

Certified Person; Sampling –  
\*Continuous Personal Dust Monitors (CPDM)  
Certification Examination Question Pool

\* The term “Continuous Personal Dust Monitor” (CPDM) in this examination question pool is in reference to 30 CFR §74.2(d); the use of the term “PDM” is in reference to Thermo Fisher Scientific’s Personal Dust Monitor (Model PDM3700). The Model PDM3700 is currently the only CPDM approved by the Mine Safety and Health Administration (MSHA) and The National Institute for Occupational Safety and Health (NIOSH).

1. A \_\_\_\_\_ is permitted to perform cleaning of the CPDM daily, after each use, or as necessary.
  - a. person certified in maintenance and calibration for the CPDM
  - b. mine official
  - c. person certified in sampling for the CPDM
  - d. both a. and c.
  
2. Cleaning the sample lines as specified by the manufacturer is required to be done daily or \_\_\_\_\_.
  - a. after each use
  - b. annually
  - c. monthly
  - d. none of the above
  
3. The grit pot is required to be cleaned daily, after each use, or as necessary with \_\_\_\_\_.
  - a. canned air
  - b. water
  - c. an alcohol swab
  - d. both a. and c.
  
4. The cyclone and inlet tubing are required to be cleaned \_\_\_\_\_ or as necessary.
  - a. monthly
  - b. daily
  - c. weekly
  - d. every 6 months
  
5. Prior to wearing a CPDM, the miner must be trained on \_\_\_\_\_.
  - a. how to display the information screens
  - b. how to attach the CPDM to his body
  - c. the meaning of information displayed by the CPDM
  - d. all the above
  
6. \_\_\_\_\_ indicates the charge/status of the PDM battery.
  - a. An LED light located on the front of the charging unit
  - b. An internal clock in the unit
  - c. The sound of the charger
  - d. A battery graphic indicator on the PDM's display

7. The filename of the downloadable electronic file created by the PDM for each respirable dust sample contains the \_\_\_\_\_.
  - a. PDM's serial number and the date the sample was taken
  - b. last name and first name of the miner wearing the PDM
  - c. mine name and location
  - d. MSHA district office number
  
8. A \_\_\_\_\_ is used to program the PDM.
  - a. digital oscilloscope
  - b. electronic tachometer
  - c. personal computer
  - d. telephone
  
9. To program the PDM and to download sample results the CPDM must be connected to a \_\_\_\_\_.
  - a. power outlet and a flow meter
  - b. PDM charger and personal computer
  - c. flash drive and PDM charger
  - d. recorder by a connecting cable
  
10. The respirable dust concentrations displayed on the PDM's top panel are reported in \_\_\_\_\_.
  - a. micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )
  - b. grams per cubic meter ( $\text{g}/\text{m}^3$ )
  - c. milligrams per cubic meter ( $\text{mg}/\text{m}^3$ )
  - d. ounces per cubic foot ( $\text{oz}/\text{ft}^3$ )
  
11. During the time the sample is being taken, the \_\_\_\_\_ value displayed on the PDM's top panel is always the cumulative dust concentration measured from the time the sampling shift started.
  - a. Cum2 CONC
  - b. Cum1 CONC
  - c. 15 min
  - d. 30 min
  
12. The Cum1 CONC recorded in the sample results stored in the downloadable sample file is updated \_\_\_\_\_.
  - a. once a day
  - b. once a shift
  - c. once a minute
  - d. none of the above

13. The PDM must operate \_\_\_\_\_ before the bar graph of concentration results is available for viewing.
  - a. 10 minutes
  - b. 20 minutes
  - c. 30 minutes
  - d. 40 minutes
  
14. To maintain certification to collect respirable coal mine dust samples using a CPDM, the certified person must pass an MSHA examination \_\_\_\_\_.
  - a. every 2 years
  - b. every 3 years
  - c. every 5 years
  - d. only once
  
15. When programming the PDM to take a respirable dust sample, the serial number of the PDM will first appear \_\_\_\_\_.
  - a. after programming is completed
  - b. in the upper right-hand corner of the screen before any information is entered
  - c. blinking in all programming software screens
  - d. none of the above
  
16. On the PDM COM1 screen of the PDM programming software, after the “Program Shift” button is activated, the certified person programming the PDM sample must enter \_\_\_\_\_.
  - a. start time of shift
  - b. duration of shift
  - c. mine ID number
  - d. all of the above
  
