

# 2015 Northern Mine Rescue Contest

## Written Exam

### Team Trainer



July 28, 2015

Clymer, New York

**2015 Northern Mine Rescue Contest**  
**Written Exam – Team Trainer**

**Directions: Fill in the corresponding bubble on your Scantron sheet to indicate the letter preceding the correct answer to each of the following questions. Select only one answer per question.**

1. “In accordance with 30 CFR §49.6(b)(1), mine rescue apparatus and equipment shall be maintained in a manner that will ensure readiness for immediate use. **A team member** shall inspect and test the apparatus at intervals not exceeding 30 days and shall certify by signature and date that the inspections and tests were done.” This statement is true only if the team member \_\_\_\_\_.
  - A. has been on the team for at least five years
  - B. is the only person who will wear the apparatus
  - C. is trained in the use and care of breathing apparatus
  - D. All of the Above
  
2. In accordance with 30 CFR §49.6(b)(3), mine rescue apparatus and equipment shall be maintained in a manner that will ensure readiness for immediate use. The certification and the record of corrective action shall be maintained at the mine rescue station for a period of \_\_\_\_\_ and made available on request to an authorized representative of the Secretary.
  - A. two years
  - B. one year
  - C. six months
  - D. ninety days
  
3. In accordance with 30 CFR §49.2(b), each mine rescue team shall consist of \_\_\_\_\_, who are fully qualified, trained, and equipped for providing emergency mine rescue service.
  - A. eight members
  - B. six members and one alternate
  - C. five members and one alternate
  - D. five members
  
4. According to 30 CFR §49.1 Purpose and scope, this part implements the provisions of Section 115(e) of the Federal Mine Safety and Health Act of 1977. Every operator of an underground mine shall assure the availability of mine rescue capability for purposes of emergency rescue and recovery.
  - A. True
  - B. False
  
5. In accordance with 30 CFR §49.7(a), each member of a mine rescue team shall be examined annually by a physician who shall certify that each person is physically fit to perform mine rescue and recovery work for prolonged periods under strenuous conditions. The first such physical examination shall be completed within \_\_\_\_\_ prior to scheduled initial training.
  - A. 90 days
  - B. 60 days
  - C. 120 days
  - D. None of the Above

6. In accordance with 30 CFR §49.8(b)(1), upon completion of the initial training, all team members shall receive at least 40 hours of refresher training annually. This training shall be given at least 4 hours each month, or for a period of 8 hours every two months. This training shall include: sessions underground at least \_\_\_\_\_.
  - A. once each month
  - B. once each 3 months
  - C. once each 6 months
  - D. once each year
  
7. In accordance with 30 CFR §49.5(b), mine rescue stations are to provide a centralized storage location for rescue equipment. This centralized storage location may be either at \_\_\_\_\_.
  - A. the mine site
  - B. affiliated mines
  - C. a separate mine rescue structure
  - D. Any of the Above
  
8. Superficial, partial-thickness, and full-thickness are used to describe the \_\_\_\_\_.
  - A. classification of burns
  - B. severity of burns
  - C. emergency care of burns
  - D. category of burns
  
9. In accordance with 30 CFR §49.6(a)(6), each mine rescue station shall be provided with at least the following equipment: Four gas detectors appropriate for each type of gas that may be encountered at the mines served. Gas detectors must measure concentrations of methane from 0.0 percent to 100 percent of volume, oxygen from 0.0 percent to at least 23 percent of volume, and carbon monoxide from 0.0 parts per million to at least 9,999 parts per million..
  - A. True
  - B. False
  
10. In accordance with 30 CFR §49.8(c), a mine rescue team member will be ineligible to serve on a team if more than \_\_\_\_ of training is missed during one year, unless additional training is received to make up for the time missed..
  - A. 4 hours
  - B. 6 hours
  - C. 8 hours
  - D. None of the Above
  
11. One system for estimating the amount of body surface area burned is called the “rule of nines.”
  - A. True
  - B. False

