normal atmospheres D. None of the above

Oxygen Deprivation

178. Oxygen deprivation is a form of _____.
A. Oxygen deprivation C. Combustion
B. Asphyxiation D. None of the above

179. The first sign of hypoxia (oxygen deprivation) is deterioration to night vision, which occurs when the _____ level falls to 17%.
A. Argon C. Irritant gases
B. Oxygen D. None of the above

180. Increased breathing volume, accelerated heartbeat, very poor muscular coordination, rapid fatigue, and intermittent respiration are _____ that occur when oxygen level is between 14-16%.
A. Problems C. Reactions
B. Physiologic effects D. None of the above

181. Nausea, vomiting, _____, and unconsciousness are the physiological effects that occur when oxygen level is between 6-10%. Less than 6%, the effects are spasmodic breathing, convulsive movements, and death in minutes.
A. Oxygen deprivation C. Inability to perform
B. Problems D. None of the above

Mechanical Hazards
182. According to the text, if activation of electrical or mechanical equipment would cause injury, each piece of equipment should be manually isolated to _____ before workers enter or while they work in a confined space.
A. Operate separately C. Prevent inadvertent activation
B. Prevent fumes D. None of the Above

183. The interplay of _____ associated with a confined space, such as flammable vapors or gases being present and the build-up of static charge due to mechanical cleaning, all influence the precautions which must be taken.
A. Noise problems C. Hazards
B. General hypothermia D. None of the above

184. Workers should completely isolate the space to prevent _____, flashbacks, and other hazards
A. Intensified noise C. Vapor leaks
B. Physiologic mechanisms D. None of the Above

185. In cases where _____ may re-contaminate the confined space, other special precautions must be taken.
A. Moisture content C. Flammable liquids or vapors
B. General hypothermia D. None of the above

186. The space referred to as a void, such as double walled vessels, is a less apparent hazard which must be given special consideration in _____.
A. Moisture content C. Blanking off and inerting
B. Physiologic mechanisms D. None of the Above

Thermal Effects
187. Four factors that influence the interchange of heat between people and their environment are: (1) _____, (2) air velocity, (3) moisture contained in the air, and (4) radiant heat.
A. Noise problems C. Four factors
B. Air temperature D. None of the above

188. Due to the nature and design of most confined spaces, moisture content and _____ are difficult to control.
A. Radiant heat C. Blanking off and inerting
B. Physiologic mechanisms D. None of the above

189. Workers will continue to function until the _____ rises to approximately 102°F.
A. Noise problem C. Thermal effect
B. Body temperature D. None of the above

190. Certain _____ come into play in a cold environment, which tend to limit heat loss and increase heat production.
A. Situations C. Precautions
B. Physiologic mechanisms D. None of the above

191. Special precautions must be taken when working in _____ to prevent frostbite, trench foot, and general hypothermia.
A. Situations C. Construction
B. Cold environments D. None of the above

Protective Insulated Clothing
192. According to the text, protective insulated clothing for both _____ will add additional bulk to the worker and must be considered in allowing for movement in the confined space and exit time.
A. Working Conditions C. Hot and cold environments
B. Physiologic mechanisms D. None of the above

Noise
193. The interior of confined spaces tends to cause sound to reverberate and thus expose the worker to _____ than those found in an open environment.
A. Lower hearing-loss risk C. Reduced noise
B. Higher sound levels D. None of the above

194. Workers may experience temporary or permanent loss of hearing from _____.
A. Moisture content C. Intensified noise
B. Physiologic mechanisms D. None of the above

195. The probability of severe accidents can increase If the workers inside are not able to hear commands or danger signals due to excessive noise.
A. True B. False

Vibration
196. Depending upon the vibration characteristics, _____ may affect multiple body parts and organs.
A. Surface residues C. Physical hazards
B. Whole body vibration D. None of the above

197. Unlike whole body vibration, _____ appears to be more localized in creating injury to the fingers and hands of workers using tools which cause vibration.
A. Surface residue C. Segmental vibration
B. A confined space D. None of the above

Other Hazards
198. According to the text, some _____ cannot be eliminated because of the nature of the confined space or the work to be performed
A. Surface residues C. Segmental vibration
B. Physical hazards D. None of the above

199. The use of scaffolding in confined spaces has resulted in many accidents caused by workers or materials falling, _____, and lack of maintenance to insure worker safety.
A. Surface residues C. Improper use of guard rails
B. Confined spaces D. None of the above

200. The choice of scaffolding material depends upon the type of work to be performed, the calculated weight to be supported, and the surface on which the scaffolding is placed, as well as the substance previously stored in the confined space.
A. True B. False

201. _____ in confined spaces can increase already hazardous condition such as electrical shock, reaction of incompatible materials, liberation of toxic substances, and bodily injury due to slips and falls
A. Surface residues C. Segmental vibration
B. Workers D. None of the above

202. Baffles in horizontal tanks, trays in vertical towers, bends in tunnels, overhead structural members, or scaffolding installed for maintenance are examples of _____ within a confined space.
A. Surface residues C. Segmental vibration
B. Structural hazards D. None of the above