17. When programming the PDM, the Shift Concentration Limit entered should be the applicable standard for the \_\_\_\_\_ being sampled.
  - a. mine
  - b. entity (DO, ODO, DA, DWP, part 90)
  - c. individual miner
  - d. equipment
  
18. A blinking “S” located in the upper right corner of the PDM’s top panel display indicates \_\_\_\_\_.
  - a. a sampling status condition has voided the sample
  - b. any sample status conditions logged during the sample run
  - c. the PDM is broken and the sample must be aborted
  - d. the sound is turned off

19. MSHA will evaluate any status codes for the purpose of determining \_\_\_\_\_.
- what the age of the miner is
  - how long the miner performed the job
  - if the sample is valid
  - if the ventilation quantity was as specified in the plan
20. Beginning February 1, 2016, \_\_\_\_\_ valid representative samples are required to be collected from each part 90 miner each calendar quarter when using a CPDM.
- 1
  - 5
  - 15
  - 7
21. Beginning February 1, 2016, \_\_\_\_\_ valid representative samples collected on consecutive normal production shifts are required from each DO and ODO every calendar quarter.
- 5
  - 3
  - 15
  - 6
22. When a certified person programs the PDM the values entered for the temperature range need to be \_\_\_\_\_.
- at a tolerance no more than  $\pm 0.1^{\circ}\text{C}$
  - the average expected temperature
  - precise
  - based on the average of the last 30 days
23. In the event that a PDM fails the pre-operational check during the pre-shift warm-up period and the operator cannot use another PDM for sampling, the mine operator should notify the District Manager \_\_\_\_\_ that sampling will not occur because a PDM is not available.
- orally and in writing
  - by text message
  - by social media
  - at the end of the quarter
24. The PDM by default will automatically report dust concentrations as a \_\_\_\_\_.
- MRE-Equivalent
  - constant value
  - maximum concentration
  - minimum concentration

25. When the PDM recognizes a status condition is present the system \_\_\_\_\_.
- shuts down immediately
  - flashes red on the display screen
  - creates and stores a sampling status code
  - reverses the airflow through the pump
26. On August 1, 2016, the respirable dust standard for a part 90 miner will be \_\_\_\_\_ (mg/m<sup>3</sup>).
- 1.0
  - 0.5
  - 1.5
  - 0.1
27. ECV is an acronym for \_\_\_\_\_.
- excess constricted volume
  - excess citation value
  - excessive concentration value
  - extra constrained variable
28. \_\_\_\_\_ demonstrates noncompliance with the applicable respirable dust standard based on quarterly sampling by the operator.
- Two or more samples out of 5 samples  $\geq$  ECV
  - Three or more samples out of 15 samples  $\geq$  ECV
  - The average for all samples  $\geq$  ECV (average for 5 or 15 samples)
  - All of the above.
29. The \_\_\_\_ accounts for the margin of error between the true dust concentration measurement and the observed dust concentration measurement.
- reduced standard
  - ECV
  - MRE
  - all of the above
30. A CPDM must be programmed to automatically report end-of-shift concentration measurements as MRE-Equivalent concentrations of \_\_\_\_\_.
- respirable coal mine dust
  - moisture content
  - coal dust
  - quartz

31. A normal production shift is one on which the material produced by an MMU is at least equal to \_\_\_\_\_ percent of the average production recorded by the operator for the most recent 30 production shifts or for all production shifts if fewer than 30 shifts of production data are available.
- 50
  - 80
  - 100
  - 90
32. A normal production shift for an MMU is based on the \_\_\_\_\_.
- 5 highest and 5 lowest production shifts
  - Average of the most recent 30 production shifts or all production shifts if fewer than 30 production shifts are available
  - 25 shifts of MMUs of equal size
  - average production on the last quarter sampled shifts
33. The ODO identification is a \_\_\_\_\_ digit number assigned by MSHA.
- 2
  - 3
  - 4
  - 7
34. The reduced standard for a MMU is determined by \_\_\_\_\_.
- EPA
  - OSHA
  - MSHA
  - NIOSH
35. A Designated Area (DA) will be assigned a \_\_\_\_\_ digit identification number by MSHA.
- 3
  - 4
  - 2
  - 7
36. A representative Designated Area (DA) sample, unlike a representative Designated Occupational (DO) sample, is not based on \_\_\_\_\_.
- the amount of material produced
  - the task performed by miners
  - the type of face ventilation
  - none of the above

