# 2019

NEVADA REGIONAL MINE RESCUE CONTEST

Use the answer sheet to mark your answers. This document will NOT be scored.


## **GENERAL** TEAM TEST

KEEP THIS DOCUMENT FACE DOWN UNTIL THE CLOCK STARTS

YOU WILL HAVE 60 MINUTES TO COMPLETE ALL TESTING

1. In addition to other gasses that may exist at your mine, the gas detectors in the mine rescue station must detect concentrations of:
    a. $O_2$ (0 to 20%), CO (0-999 ppm), $CH_4$ (0 to 25%)
    b. $O_2$ (0 to 25%), CO (0-9999 ppm), $CH_4$ (0 to 100%)
    c. $O_2$ (0 to 20%), CO (0-99%), $CH_4$ (0 to 100 ppm)
    d. None of the above

2. Which are true about the diffusion of gasses?
    a. An increase in atmospheric pressure causes a gas to expand.
    b. An increase in temperature causes a gas to contract.
    c. A decrease in atmospheric pressure causes a gas to contract.
    d. A decrease in temperature causes a gas to expand.
    e. None of the above.

3. Examples of gasses that are soluble in water are:
    a. Radon
    b. Carbon Dioxide
    c. Hydrogen
    d. Hydrogen Sulfide
    e. b, a, d

4. The degree to which a toxic gas will affect the body depends on:
    a. How toxic it is
    b. Concentration
    c. Length of exposure
    d. All of the above
    e. None of the above

5. Normal air is comprised mostly of:
    a. Oxygen
    b. Hydrogen
    c. Nitrogen
    d. Helium
    e. None of the above

6. Oxides of Nitrogen (NO, $NO_2$ or $N_2O_4$) are considered:
    a. Asphyxiants
    b. Explosive
    c. Flammable
    d. Toxic
    e. All of the above

7. Hydrogen Sulfide ($H_2S$) is:
    a. An asphyxiant
    b. Is brown in color at high concentrations
    c. Is heavier than normal air
    d. Is not explosive

8. An example of a ventilation control used in a mine is:
    a. Check curtains
    b. Regulators
    c. Auxiliary fans and tubing
    d. Line brattice
    e. All of the above

9. The team will assess ventilation while exploring a mine. During the assessment, the team should:
    a. Report the type and extent of damage to stoppings
    b. Check the condition of airlines used to run air-powered fans
    c. Measure airflow (if asked)
    d. All of the above
    e. A & C

10. When measuring the airflow in a mine using a smoke tube you should use the _____ method.
    a. Transverse
    b. Trans dimensional
    c. Multidirectional
    d. None of the above

11. When using a smoke tube to determine the quantity ($Q=(ft.^3/min.)$) of air traveling through an area you must _____.
    a. Divide the velocity (ft/sec) by the area ($ft^2$)
    b. Multiply the distance traveled by the smoke to the time
    c. Multiply the area ($ft^3$) by the velocity (ft./sec)
    d. Multiply the area ($ft^2$) by the velocity (ft./min)
    e. None of the above

12. When erecting a temporary bulkhead you should always:
    a. Scale loose material from the back
    b. Shovel loose material at the bottom to make a good seal
    c. Cut a small hole at the top to vent spent air.
    d. All of the above
    e. A & B

13. Barefaced exploration should <u>not</u> take place, or should stop when:
    a. Teams should never explore barefaced
    b. Disruption in ventilation occurs
    c. Gas tests show the presence of dangerous gasses
    d. The team encounters smoke or damage
    e. B, C & D

14. When establishing a Fresh Air Base, you must ensure _____.
    a. That there is negative ventilation
    b. That communication can be linked to the command center
    c. That there are padded chairs
    d. That there is a fresh air travel way through which to move people and supplies
    e. B & D

15. According to the training manual, what is the *recommended* frequency for a "team check"?
    a. 30 – 40 minutes
    b. 15 – 20 minutes
    c. Once an hour
    d. Never

16. When using a communication line, if communication is lost between the team and fresh air base, the team will use tug signals to communicate team movement back to fresh air base. The _____ is responsible for monitoring the tugs. If the team is stopped for an extended period performing a task, it is a common practice for the fresh air base to give one long pull around every _____ minutes.
    a. FAB Coordinator, 10
    b. FAB Attendant, 5
    c. FAB Coordinator, 20
    d. FAB Attendant, 30

17. During exploration the captain or co-captain may choose to mark the team's route with chalk or spray paint. If the team does this, where should the head of the arrow point?
    a. In the direction the team is traveling
    b. To the nearest refuge chamber
    c. Toward the fresh air base
    d. None of the above

18. Where should a team captain date and initial during exploration?
    a. Bulkheads
    b. Crosscuts
    c. Air doors
    d. All of the above
    e. None of the above, it only applies during contests

19. What can a team do when they encounter bad ground conditions?
    a. Note the location on the map
    b. Scale it
    c. Support it
    d. Detour around it
    e. All of the above

20. Where/when should gas tests be made?
    a. Each intersection
    b. Furthest point of travel
    c. On the other side of doors/bulkheads before passing through them
    d. All of the above
    e. A & C only

21. According to MSHA 3027, mine rescue team should carry a multi-purpose dry chemical fire extinguisher. The chemical mentioned is _____.
    a. Purple K
    b. Halon
    c. Di-Hydrogen Oxide
    d. Plus Fifty - C
    e. None of the above

22. When using a hand-held dry chemical fire extinguisher you should hold the nozzle downward at a _____ degree angle and direct the stream of dry chemical about _____ ahead of the flame edge.
    a. 30, 1 foot
    b. 45, 6 inches
    c. 25, 10 inches
    d. 15, 5 inches

23. High Expansion Foam is only used to fight _____ class fires.
    a. A
    b. B
    c. C
    d. C or D
    e. A or B

24. To assure your team's safety, before going underground to fight a fire the team should know as much as possible about _____ in the affected area of the mine.
    a. Potential ignition sources
    b. Explosives storage areas
    c. Electrical power
    d. All of the above
    e. None of the above

25. Electric shock and electrocution **are** hazards when fighting a fire using _____.
    a. Purple K
    b. Halon
    c. Water
    d. Foam
    e. C or D

26. Usually, after temporary seals are erected, a waiting period of about _____ is recommended before beginning construction of permanent seals.
    a. 12 hours
    b. 24 hours
    c. 36 hours
    d. 72 hours
    e. None of the above

27. During triage which of the above are considered First Priority conditions?
    a. Inhalation of poisonous gasses
    b. Back injuries with spinal involvement
    c. 3rd degree burns covering 9% of the body
    d. Multiple Fractures
    e. None of the above

28. During triage which are NOT considered Third Priority conditions?
    a. 3rd degree burns involving < 2% of the body
    b. Fractured arm and foot
    c. Obviously dead (DOA)
    d. Abrasions
    e. None of the above

29. Which of the items will NOT affect how quickly a body will decay.
    a. Body Fluid Content
    b. Air Temperature
    c. Body Size/Musculature
    d. Clothing worn
    e. All of the above can affect decomposition

30. Gas samples from behind a seal must be analyzed before the seal is taken down. Which gas below is NOT usually analyzed?
    a. Carbon Monoxide
    b. Dihydrogen oxide
    c. Oxygen
    d. Carbon Dioxide
    e. Methane