Abbreviations:
203. The permissible exposure limit (PEL) is the _____ that must not be exceeded during an 8-hour work shift of a 40-hour workweek.
A. Number of work hours C. Maximum limit
B. Average concentration D. None of the above

204. The short-term exposure limit (STEL) is the 15-minute exposure limit that must not be exceeded during the _____.
A. Negative pressure C. Workday
B. Maximum concentration D. None of the above

205. The recommended exposure limit (REL) is the _____ recommended for up to a 10-hour workday during a 40-hour workweek.
A. Number of work hours C. Average concentration limit
B. Number of entries D. None of the Above

206. Immediately dangerous to life or health (IDLH) means the _____ from which a person could escape (in event of respiratory failure) without permanent or escape-impairing effects within 30 minutes.
A. Confined space C. 15-minute exposure limit
B. Maximum concentration D. None of the above

Respiratory Protection Chapter
Types of Respirators
Commonly Used Respirators (Air Purifying)
207. _____ is a type of respirator worn over the nose and mouth to protect the respiratory system from certain nuisance dusts, mists, etc.
A. An Air-Line Respirator C. A Disposable Dust Mask
B. A Full-Face Respirator D. None of the above

208. Dust masks cannot be fit tested, are generally single use, are not recognized as proper respiratory protection, and may not be worn if a _____exists.
A. Proper respirator C. Potential for overexposure
B. Maximum concentration D. None of the above

209. _____ have interchangeable filter cartridges and can protect the respiratory system from hazardous dusts, fumes, mists, etc.
A. Air-Line Respirators C. Half-Face Respirators
B. Full-Face Respirators D. None of the above

210. Half-Face Respirators generally operate under negative pressure within the respirator which is created by the wearer's breathing through the filter cartridges. Protection is only gained if there is a proper seal of the _____.
A. Proper respiratory protection C. Respirator face piece
B. Mask D. None of the above

211. _____ are similar to the half-face type, but they offer a better face piece fit and also protect the wearer's eyes from particularly irritating gases and vapors.
A. Air-Line Respirators C. Half-Face Respirators
B. Full-Face Respirators D. None of the Above

212. Full-face, helmet or hood type powered air purifying respirators (PAPRs) operate under positive pressure inside the face piece. A battery operated motor blower assembly forces air through a filter cartridge into the _____.
A. Wearer's breathing zone C. Proper respiratory protection
B. Maximum concentration D. None of the above

Less Commonly Used Types Respirators (Air Supplying)

213. _____ supply clean air to the wearer through a small diameter hose from a compressor or compressed air cylinders. Because the wearer must be attached to the hose at all times, mobility is limited.
A. Air-Line Respirators C. Disposable Dust masks
B. Full-Face Respirators D. None of the above

214. Self-Contained Breathing Apparatus (SCBA) respirators supply clean air from a compressed air tank carried on the wearer's back. SCBA respirators are highly mobile and are used primarily for _____.
A. Proper respiratory protection C. Emergency response or rescue work
B. Maximum concentration D. None of the above

Respirator Filters/Cartridges

215. The cartridges used for _____ must be either equipped with an end-of-service life indicator (ESLI) or a cartridge change schedule has to be established.
A. Air-purifying respirators C. Air-line Respirators
B. Full-Face Respirators D. None of the above

216. There are _____ classes of filters for protection against particulates.
A. Ten C. Nine
B. Five D. None of the above

Protection Factors

217. The protection factor of a respirator is based on the ratio of two concentrations: the _____ outside the respirator to the contaminant concentration inside the respirator.

A. Atmosphere
B. Oxygen
C. Contaminant concentration
D. None of the above

218. Each class of respirator also has an assigned protection factor (APF).

A. True B. False

219. When a _____ outside the respirator is known, the APF can be used to estimate the concentration inside a particular type of respirator worn by the user.

A. Hazardous atmosphere
B. Low oxygen level
C. Contaminant concentration
D. None of the above

Who Cannot Wear a Respirator?

220. Respirators cannot be worn when a person wears _____ that interferes with the seal of the face piece.

A. Clothing
B. Other equipment
C. Glasses or personal protective equipment
D. None of the above

221. Respirators cannot be worn when a person has _____ that comes between the sealing surface of the face piece and the face or interferes with valve function.

A. Clothing
B. A damaged face piece
C. Facial hair
D. None of the above

222. Respirators cannot be worn when a person has a breathing problem, a heart condition, or is _____.

A. Unauthorized
B. Heat sensitive
C. Calm
D. None of the above

Checking for Damage

223. A respirator must be inspected before each use to make sure there are no holes, tears, etc., in the respirator.

A. True B. False

Staying Prepared for Respirator Use

224. Getting used to respirators takes practice. Possible problems with wearing respirators may include heat exhaustion or heat stroke.

A. True B. False

Using up the air supply

225. When using a _____, keep checking the gauges and listening for alarms. Be ready to leave the area immediately if there is a problem.

A. Gas meter
B. SCBA
C. Dust mask
D. None of the above

Panic

226. Air monitoring is important when working in a hot, stressful, or awkward situation.

A. True B. False

Cleaning Respirators

227. Respirators should be cleaned and disinfected once a year. Check the respirator for damage before wearing it.

A. True B. False

228. Respirators stored for emergency use must be inspected _____ when not in use, and after each use.

A. Monthly C. Annually
B. Weekly D. None of the above

Operating Procedures

229. _____ must be accurate and must be written in easily understood language. Technical jargon should be avoided. Translations must be supplied if necessary.