12. A fresh air base can be set up in a drift, entry (for single-level, room-and-pillar mines), or crosscut close to the affected area. In these cases, \_\_\_\_ must be built to isolate the fresh air base from the unexplored area beyond it.
- A. a permanent bulkhead
  - B. a seal
  - C. a temporary stopping
  - D. an airlock
13. During exploration of the mine, your team will be checking the condition of the mine's ventilation system as they advance. They might find controls that have been destroyed or altered. Their initial responsibility will be to restore normal ventilation to save possible survivors.
- A. True
  - B. False
14. According to the 2016 Metal and Nonmetal Mine Rescue Contest Rules, breathing external air during the working of the problem is an example of a captain or a team member doing something to endanger himself/herself and will result in the assessment of 15 discounts for each infraction.
- A. True
  - B. False
15. According to the 2016 Metal and Nonmetal Mine Rescue Contest Rules, once a post has been set to correct and support an unsafe roof condition, it can only be removed when the team has passed through the area.
- A. True
  - B. False
16. According to the 2016 Metal and Nonmetal Mine Rescue Contest Rules, a regulator should not be opened without prior knowledge of the effects on the mine ventilation system, unless a temporary stopping has been erected.
- A. True
  - B. False
17. According to the 2016 Metal and Nonmetal Mine Rescue Contest Rules, changing ventilation or electric power before the effects of such changes are known will result in 15 discounts assessed (for each infraction).
- A. True
  - B. False
18. The fresh air base coordinator is not responsible for which of the following tasks?
- A. Maintaining communications with the exploring team and the command center
  - B. Providing adequate rest time for the backup team
  - C. Mapping the team's progress and findings
  - D. Coordinating and overseeing the activities of everyone at the fresh air base

19. In accordance with 30 CFR §49.7(c), the operator shall have MSHA Form \_\_\_\_ certifying medical fitness completed and signed by the examining physician for each member of a mine rescue team. These forms shall be kept on file at the mine rescue station for a period of one year.
- A. 5000-3
  - B. 5000-17
  - C. 5000-23
  - D. 5000-41
20. According to the General Rules for the Mine Rescue Field Competition, the team captain and/or trainer may protest in writing any discount within 30 minutes after reviewing them. Written appeals are not to exceed \_\_\_\_ for any discount assessed and will be submitted to the Appeals Committee.
- A. four sentences
  - B. three paragraphs
  - C. two pages and one diagram
  - D. one page
21. For the purposes of contest work, no barricade will be breached without ventilating in front of the barricade if:
- A. Carbon Monoxide (CO) is 1,200 ppm (0.12%)
  - B. Nitrogen Dioxide (NO<sub>2</sub>) is 30 ppm (0.003%)
  - C. Sulfur Dioxide (SO<sub>2</sub>) is 100 ppm (0.01%)
  - D. Hydrogen Sulfide (H<sub>2</sub>S) is 100 ppm (0.01%)
22. A self-contained breathing apparatus (SCBA) will protect you from all toxic gases, as long as your face-to-facepiece seal is tight and the unit is working properly.
- A. True
  - B. False
23. Light gases, such as hydrogen, diffuse rapidly and are fairly easy to disperse. Heavy gases, such as sulfur dioxide, do not diffuse rapidly, so they're more difficult to disperse. The specific gravity of both light and heavy gases is the only factor which determines how quickly they will disperse or diffuse.
- A. True
  - B. False
24. As part of the "triage" system, survivors can be categorized into three top priority groups according to their condition or injury. A fourth priority group contains all other minor injuries not classified in any of the other three groups.
- A. True
  - B. False