37. A CPDM is approved by the Secretary of Labor and the Secretary of Health and Human Services (HHS) to \_\_\_\_\_.
- collect respirable coal mine dust samples
  - establish quartz percentages
  - control coal production
  - record what miners say
38. The CPDM results must be transmitted to MSHA \_\_\_\_\_.
- physically
  - electronically
  - by messenger
  - only when requested by the District Manager
39. \_\_\_\_\_ is the effective date of the  $1.5 \text{ mg/m}^3$  respirable dust standard for the average concentration of respirable dust in the mine atmosphere.
- February 1,2016
  - August 1,2016
  - September 1,2016
  - none of the above
40. The intake air for an MMU must be continuously maintained at or below the intake air standard within \_\_\_\_\_ outby the working faces of each section.
- 100 feet
  - 200 feet
  - intake entry
  - the mine
41. The maximum concentration of quartz that a miner may be exposed is \_\_\_\_\_.
- $100 \text{ }\mu\text{g/m}^3$
  - $1.5 \text{ mg/m}^3$
  - $2.0 \text{ mg/m}^3$
  - $50 \text{ }\mu\text{g/m}^3$
42. A reduced respirable dust standard due to the presence of quartz is determined by dividing the number \_\_\_\_\_ by the percent quartz.
- 10
  - 1.5
  - 2.0
  - 20

43. Effective August 1, 2016, the 2.0 mg/m<sup>3</sup> respirable dust standard will be lowered to \_\_\_\_\_ mg/m<sup>3</sup>.
- 1.0
  - 0.5
  - 1.75
  - 1.5
44. \_\_\_\_\_ is the effective date that DOs (Designated Occupations) in each MMU must be sampled quarterly with an approved CPDM unless notified by the Secretary to continue to use an approved CMDPSU to conduct quarterly sampling.
- February 1,2016
  - August 1, 2016
  - September 1, 2016
  - none of the above
45. \_\_\_\_\_ assigns the four-digit identification number that identifies each Other Designated Occupation (ODO) that is required to be sampled on a MMU.
- MSHA
  - A person certified in sampling using the CPDM
  - The safety department
  - The mine operator
46. Operators must sample each DO and ODO each calendar quarter until \_\_\_\_\_ valid representative samples are collected for each.
- 5
  - 30
  - 15
  - 1
47. A sample can be \_\_\_\_\_ by MSHA only.
- changed
  - corrected
  - voided
  - erased
48. When sampling shifts are longer than 12 hours, the CPDM must be switched out with a fully charged device prior to the \_\_\_\_\_ hour of operation.
- 13<sup>th</sup>
  - 8<sup>th</sup>
  - 10<sup>th</sup>
  - none of the above

49. The miners who will wear a CPDM must be provided training on basic features and capabilities of the CPDM prior to wearing a CPDM and then every \_\_\_\_\_ months thereafter.
- 6
  - 12
  - 24
  - 36
50. Within \_\_\_\_\_ hours before the start of the shift on which a CPDM will be used to collect respirable dust samples, the CPDM must be checked to assure operational readiness by a certified person in sampling using the CPDM or maintenance and calibration for the CPDM.
- 0.5
  - 3
  - 1
  - 2
51. Procedures to assure the operational readiness of a CPDM as recommended by the manufacturer must be performed by a \_\_\_\_\_.
- person certified in sampling using the CPDM
  - person certified in maintenance and calibration for the CPDM
  - either a or b
  - none of the above
52. When sampling using a CPDM, the person certified in sampling must monitor the dust concentrations and the sampling status conditions being reported by the sampling device \_\_\_\_\_ or more frequently as specified in the approved mine ventilation plan.
- at the end of the cut
  - between the 1<sup>st</sup> and 2<sup>nd</sup> hour of the shift
  - at mid-shift
  - during the last hour of the shift
53. Monitoring of a CPDM sample during the sampling shift is to assure \_\_\_\_\_.
- the device is in the proper location
  - the device is operating properly
  - the work environment of the sampled entity remains in compliance with the applicable standard at the end of the shift.
  - all of the above
54. Sampling of each ODO on an MMU with a CPDM must begin after \_\_\_\_\_ the requirement for DO sampling on the MMU.
- starting
  - fulfilling
  - attempting
  - all of the above