A. Permits C. Operating procedures
B. Performance reviews D. None of the above

230. Operating procedures must include operating steps for initial startup, normal and temporary operations, emergency shutdown, _____, normal shutdown, and startup after a turnaround or an emergency shutdown.

A. Documenting work C. Gas and vapor detection
B. Emergency operations D. None of the above

231. Operating procedures must include _____, including what happens if workers don't conform to operating limits and how to avoid or correct such problems.

A. Permits C. Operating limits
B. Performance reviews D. None of the above

232. Operating procedures must include safety and health considerations, such as chemical hazards, precautions to prevent exposure, _____ for chemicals, and actions to be taken if an employee is exposed to a hazardous substance.

A. Quality and inventory control C. Safety training
B. Safety performance D. None of the above

233. Operating procedures must include _____ and their functions, including up-to-date operating procedures and safe work practices.

A. Safe work practices C. Safety systems
B. Contractor's duties D. None of the above

Contractor Employees

234. According to the text, process safety training and _____ are also required for contractors who work on-site.

A. Logs C. Safety programs
B. Safety performance D. None of the above

235. Managers must check out the _____ of any contractors that may be hired for maintenance, repair, turnaround, major renovation, or specialty work on or around a process covered by the OSHA regulation.

A. Logs C. Safety performance and programs
B. Reputation D. None of the above

236. To further ensure contractor safety, managers must also provide the contractor with information on _____ for the process they're involved with and tell them what actions are to be taken in an emergency.
A. Safe work practices C. Time limits
B. Performance standards D. None of the above

237. To further ensure contractor safety, managers must also keep a log of _____ related to their work in process areas.
A. Gas and vapor contaminants C. Contractor employees' injuries or illnesses
B. Safety performance D. None of the above

238. To further ensure contractor safety, managers must also evaluate the _____ to make sure they're living up to their safety obligations set by the OSHA standard,
A. Work progress C. Required training
B. Contractor's performance D. None of the above

The Contractor has Responsibilities, too
239. The Contractor must document that employees are trained to _____ and to follow safe work practices on the job.
A. Recognize hazards C. Follow orders
B. Work efficiently D. None of the above

240. Contractors must make sure that their employees understand _____, are trained to work safely, and follow the safety rules of the facility in which they're working.
A. Time schedules C. The scope of the work
B. Potential job-related hazards D. None of the above

Written Respiratory Protection Program
241. The employer is required to develop and implement a written respiratory protection program with _____ and elements for required respirator use.
A. Gas and vapor contaminant limits C. Required worksite-specific procedures
B. Safety performance D. None of the above

242. The respirator protection program must be administered by _____.
A. Attendants C. A suitably trained program administrator
B. Entrants D. None of the above

Gas and Vapor Contaminants
243. According to the text, gas and vapor contaminants can be classified according to their _____.
A. Chemical characteristics C. Toxic level
B. Hazard risk D. None of the above

244. Substances that are liquids or solids at room temperature form _____ when they evaporate.
A. Chemical reactions C. Risks
B. Vapors D. None of the above

245. Inert gases such as helium, argon, neon, etc. do not metabolize in the body, but they represent a hazard because they can produce an oxygen deficiency by displacement of air.
A. True B. False

246. Acidic gases such as sulfur dioxide, hydrogen sulfide and hydrogen chloride exist as _____ or produce acids by reaction with water. They are often highly toxic.
A. Metals attached to organic groups C. Inert gases
B. Acids D. None of the above

247. Alkaline gases such as ammonia and phosphine exist as alkalis or _____.
A. Metals attached to organic groups C. Produce alkalis by reaction with water
B. Pollutants D. None of the above

248. Vaporous contaminants classified as organic compounds can exist as true gases or vapors produced from organic liquids. Gasoline, solvents and paint thinners are examples.
A. True B. False

249. Vaporous contaminants classified as organometallic compounds are generally comprised of _____. Tetraethyllead and organic phosphates are examples.
A. Inert gases C. Metals attached to organic groups
B. Pollutants D. None of the above

Hazard Assessment
250. The first important step to protection is _____.
A. Research C. Proper assessment of the hazard
B. An atmosphere's oxygen content D. None of the above

251. Air samples must be taken with proper sampling instruments during all conditions of operation to determine an atmosphere's oxygen content or _____ and/or gaseous contaminants.
A. Respirator requirements C. Deficiency by displacement of air
B. Concentration levels of particulate D. None of the above

252. Breathing zone sampling frequency should be sufficient to assess the _____ under the variable operating and exposure conditions.
A. Respirator requirements C. Average exposure
B. Atmosphere's oxygen content D. None of the above

Excavation and Trenching Section
253. According to the text, the _____ was revised because excavating is the most dangerous of all construction operations.
A. Competent rule C. Emergency rule
B. OSHA excavation standard D. None of the above

254. OSHA also revised the _____ to clarify the requirements.
A. Competent rule C. Protective equipment standard
B. Existing standard D. None of the above