25. The abdomen is a large body region that contains many vital organs. The navel is the main point of reference when describing the abdomen which is divided into four quadrants. The gall bladder is located in the \_\_\_\_.
- A. right upper quadrant
  - B. left upper quadrant
  - C. right lower quadrant
  - D. left lower quadrant
26. The terms “proximal” and “distal” are commonly used to describe anatomy related to limbs. Proximal means \_\_\_\_.
- A. toward the head
  - B. toward the feet
  - C. closest to the torso
  - D. further away from the torso
27. In general, an emergency medical responder should only move a patient when absolutely necessary. However, there are emergency situations when it may be necessary to move a patient, which include \_\_\_\_.
- A. moving the patient to level ground
  - B. moving the patient away from a dangerous environment
  - C. moving the patient away from other patients who need lifesaving care
  - D. Both B and C
28. If you arrive on scene with an AED and someone else is performing CPR, your job will be to \_\_\_\_.
- A. take over CPR and instruct that person to use the AED
  - B. provide rescue breathing in between chest compression cycles
  - C. perform a primary assessment to confirm that the patient is indeed in cardiac arrest
  - D. prepare and attach the defibrillator
29. Which of the following may indicate possible cardiac compromise?
- A. dyspnea
  - B. angina pectoris
  - C. myocardial infarction
  - D. None of the Above
30. Injuries along the spinal column can cause paralysis and reduce normal body function and movement. If numbness, loss of feeling, or paralysis involves the arms and legs, the injury is probably \_\_\_\_.
- A. above the neck
  - B. in the neck
  - C. below the neck
  - D. in the thoracic vertebrae

## **ANSWER KEY**

### **Written Exam – Team trainer**

#### **All questions taken from MSHA Publication 3027**

| <b><u>Question</u></b> | <b><u>Answer</u></b> | <b><u>Source</u></b>                                                 |
|------------------------|----------------------|----------------------------------------------------------------------|
| 1.                     | <b>C.</b>            | 30 CFR §49.6(b)(1)                                                   |
| 2.                     | <b>B.</b>            | 30 CFR §49.6(b)(3)                                                   |
| 3.                     | <b>C.</b>            | 30 CFR §49.2(b)                                                      |
| 4.                     | <b>A.</b>            | 30 CFR §49.1                                                         |
| 5.                     | <b>B.</b>            | 30 CFR §49.7(a)                                                      |
| 6.                     | <b>C.</b>            | 30 CFR §49.8(b)(1)                                                   |
| 7.                     | <b>D.</b>            | 30 CFR §49.5(b)                                                      |
| 8.                     | <b>D.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 17, pg. 384           |
| 9.                     | <b>B.</b>            | 30 CFR §49.6(a)(6)                                                   |
| 10.                    | <b>C.</b>            | 30 CFR §49.8(c)                                                      |
| 11.                    | <b>A.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 17, pg. 385           |
| 12.                    | <b>D.</b>            | Module 4, pg. 4-7                                                    |
| 13.                    | <b>B.</b>            | Module 3, pg. 3-3                                                    |
| 14.                    | <b>B.</b>            | 2016 MRC Rules, Judge 1 – UG Rule #1 – 10 discounts, each infraction |
| 15.                    | <b>B.</b>            | 2016 MRC Rules, Judge 1 – UG Rule #10(b)(7) – Post cannot be removed |
| 16.                    | <b>B.</b>            | 2016 MRC Rules, Judge 2 – UG Rule #10                                |
| 17.                    | <b>A.</b>            | 2016 MRC Rules, Judge 2 – UG Rule #12                                |
| 18.                    | <b>B.</b>            | Module 4, pg. 4-8                                                    |
| 19.                    | <b>A.</b>            | 30 CFR §49.7(c)                                                      |
| 20.                    | <b>D.</b>            | 2016 MRC Rules, General Rule #5, pg. 9                               |
| 21.                    | <b>B.</b>            | 2016 MRC Rules, Team Preparation and Procedures, Barricades, pg. 28  |
| 22.                    | <b>B.</b>            | Module 2, pg. 2-10                                                   |
| 23.                    | <b>B.</b>            | Module 2, pg. 2-7                                                    |
| 24.                    | <b>B.</b>            | Module 6, pg. 6-5                                                    |
| 25.                    | <b>A.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 4, pgs. 64-66         |
| 26.                    | <b>C.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 4, pg. 61             |
| 27.                    | <b>D.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 5, pg. 95             |
| 28.                    | <b>D.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 10, pg. 208           |
| 29.                    | <b>A.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 13, pg. 277           |
| 30.                    | <b>B.</b>            | Brady's EMR - 9 <sup>th</sup> Edition, Chapter 20, pg. 449           |