55. When required to sample more than one ODO type, each ODO type must be sampled over \_\_\_\_\_ time periods during the calendar quarter.
- separate
  - the same
  - several
  - separate monthly
56. When programming the CPDM, the “shift concentration limit” is the \_\_\_\_\_.
- excessive concentration value
  - double the respirable dust standard
  - applicable respirable dust standard
  - average value
57. Upon notification by MSHA that the dust standard has changed for an MMU, the new standard shall become effective \_\_\_ calendar days after the date of notification.
- 8
  - 7
  - 15
  - none of the above
58. If normal production is not achieved while sampling the DO or ODO with a CPDM, the sample file must be \_\_\_\_\_.
- downloaded to a personal computer and deleted
  - transmitted to MSHA within 24 hours after the end of the sampling shift
  - left stored on the CPDM until MSHA calls and asks for it
  - none of the above
59. All CPDM data files transmitted electronically to MSHA shall be maintained by the operator for at least \_\_\_\_\_ months.
- 12
  - 24
  - 3
  - 6
60. After a CPDM sample has been taken, a person certified in sampling shall validate, certify, and transmit the sample file electronically to MSHA within \_\_\_\_\_ hours.
- 12
  - 24
  - 36
  - 8

61. The CPDM electronic sample data file must not be \_\_\_\_\_.
- altered
  - electronically transmitted
  - downloaded
  - viewed by mine operator
62. The operator shall keep a record of the miner's training on the CPDM at the mine site for \_\_\_\_\_ months after completion of training.
- 12
  - 24
  - 36
  - 6
63. The operator's CPDM training record shall include \_\_\_\_\_.
- date of training
  - name of miner trained
  - subjects included in the training
  - all of the above
64. When using a CPDM a paper record (Dust Data Card) printed and posted on the mine bulletin board (except part 90 miners) and shall include the \_\_\_\_\_.
- mine identification number
  - location within the mine from which the sample was taken
  - equivalent concentration reported and stored for the sample
  - all of the above
65. The CPDM paper record (Dust Data Card) posted on the mine bulletin board shall include sampling status conditions encountered for each sample unless \_\_\_\_\_.
- no sampling status conditions were encountered by the CPDM
  - the status condition could not be explained
  - the status condition was a repeat from the last time
  - none of the above
66. MSHA will provide the operator with a report on the CPDM respirable dust samples that were electronically transmitted. Upon receipt, the operator must post this data on the mine bulletin board for at least \_\_\_\_\_ days.
- 2
  - 31
  - 15
  - 60

67. Except for part 90 Miners, the CPDM paper record (Dust Data Card) posted on the mine bulletin board following sampling shall remain posted until \_\_\_\_\_.  
a. the MSHA report covering these respirable dust samples is received  
b. all samples are taken for the month  
c. the miner request that the information be updated  
d. the last day of the month
68. All samples are valid samples unless voided by \_\_\_\_\_.  
a. a certified person  
b. a mine official  
c. MSHA  
d. all of the above
69. A designated work position (DWP) is a work position designated for sampling at \_\_\_\_\_.  
a. surface coal mines and surface work areas of underground coal mines  
b. surface preparation plants only  
c. wet locations at surface work areas of an underground coal mine  
d. outby areas in underground coal mines
70. A DWP will be assigned a four-digit number by MSHA to identify the specific physical portion of the mine that is affected, followed by a three-digit MSHA coal mining \_\_\_\_\_ code describing the location to which a miner is assigned in the performance of his or her regular duties.  
a. occupation  
b. section  
c. MRE  
d. area
71. A respirable dust sample, submitted by electronic transmission to MSHA and then voided by MSHA, is not a \_\_\_\_\_ respirable dust sample.  
a. valid  
b. personal  
c. normal  
d. coal mine
72. When sampling a DWP the sampling unit shall remain with the DWP and be operational for \_\_\_\_\_.  
a. 8 hours  
b. the first half of the shift  
c. the entire shift  
d. none of the above