255. The performance criteria in the new standard provides employers with options when classifying soil and when selecting methods to protect the _____ from cave-ins.
A. Competent person C. Construction equipment
B. Employee D. None of the above

256. Although employers have options when meeting some of the requirements, _____ must realize that the employee must be protected at all times.
A. Competent persons C. Contractors
B. Employers D. None of the above

257. Professional engineers will be required in some situations to plan or design the excavation and/or method of protecting the worker.
A. True B. False

Competent Person
258. Competent person means one who is capable of identifying existing hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees. The _____ has authorization to take prompt corrective measures to eliminate identified hazards.
A. Competent person C. Watchman
B. Contractor D. None of the above

259. A _____ must have specific training in and be knowledgeable about soils analysis, the use of protective systems and the requirements of 29 CFR Part 1926.650-652 Subpart P.
A. Competent person C. Watchman
B. Contractor D. None of the above

260. Everyone is required to practice _____ one a year.
A. Competent person training C. Emergency procedures
B. Rescue training exercises D. None of the above

Competent Person Duties
261. The competent person performs daily inspections of the protective equipment, _____, safety equipment, and adjacent areas.
A. Work progress C. Trench conditions
B. Construction Crew D. None of the above

262. The competent person shall make _____ prior to the start of work and as needed throughout the shift.
A. Personnel assignments C. Inspections
B. Training available D. None of the above

263. The competent person shall make _____ after every rainstorm or other hazard occurrence.
A. Inspections C. Protective equipment available
B. Training available D. None of the above

264. The competent person must have knowledge of _____, telephone or radio dispatch.
A. Personnel assignments C. Emergency contact methods
B. Work schedules D. None of the above

265. The competent person removes employees and _____ from hazardous conditions and makes all changes necessary to ensure their safety.
A. Competent persons C. Protective equipment
B. All other personnel D. None of the above

266. The competent person makes sure that all _____ have proper protective equipment, hard-hats, reflective vests, steel-toed boots, harnesses, eye protection, hearing protection and drinking water.
A. Competent persons C. Employees
B. Contractors D. None of the above

Scope of Work

267. According to the text, during excavation work a competent person shall be on the job site at all times when personnel are working within or around the _____.
A. Competent person C. Excavation
B. Contractors D. None of the above

268. Prior to opening an excavation, the estimated locations of _____ that reasonably may be expected to be encountered during excavation work shall be determined.
A. Unauthorized persons C. Underground utility installations
B. Employees D. None of the above

269. _____ shall be taken to protect employees against the hazards posed by water accumulation in the excavation.
A. Additional care C. Ladders
B. Adequate precautions D. None of the above

270. According to the text, employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations.
A. True B. False

271. In trench excavations that are four (4') feet or more in depth, a stairway, ladder, or ramp shall be used as a _____.
A. Tool C. Bridge
B. Means of access or egress D. None of the above

272. The Ladder(s), stairway(s), or ramp shall be spaced so that no employee in the trench excavation is more than fifty (50') feet from a means of egress.
A. True B. False

273. When ladder(s) are employed, the top of the ladder shall extend a minimum of _____ feet above the ground and shall be properly secured.
A. Two C. Four
B. Three D. None of the above

274. When excavations are made in vehicular traffic areas, _____ shall wear a warning vest made with reflective material or highly visibility material.
A. Competent persons C. Rescue personnel
B. Each employee D. None of the above

275. The air shall be tested in excavations where _____ exist, or could be reasonably expected to exist.
A. Limited visibilities C. Oxygen deficiency or gaseous conditions
B. Employees D. None of the above

276. When the atmosphere contains less than 19.5 percent oxygen, the area must be continuously ventilated until the _____.
A. Excavation is closed C. Oxygen levels are above 19.5 percent
B. Employees enter the space D. None of the above

277. Where a _____, the area shall be ventilated until the flammable gas concentration is below 20 percent of the LFL (lower flammable limit).
A. Competent person requires monitoring C. Worker encounters fumes
B. Gaseous condition exists D. None of the above

278. Whenever _____ exist or could reasonably exist, the air must be monitored continuously to assure that workers are protected.
A. Traffic conditions C. Oxygen deficiency or gaseous conditions
B. Excavations D. None of the above

279. Where the stability of adjoining buildings, walls or other structures are _____, shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.
A. Not a concern C. Endangered by excavation operations
B. Not mentioned in the specifications D. None of the above

280. In situations where sidewalks, pavement and appurtenant structures may be undermined, a support system such as shoring must be provided to protect _____ from the possible collapse of such structures.
A. Unauthorized persons C. Vehicles
B. Employees D. None of the above

Personnel Protective Systems
281. According to the text, employees in _____ shall be protected from cave-ins by an adequate protective system, which shall be inspected by a competent person.
A. Excavations C. Protective systems
B. Vehicles D. None of the above

282. The use of _____ is required for all excavations deeper than five (5') feet, except when excavation is within stable rock.
A. Tables C. Protective systems
B. Tabulated data D. None of the above

283. For trench excavations less than five (5') feet deep, the use of _____ may not be required unless there is evidence of a potential cave-in. The competent person shall make this determination.
A. Ladders C. Ramps
B. Protective systems D. None of the above

284. Requirements for sloping, benching or protective systems are found in _____.
A. Safety Manuals C. CFR 1926.652 (OSHA Construction Standards)
B. Tabulated data D. None of the above

285. Whenever support systems, _____, or other protective systems are being used, a written copy of the manufacturer's specifications, recommendations, and limitations sheet shall be available at the job site.
A. Shield systems C. Ramps
B. Tabulated data D. None of the above

Excavation Protection Systems
286. There are three basic protective systems for excavations and trenches. They are sloping and benching systems, _____, and shields.
A. Shoring C. Attendants
B. Ramps D. None of the above

287. Every employee in an excavation or trench shall be protected from _____ by an adequate protective system.
A. Unauthorized persons C. Polluted air
B. Cave-ins D. None of the above

Sloping and Benching Systems
288. An option for sloping is to slope to the angle required by OSHA Construction Standards for Type C, which is the most _____.
A. Unstable soil type C. Porous soil type
B. Stable soil type D. None of the above

289. Another option for sloping is to first determine the soil type, then use the table provided in Appendix B of the standard to determine the _____.
A. Maximum allowable angle C. Protective system to be used
B. Porosity D. None of the above

290. Another option for sloping is to utilize _____ prepared by a registered professional engineer.
A. Instructions C. Standards
B. Tabulated data D. None of the above

291. According to the text, a registered professional engineer can design a _____ for a specific job.
A. Table C. Protective system
B. Sloping plan D. None of the above

292. _____ for excavations five (5) to twenty (20) feet in depth must be constructed in accordance with the instructions of a designated competent person.
A. Sloping and benching systems C. Trench excavation limits
B. Tabulated data D. None of the above

293. A registered professional engineer must design and stamp the sloping and benching systems for excavations _____.
A. Greater than twenty (20) feet deep C. To be made by contractors
B. In traffic areas D. None of the above

Shoring Systems
294. _____ is another protective system that utilizes a framework of vertical members, horizontal members, and cross braces to support the sides of the excavation to prevent a cave-in.
A. Shoring C. Lateral support
B. Tabulated data D. None of the above

Shield Systems (Trench Boxes)
295. Shielding is the third method of providing a safe workplace in excavations. Unlike sloping and shoring, _____ does not prevent a cave-in.
A. Shielding C. Soil testing
B. Tabulated data D. None of the above

296. Shields are designed to _____, thereby protecting the employees working inside the structure.
A. Withstand the soil forces caused by a cave-in C. Bend but not break
B. Keep water out of the excavation D. None of the above

297. Design and construction of _____ is not covered in the OSHA Standards.
A. Sloping and benching systems C. Protective systems
B. Shielding D. None of the above

Safety Precautions for Shield Systems
298. There must not be any lateral movement of _____ when installed.
A. Sloping and benching systems C. Ladders
B. Shields D. None of the above

299. To protect employees from cave-ins when entering and exiting the shield, a ladder within the _____ or a properly sloped ramp at the end shall be provided.
A. Shield C. Tabulated data
B. Jobsite D. None of the above

300. According to the text, employees are not allowed in the _____ during installation, removal, or during any vertical movement.
A. Sloping and benching systems C. Vicinity of the excavation
B. Shield D. None of the above

301. Shields can be installed 2 ft. above the bottom of an excavation, provided that they are designed to _____.
A. Tabulated data C. Be easily removed
B. Resist loads at the full depth D. None of the above

302. The _____ must extend at least 18 inches above the point where proper sloping of the excavation begins.
A. Sloping and benching systems C. Protective systems
B. Shield D. None of the above

303. The exposed excavation wall at the _____ must be sloped, shored, or shielded.
A. Excavation site C. Traffic side of the excavation
B. Open end of the shield D. None of the above

Personal Protective Equipment
304. _____ requires that employees wear a hard hat, safety glasses, and work boots on the jobsite.
A. The contractor C. Recommended practice
B. OSHA policy D. None of the above

Excavation & Trenching Guidelines
305. Procedures and guidelines for the protection of employees working in and around excavations and trenches must be in compliance with OSHA Standards described in Subpart P (CFR 1926.650) for the construction industry.
A. True B. False

306. According to the text, the competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply, and must demonstrate a thorough understanding and knowledge of the programs and the hazards associated.
A. True B. False

307. All other employees working in and around the excavation must be trained to recognize the hazards associated with _____.
A. OSHA Standards C. Personal protective equipment
B. Trenching and excavating D. None of the above

Hazard Controls
308. Knowing the location of underground installations is a good idea because it could make the work go faster.
A. True B. False

309. All overhead hazards (surface encumbrances) must be removed or supported to _____.
A. Meet OSHA Standards C. Eliminate the hazard
B. Make trenching and excavating easier D. None of the above

310. If _____ will be over 20 feet deep, it must be designed by a registered professional engineer.
A. An excavation C. Construction equipment
B. A means of access or egress D. None of the above

311. _____, such as sloping, shoring, or shielding, will be utilized to protect employees.
A. Adequate protective systems C. Soil testing
B. Soil classifications D. None of the above