73. When sampling a DWP the sampling unit must be operating \_\_\_\_\_.
- while working in an active mining area
  - while traveling to and from the DWP being sampled
  - during the entire work shift
  - all the above
74. Upon request from the District Manager the operator shall submit the date and time that any required respirable dust sampling will begin. The information shall be submitted at least \_\_\_\_ hours prior to the scheduled sampling.
- 24
  - 48
  - 72
  - 8
75. MSHA requires respirable coal mine dust sampling with a CPDM to be performed by a \_\_\_\_\_.
- person certified by MSHA only in maintenance and calibration for the CPDM
  - person familiar with MSHA sampling procedures
  - person certified by MSHA in sampling with a CPDM
  - mine official
76. MSHA may revoke a person's certification to conduct respirable coal mine dust sampling with a CPDM for \_\_\_\_\_.
- failure to properly carry out the required sampling procedures
  - checking the CPDM at mid shift during sampling
  - training the miner being sampled on how to start and stop a short term sample run during compliance sampling
  - none of the above
77. If a normal work shift is not achieved when sampling a DWP with a CPDM, the sample file must be \_\_\_\_\_.
- discarded and the reason recorded in the certified sampler's notes
  - transmitted to MSHA with a notation by the person certified in sampling stating that the sample was not taken on a normal work shift
  - re-sampled the next shift even though it is raining
  - printed and compared to the last sample taken
78. When sampling a DWP assigned to a piece of mobile equipment, the sampling unit must be worn by the equipment operator or \_\_\_\_\_.
- worn by the certified sampler
  - the sampling shall be voided
  - placed within 36 inches of the equipment operator's normal working position.
  - the shift supervisor

79. The DWP sample location may be changed by the \_\_\_\_\_.
- District Manager
  - Mine Superintendent
  - equipment operator
  - MSHA inspector
80. If a valid representative sample taken from a DWP exceeds the applicable standard, the operator shall, within \_\_\_\_ calendar days of notification, sample the DWP each normal work shift until five valid representative samples are taken.
- 5
  - 10
  - 15
  - none of the above
81. Following receipt of notification from MSHA that a valid representative DWP sample has exceeded the applicable respirable dust standard, the operator shall begin sampling on the \_\_\_\_\_.
- first normal work shift
  - second normal work shift
  - next full month
  - the next day shift
82. When a valid representative sample taken on a DWP meets or exceeds the \_\_\_\_\_, the operator shall immediately take corrective action to lower the concentration of respirable coal mine dust to at or below the applicable standard.
- applicable respirable dust standard
  - excessive concentration value (ECV)
  - national average concentration
  - maximum allowed respirable dust
83. Noncompliance with the applicable standard for a DWP is demonstrated during the sampling period when \_\_\_\_ or more valid representative samples meet or exceed the ECV in Table 71–1 that corresponds to the applicable standard and the particular sampling device used.
- two
  - three
  - four
  - five

84. Noncompliance with the applicable standard for a DWP is demonstrated when the \_\_\_\_\_ for all valid representative samples meets or exceeds the ECV in Table 71–2 that corresponds to the applicable standard and the particular sampling device used.
- highest
  - lowest
  - average
  - both a and b
85. Upon issuance of a citation for a violation of the applicable standard, the operator shall begin sampling the environment of the affected DWP on consecutive normal work shifts within \_\_\_\_\_ calendar days after the date the citation is issued.
- 5
  - 8
  - 10
  - 1
86. \_\_\_\_\_ valid representative sample(s) must be collected on a DWP upon issuance of a citation for a violation of the applicable standard.
- Five
  - One
  - Fifteen
  - Thirty
87. When an MSHA sample collected on a nondesignated work position exceeds \_\_\_\_\_% of the applicable standard, a new DWP may be established by the District Manager
- 30
  - 75
  - 50
  - 80
88. Except for part 90 miner samples, within 12 hours after the end of each sampling shift using a CPDM, a person certified for such sampling shall print, sign, and post on the mine bulletin board a paper record including the \_\_\_\_\_.
- mine identification number
  - shift length
  - sampling status conditions encountered
  - all of the above

89. A representative sample collected on a part 90 miner should reflect the typical dust concentration levels in the part 90 miner's working environment while the miner performs \_\_\_\_\_.
- normal work duties
  - non production day duties
  - work at an alternate site
  - all of the above
90. As of August 1, 2016 the respirable dust concentration of a part 90 miner shall be at or below \_\_\_\_\_.
- $1.0 \text{ mg/m}^3$
  - $0.05 \text{ mg/m}^3$
  - $0.5 \text{ mg/m}^3$  or the applicable standard, whichever is less
  - $0.5 \text{ }\mu\text{g/m}^3$
91. Effective \_\_\_\_\_ 1, 2016 part 90 miners shall be sampled only with an approved continuous personal dust monitor (CPDM).
- January
  - February
  - August
  - September
92. A person certified in sampling using a CPDM shall monitor the dust concentration and \_\_\_\_\_ at mid-shift or more frequently as specified in the approved ventilation plan when a CPDM is used to collect respirable coal mine dust samples.
- sampling status conditions
  - radio channels
  - cap light intensity
  - none of the above
93. The operator shall take five valid representative dust samples for the part 90 miner within \_\_\_\_\_ days after the 20<sup>th</sup> calendar day following receipt of notification from MSHA that a part 90 miner is employed by the mine.
- 5
  - 10
  - 15
  - 30
94. The operator shall take five valid representative dust samples collected on consecutive work days from the environment of each part 90 miner every \_\_\_\_\_.
- month
  - calendar quarter
  - bimonthly period
  - none of the

95. When a citation is issued for a violation of the applicable standard for a part 90 miner, the operator shall take immediate corrective action to lower the concentration of respirable dust to at or below the applicable standard. The operator shall begin sampling the affected miner to collect five valid representative samples within \_\_\_\_\_ calendar days after the date the citation is issued.
- 5
  - 8
  - 10
  - 2
96. A citation for violation of the applicable standard for a part 90 miner shall be terminated by MSHA when the concentration of \_\_\_\_\_ of the five valid representative samples is at or below the applicable standard.
- 2
  - 3
  - each
  - 4
97. Each part 90 miner sample submitted by the mine operator must include the part 90 miner's \_\_\_\_\_ as the means to identify the miner.
- MIIN
  - PIN
  - RIN
  - SSN
98. A person certified in sampling must provide each part 90 miner the respirable dust sample measurements downloaded from the CPDM \_\_\_\_\_.
- within one day after all samples have been completed.
  - within two days after all the samples have been completed.
  - within one hour after the start of the part 90 miner's next work shift.
  - sometime during the sampled quarter
99. \_\_\_\_\_ is permitted to open the case of a PDM that will be used to collect respirable coal mine dust samples?
- Anyone
  - A mine official
  - A certified person in sampling using the CPDM
  - A certified person in maintenance and calibration for the CPDM

100. The PDM 3700 should have a label affixed to the back of the instrument showing that the instrument is approved by \_\_\_\_\_.
- Underwriter Laboratories
  - NIOSH/MSHA
  - OSHA
  - both a and b
101. The flow rate of a CPDM can be calibrated by following the manufacture's procedures. The person authorized to perform the procedures must be \_\_\_\_\_.
- certified by MSHA in low voltage power
  - certified by MSHA in maintenance and calibration for the CPDM
  - certified by MSHA as a mine foreman
  - employed by the manufacturer
102. The PDM 3700 requires a warm-up period of \_\_\_\_\_ that the instrument must cycle through before a programmed sample can begin.
- 15 minutes
  - 25 minutes
  - 35 minutes
  - 40 minutes
103. The PDM 3700 must be started by \_\_\_\_\_ for collecting a full shift respirable coal mine dust sample.
- a manual start
  - a programmed start
  - pressing the on switch
  - either a or c
104. The PDM 3700 shall not be charged in an environment below \_\_\_\_\_.
- 0°C (32° F)
  - 32° C
  - 60° F
  - 0° F
105. If \_\_\_\_\_ the PDM 3700 shall not be operated.
- the conditions are very dusty
  - working close to another operating PDM 3700
  - the case is damaged or otherwise compromised
  - water mist is in the air

106. The air that enters the PDM 3700 passes through a filter that is located \_\_\_\_\_.
- in the air course one inch from the inlet opening
  - in the mass transducer unit
  - between the inlet and discharge of the sampling tube
  - inside the cyclone
107. The PDM 3700 should be charged at least \_\_\_\_\_ before performing a sampling run.
- 6 hours
  - 8 hours
  - 12 hours
  - 16 hours
108. As indicated on the front of the PDM charger, the PDM light on the charger is \_\_\_\_\_ when the PDM charge is complete.
- solid red
  - solid green
  - flashing green
  - flashing red
109. As indicated on the front of the PDM charger, the PDM light on the charger is \_\_\_\_\_ when the PDM has a charge greater than 80% but not complete.
- solid red
  - solid green
  - flashing green
  - flashing red
110. As indicated on the front of the PDM charger, the PDM light on the charger is \_\_\_\_\_ when there is a problem with the charger or connection.
- solid red
  - solid green
  - flashing green
  - flashing red
111. The PDM 3700 measures the amount of dust deposited on the units filter using the technology of a TEOM. TEOM stands for \_\_\_\_\_.
- Thermo Electronic Operating Meter
  - Tapered Element Oscillating Microbalance
  - Timed Evaluation Of Measurement
  - Thermal Element Oscillating Microbalance