312. An excavation safety plan must be developed to protect employees.
A. True B. False

313. Workers must be supplied with, and wear, any _____ deemed necessary to protect them while working in excavations.
A. Uniforms C. Personal protective equipment
B. Apparel D. None of the above

314. All _____ must be stored at least two (2) feet from the sides of the excavation. The spoil pile must not block the safe means of egress.
A. Safety plans C. Spoil piles
B. Barricades D. None of the above

315. If a trench or excavation is 4 feet or deeper, stairways, ramps, or ladders must be provided as a safe means of access and egress. Employees working in trenches must not have to travel any more than 25 feet laterally to reach a _____.
A. Stairway, ramp, or ladder C. Benched area
B. Safe area D. None of the above

316. No employee will be permitted to work in an excavation where _____ is accumulating unless adequate protection measures are used to protect the employees.
A. Construction debris C. Spoil
B. Water D. None of the above

317. All excavations and trenches must be inspected daily by a _____, prior to employee exposure or entry. Trenches and excavations will also be inspected after any rainfall, soil change, or any other time needed during the shift.
A. Professional engineer C. Competent person
B. Supervisor D. None of the above

318. When excavations and trenches 4 feet or deeper have the potential for toxic substances or _____, the air will be tested at least daily.
A. Cave-ins C. Hazardous atmospheres
B. Unauthorized workers D. None of the above

319. If work is in or around traffic, _____ must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.
A. Signs and barricades C. Additional personnel
B. Soil classifications D. None of the above

Excavation Safety Plan
320. A written excavation safety plan is required. This plan is to be developed to the level necessary to ensure complete compliance with the _____ and state and local safety standards.
A. Professional engineer's requirements C. Protective systems
B. OSHA Excavation Safety Standard D. None of the above

Soil Classification and Identification
321. The Simplified Soil Classification System defined by OSHA Standards consists of four categories: _____, Type A, Type B, and Type C.
A. Stable rock C. Stiff clay
B. Gravel D. None of the above

322. Type A soils are _____ with an unconfined compressive strength of 1.5 tons per square foot (TSF) or greater.
A. The least stable C. Field tested
B. Cohesive soils D. None of the above

323. Examples of Type A soils are _____ like caliche and hardpan.
A. Cemented soils C. Uncommon soils
B. Soil classifications D. None of the above

Soil Test & Identification
324. The competent person will classify the _____ according to the definitions in Appendix A of the OSHA standard based on at least one visual and one manual analysis.
A. Shields C. Cohesion tests
B. Soil type D. None of the above

325. Soil classification tests should be run on freshly excavated samples from the excavation and are designed to determine soil stability based on a number of criteria.
A. True B. False

326. Clay, silt, and sand are _____. Clay particles are the smallest, silt particles are intermediate, and sand particles are the largest.
A. Very cohesive C. Size classifications
B. Corrosive D. None of the above

327. The degree of _____ and plasticity of a soil depend on the amounts of clay, silt, sand, and water present.
A. Compatibility C. Durability
B. Cohesiveness D. None of the above

328. The soil in an excavation is subject to change several times within the scope of a project and the _____ will vary with weather and job conditions.
A. Shields C. Moisture content
B. Shoring D. None of the above

329. According to the text, the competent person must also determine the level of protection based on what conditions exist at the time of the test, and _____.
A. Available equipment C. Allow for changing conditions
B. Tabulated data D. None of the above

Shielding

330. Shielding does not prevent cave-ins. Instead, it protects the workers in the event of a cave-in.
A. True B. False

331. When placed in an excavation, shields have sufficient structural strength to support the _____, thereby protecting the employees in the trench.
A. Nearby structures C. Force of a cave-in should one occur
B. Construction vehicles D. None of the above

332. Most _____ have two flat, parallel metal walls that are held apart by metal cross braces that are placed at the ends of the "box." This allows for the installation of pipe within the interior dimensions of the shield.
A. Shields C. Shoring systems
B. Reputable manufacturers D. None of the above

333. An operation where a contractor excavates just enough trench to install the shield, then sets a joint of pipe, then excavates further, then pulls the shield forward to install another joint while the first is being backfilled, is known as "_____".
A. Shielding C. Standard practice
B. Cut and cover D. None of the above

334. _____ have become more popular with public works maintenance crews and contractors working in shallow excavations because of their ease of use.
A. Smaller shields C. Open-ended shields
B. Reputable manufacturers D. None of the above

335. Round shields made of _____ have recently appeared.
A. Approved materials C. Corrugated metal
B. Wood D. None of the above

336. Since shield construction is not covered by OSHA Standards, it is critical that you know your _____.
A. Supplier C. Competent person
B. Safety manual D. None of the above

337. _____ supply boxes designed by registered professional engineers and certified for their applications.
A. Contractor's C. Local
B. Reputable manufacturers D. None of the above

338. Any bent of deformed structural member of a shield system must be repaired or replaced according to the manufactures' guidelines.
A. True B. False

339. Any modification to the shields must be _____.
A. Reported to the competent person C. Approved by the manufacturer
B. Noted in the excavation log D. None of the above

340. Shields in trenches must be installed so as to prevent _____ in the event of a cave-in
A. Lateral movement C. Cohesion tests
B. Damage to equipment D. None of the above

341. According to the text, shields may ride two feet above the bottom of an excavation, provided they are calculated to support the full depth of the excavation and there is no _____ under or behind the shield.
A. Caving C. Spoil
B. Material D. None of the above

342. Workers must be protected when entering or leaving the shield by using a _____ within the shield or a properly sloped ramp at the end.
A. Shield C. Support
B. Ladder D. None of the above

343. Workers must exit the shield during its installation, removal, or _____.
A. Inclement weather C. During vertical movement
B. Soil testing D. None of the above

344. The excavation wall at the _____ should be sloped, shored or shielded off to prevent a cave-in from the end.
A. Side of the shield C. Open end of the shield
B. End of the job D. None of the above

345. If the excavation will be deeper than the _____, attached shields of the correct specifications may be used. As an alternate, the excavation may be sloped back to the maximum allowable angle from a point 18 inches below the top of the shield.
A. Planned depth C. Designed depth
B. Shield is tall D. None of the above

Inspections

346. The excavations, adjacent areas, and protective systems shall be inspected daily by the _____.
A. Contractor C. Competent person
B. Employees D. None of the above

347. During inspections, the competent person shall look for evidence of a situation that could result in a cave-in, indications of _____, hazardous atmospheres or other hazardous conditions.
A. Failure of protective systems C. OSHA compliance
B. Poor workmanship D. None of the above

348. All _____ shall be conducted by the competent person prior to the start of work, as needed throughout the shift, and after every rainstorm or other increasing hazard.
A. Inspections C. OSHA compliance inspections
B. Writing of excavation reports D. None of the above

Handling an OSHA Inspection
349. Project managers, foremen, and competent persons sometimes feel intimidated when _____ visits a job sit.
A. A news reporter C. An OSHA compliance officer
B. A professional engineer D. None of the above

350. In order to avoid feeling intimidated, companies should have a policy and a plan of action for managers to follow when handling _____.
A. Contractors C. An OSHA inspection
B. Unauthorized persons D. None of the above

351. In order to defend your company against _____ at an OSHA hearing or in a court of law, accurate documentation of the facts is necessary.
A. Contractors C. False claims
B. Alleged violations D. None of the above

352. All competent persons should keep a _____ to help them remember information such as the dates, temperature, conditions, trench, address, and the crew that was working.
A. Logbook C. Case history
B. Work schedule D. None of the above

353. You, as the designated competent person, should keep a copy of the _____, your safety policy, and a copy of your written hazard communication policy with you at all times.
A. Competent training manual C. OSHA Construction Standards
B. Excavation report D. None of the above

Ladder Safety Chapter
Purpose
354. According to the text, employees who use ladders must be trained in _____.
A. Maintenance C. Proper selection, inspection, use and storage
B. Use of working platforms D. None of the above

355. A large percentage of accidents in the workplace have been caused by _____.
A. Missing support braces C. Improper use of ladders
B. Too low a weight rating D. None of the above

Ladder Hazards
Hazards include:
356. Using a ladder with _____ is a hazard.
A. Proper locking devices C. Missing or broken parts
B. Working platforms D. None of the above

357. Using a ladder with _____ is a hazard.
A. All rungs and steps C. Proper certification
B. Too low a weight rating D. None of the above

358. Using a ladder that is _____ is a hazard.
A. Properly maintained C. Too short for the intended purpose
B. In good repair D. None of the above

359. Using metal ladders near _____ is a hazard.
A. Electrical wires C. Wet structures
B. Trench boxes D. None of the above

360. Using ladders as a _____ is a hazard.
A. Training tool C. Means of access
B. Working platform D. None of the above

361. _____ from ladders is a hazard.
A. Rungs and steps C. Objects falling
B. Spreaders D. None of the above

Ladder Inspection

362. Ladders must be inspected before each use.
A. True B. False

363. Ladders must be inspected to make sure that _____ are free of oil, grease, dirt, etc.
A. All rungs and steps C. Locking mechanisms
B. Spreaders D. None of the above

364. Ladders must be inspected to make sure that _____ are tight.
A. All fittings C. Cables
B. Working platforms D. None of the above

365. Ladders must be inspected to make sure that _____ or other locking devices are in place.
A. Ropes C. Safety Labels
B. Spreaders D. None of the above

366. Ladders must be inspected to make sure that non-skid safety feet are _____.
A. Too short C. In place
B. Painted D. None of the above

367. Ladders must be inspected to make sure that there are no structural defects, and that _____.
A. All support braces are intact C. Ladders are properly color-coded
B. Safety labels are in place D. None of the above

368. Broken ladders must be thrown away since most ladders cannot be repaired to manufacturer specifications.
A. True B. False

SAFETY GLOSSARY

369. Visible warning barriers that keep vehicles and pedestrians from entering a construction site are called _____.
A. Barricades C. Bulges
B. Bracing Systems D. None of the above

370. _____ are devices that hold or fasten two or more parts together or in place. Braces may be diagonal or horizontal, and they may be made of wood or metal.
A. Barricades C. Buried Structures
B. Braces D. None of the above

371. A part of a trench shoring system used to prevent trench walls from collapsing is called a _____.
A. Barricade C. Buried Structure
B. Bracing System D. None of the above