112. The filter installed on the TEOM of the PDM 3700 is changed \_\_\_\_\_.
- after each shift of sampling
  - before the unit is charged
  - after the unit is charged
  - when the PDM sets a status code indicating a new filter is needed
113. The sample filter is placed on the \_\_\_\_\_ located in the TEOM unit of the PDM 3700.
- filter holder
  - tapered element
  - sample bracket
  - filter case
114. A \_\_\_\_\_ is furnished to change the filter in the PDM 3700.
- filter exchange tool
  - filter rotate tool
  - filter shifter tool
  - filter clamping tool
115. A sample run taken with the PDM 3700 can be started by two methods. The method of starting a sample run to be submitted to MSHA is \_\_\_\_\_.
- manual
  - programmed
  - miner initiated
  - none of the above
116. When the PDM 3700 is warming up, the warming time displayed indicates \_\_\_\_\_.
- the time remaining before the sample will begin
  - the time warm up began
  - the time of day
  - the remaining life of the heating element
117. After the PDM 3700 has been started using the WinPDM software (programmed start), the measurement of the displayed CUM1 CONC begins \_\_\_\_\_.
- automatically when the warm up time ends
  - when the mass on the filter reaches 0.1 milligrams
  - 30 minutes after the shift starts
  - when the miner presses the start button
118. During a programmed run, the PDM 3700 unit will display the measurement of \_\_\_\_\_.
- CUM A, CUM B, CUM C
  - 30 MIN CONC, CUM1CONC
  - REC X, REC Y, REC Z
  - none of the above

119. A bar graph of average concentrations during the primary sample is displayed by pushing the combinations of the (A) and (B) buttons on the top of the PDM 3700. Each bar of the graph represents \_\_\_\_\_.
- 10 minutes
  - 15 minutes
  - 30 minutes
  - 40 minutes
120. The PDM 3700 bar graph can tell the miner \_\_\_\_\_.
- if respirable dust exposures were higher before or after mid-shift
  - the approximate time of exposure to the greatest concentrations during sample
  - the approximate time of the lowest exposure
  - all the above
121. If a CPDM is found to have a \_\_\_\_\_ during the pre-shift check, then the CPDM cannot be used for sampling in a coal mine.
- cracked case
  - missing screw
  - missing or illegible approval label
  - all of the above
122. Within \_\_\_\_\_ before the start of the shift to be sampled a certified person in sampling using the CPDM or in maintenance and calibration for the CPDM will assure the operational readiness of the CPDM.
- 30 minutes
  - 1 hour
  - 2 hours
  - 3 hours
123. When placing the PDM 3700 inlet on a miner, the inlet assembly should be attached to the miner's \_\_\_\_\_ within the miner's normal breathing zone, making sure the inlet is not obstructed.
- chest
  - head
  - waist
  - hard hat
124. The monthly flow audit for the PDM 3700 can be performed by \_\_\_\_\_.
- a person certified in sampling using CPDM
  - a person certified in maintenance and calibration for the CPDM
  - anyone that knows how to perform the check
  - both a. and b.

125. \_\_\_\_\_ can require additional groups of 15 valid representative DO samples in an MMU if information indicates that the operator has not followed the approved ventilation plan.
- The District Health Supervisor
  - An MSHA inspector
  - The District Manager
  - None of the above
126. If a flow audit determines the PDM is not operating at the 2.2 liter per minute flow rate, \_\_\_\_\_ is permitted to perform a flow calibration.
- a person certified in sampling for using the CPDM
  - a person certified in maintenance and calibration for the CPDM
  - anyone that knows how to perform the task
  - both a. and b.
127. Unless otherwise directed by the District Manager, the sample inlet assembly must be located \_\_\_\_\_ and free of obstructions such as a coat covering the inlet.
- on the piece of mining equipment
  - on the miner required to be sampled
  - in the return airway
  - within 10 feet of the face