372. A method of cutting back the sides of a trench into horizontal steps to prevent cave-ins is called _____.
A. Barricading C. Benching
B. Shoring D. None of the above

373. An outward swelling in the soil of a trench which may be a warning sign of trench failure is called a _____.
A. Bulge C. Swell
B. Bracing System D. None of the above

374. Manholes, junction boxes or catch basins are _____ that may be encountered during trenching.
A. Buried structures C. Above-ground structures
B. Bracing Systems D. None of the above

375. Fine-grained natural soil that is plastic when moist and hard and brittle when dry is the definition of _____.
A. Gravel C. Clay
B. Clumps D. None of the Above

376. Heavy lumps or thick groupings of soil are known as _____.
A. Gravel C. Clay
B. Clumps D. None of the Above

377. The relative ability to clump together or the force holding two like substances together is the definition of _____.
A. Attraction C. Non-Cohesion
B. Cohesion D. None of the above

378. A soil is said to be _____ when it has grains that hold together and clump well.
A. Cohesive C. Saturated
B. Wet D. None of the above

379. The _____ is one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to employees. This person is trained and knowledgeable about soil analysis and the use of protective systems.
A. Competent Person C. Confined Space expert
B. Supervisor D. None of the above

380. A workspace that has limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work, and is not designed for continuous occupancy by the employee is the definition of a _____.
A. Trench C. Confined Space
B. Excavation D. None of the above

381. A ditch cut around the work site to keep water from entering the trench is called a _____.
A. Drainage System C. Sediment trap
B. Diversion Ditch D. None of the above

382. A _____ is comprised of pumps, pipe or channel used to drain off rain or groundwater from inside the trench.
A. Drainage System C. Channel system
B. Diversion Ditch D. None of the above

383. The definition of _____ is any man-made cut, cavity trench or depression in an earth surface, formed by earth removal.
A. Trench C. Confined Space
B. Excavation D. None of the above

384. A long narrow opening or crack in the rock or soil is called a _____. These types of cracks are often a sign of trench wall failure.
A. Fissure C. Stress fracture
B. Break D. None of the Above

385. _____ are soil particles that once were large rocks, but have been broken down through time and the effects of weathering. The size of a soil grain determines the stability and cohesiveness of a soil. The larger the grain is, the more unstable the soil is.
A. Grains C. Gravel
B. Grit D. None of the Above

386. _____ is a loose mixture of pebbles and rock fragments, which is coarser than sand.
A. Grains C. Gravel
B. Rocks D. None of the Above

387. _____ is a layer of hard subsoil or clay that does not allow water in. It is classified as a Type A soil.
A. Rock C. Loamy sand
B. Hardpan D. None of the above

388. The swelling of a soil is called _____.
A. Heaving C. Saturation
B. Wetness D. None of the above

389. Braces or supports within a shoring system are called _____. They are placed against beams to resist the pressure of the earth.
A. Jacks C. Shielding
B. Sheeting D. None of the above

390. Tables and charts approved by a registered professional engineer and used to design and construct a protective system is known as _____.
A. Resource material C. Manufacturer's Tabulated Data
B. Excavation evaluation D. None of the above

391. A _____ is a confined space that has one or more of these characteristics: (1) contains or has potential to contain a hazardous atmosphere, (2) contains a material that has the potential for engulfing an entrant, (3) has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or (4) contains any other recognized serious safety or health hazards.
A. Registered confined space C. Permit Required Confined Space
B. Prohibited confined space D. None of the above

392. _____ includes items such as safety goggles and glasses, reflective clothing, work gloves, hard hat, safety shoes, rubber boots, earplugs or protectors, face shield and face mask or respirator.
A. Protection C. Personal Protective Equipment
B. Registered protective gear D. None of the above

393. A _____ is a professional engineer who is registered in the state where the work is to be performed.
A. Safety officer C. Registered Professional Engineer
B. Competent Person D. None of the above

394. _____ is a type C soil with small, loose grains of disintegrated rock.
A. Sandy Loam C. Sand
B. Loamy Sand D. None of the above

395. Granular soil with enough silt and clay to make it slightly cohesive is the definition of _____.
A. Sandy Loam C. Sand
B. Loamy Sand D. None of the above

396. The process of a soil being filled to capacity with moisture is called _____.
A. Heaving C. Saturation
B. Wetness D. None of the above

397. A phenomenon which happens when a trench wall is subjected to stress is called _____. Fissured cracks widen until a portion of the trench wall breaks off and slides into the trench.
A. Shear C. Cracking
B. Settlement D. None of the above

398. _____ is a component of a trench shoring system. It consists of durable sheets of metal or wood, which are held firmly against a trench wall to prevent it from caving-in.
A. A trench box C. Shielding
B. Sheeting D. None of the above

399. _____ is a device which provides adequate protection from falling or collapsing earth loads. A common form of this device is called a trench box.
A. A trench box C. Shielding
B. Sheeting D. None of the above

400. The main method of stabilizing and supporting a trench wall to prevent cave-ins is called _____. It consists of uprights, stringers and braces.
A. Shoring C. Shielding
B. Sheeting D. None of the above

When Finished with Your Assignment

REQUIRED DOCUMENTS
Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions
If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX
If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**