1. To test for methane, use a \_\_\_\_\_ \_\_\_\_\_ or chemical analysis.
   1. gas detector
   2. gas spotter
   3. methane detector
   4. methane spotter

1. Carbon monoxide can be \_\_\_\_\_ by means of carbon monoxide detectors, multi-gas detectors, or by chemical analysis.
   1. found
   2. located
   3. analyzed
   4. detected

1. \_\_\_\_\_ \_\_\_\_\_ is produced by burning and by the detonation of explosives.
   1. Carbon dioxide
   2. Nitrogen sulfide
   3. Carbon monoxide
   4. Nitrogen dioxide

1. A \_\_\_\_\_ of coal dust in air reduces the explosive limit of methane.
   1. combination
   2. mixture
   3. mix
   4. solution

1. One and one-half to two percent methane together with \_\_\_\_\_ \_\_\_\_\_ in air may be explosive.
   1. float dust
   2. coal dust
   3. coal fines
   4. crushed coal
2. Mines below the water table tend to have more \_\_\_\_\_ than those above the water table.
   1. methane
   2. gas
   3. water
   4. problems

1. After a fire or explosion in a mine, rescue teams are usually needed to go into the mine to assess and \_\_\_\_\_ ventilation.
   1. re-establish
   2. establish
   3. evaluate
   4. re-evaluate

1. The range of \_\_\_\_\_ within which a gas will explode are known as its “explosive range”.
   1. contents
   2. constituents
   3. concentrations
   4. contaminates

1. Any \_\_\_\_\_ gas can explode under certain conditions.
   1. noxious
   2. harmful
   3. flammable
   4. explosive

1. \_\_\_\_\_ \_\_\_\_\_ methods allow firefighters to remain a safe distance from the fire.
   1. Indirect firefighting
   2. Direct firefighting
   3. Indirect extinguishing
   4. Direct extinguishing

1. Temporary seals are built before permanent seals are erected in order to seal off a fire area as \_\_\_\_\_ as possible.
   1. soon
   2. quickly
   3. fast
   4. safely

1. In mines where \_\_\_\_\_ \_\_\_\_\_ (roof coal) is left, a fire will spread more rapidly.
   1. top coal
   2. slough coal
   3. head coal
   4. upper coal

1. One hazard of heat during a fire is that it tends to weaken the roof, especially where \_\_\_\_\_ \_\_\_\_\_ is left.
   1. top coal
   2. slough coal
   3. head coal
   4. upper coal

1. Fires can be attacked by the use of a foam generator from a distance of \_\_\_\_\_ feet.
   1. 100-1,500
   2. 150-1,500
   3. 500-1,500
   4. 500-2,500

1. It is generally recommended that teams not travel through \_\_\_\_\_ filled areas.
   1. water
   2. dust
   3. foam
   4. mud

1. One method of indirect firefighting is flooding the sealed fire area with \_\_\_\_\_ .
   1. gas
   2. water
   3. dust
   4. foam

1. Once an explosion has occurred, there is always the \_\_\_\_\_ of further explosions.
   1. chance
   2. risk
   3. possibility
   4. likelihood

1. Mine rescue teams may find it necessary to use \_\_\_\_\_ \_\_\_\_\_ to sweep noxious or explosive gases from a face area.
   1. line curtain
   2. line brattice
   3. check curtain
   4. temporary stoppings
2. Once ventilation has been re-established and fresh air advanced, non-apparatus crews can take over the \_\_\_\_\_ and cleanup effort.
   1. restoration
   2. recovery
   3. rehabilitation
   4. recuperation

1. Rescue teams are responsible for assessing damage to the \_\_\_\_\_ \_\_\_\_\_ .
   1. ventilation system
   2. roof system
   3. ventilation method
   4. roof practices

1. Information the team relays to the fresh-air base as it proceeds is known as the “\_\_\_\_\_ \_\_\_\_\_ ”.
   1. advancement report
   2. movement report
   3. progress report
   4. team report

1. It is the responsibility of rescue team members to have all the information needed to do the \_\_\_\_\_ .
   1. drudgery
   2. labor
   3. function
   4. work

1. When a team locates a body, its location and position should be marked on a \_\_\_\_\_ \_\_\_\_\_ and on the roof or rib close to the body.
   1. mine map
   2. team map
   3. rescue map
   4. field map

1. The rescue team captain should regulate the team’s pace according to \_\_\_\_\_ \_\_\_\_\_ .
   1. conditions found
   2. conditions encountered
   3. situations faced
   4. encountered circumstances

1. When a body is \_\_\_\_\_ located, every effort should be made not to disturb any possible evidence in the area.
   1. initially
   2. first
   3. immediately
   4. originally

1. In \_\_\_\_\_ too hazardous for teams to explore and reventilate safely, teams may be instructed to seal the area.
   1. situations
   2. circumstances
   3. conditions
   4. locations

1. New mine rescue team members must have at least \_\_\_\_\_ hours of instruction on the breathing apparatus used by the team.
   1. 4
   2. 8
   3. 12
   4. 20

1. Before the team leaves the fresh-air base to \_\_\_\_\_ inby, the captain should take note of the time of departure.
   1. voyage
   2. travel
   3. move
   4. go

1. It is recommended that \_\_\_\_\_ checks be conducted every 15 to 20 minutes.
   1. apparatus
   2. gas
   3. team
   4. roof

1. It is recommended that the first stop for a \_\_\_\_\_ check be just inby the fresh-air base.
   1. apparatus
   2. gas
   3. team
   4. roof

1. Teams should report the \_\_\_\_\_ team member’s oxygen gauge reading at each check.
   1. highest
   2. first
   3. lowest
   4. last

1. “\_\_\_\_\_ \_\_\_\_\_ ” is the process by which you systematically explore all crosscuts and adjacent areas as you advance.
   1. Tying in
   2. Tying back
   3. Initial exploration
   4. Team travel

1. As the team advances underground, the captain takes the \_\_\_\_\_ .
   1. command
   2. lead
   3. reigns
   4. cake

1. It is important that the team pace its work so that it can return to the fresh air base \_\_\_\_\_ \_\_\_\_\_ .
   1. on time
   2. in unison
   3. well rested
   4. all together

1. As the team \_\_\_\_\_ , the map man records what the team encounters by marking the information on a mine map.
   1. progresses
   2. explores
   3. proceeds
   4. advances

1. The team is responsible for choosing the exact sites within headings for building \_\_\_\_\_ .
   1. stoppings
   2. brattices
   3. seals
   4. statues

1. Smoke causes a lack of orientation which may cause a team member to lose his/her sense of \_\_\_\_\_ .
   1. smell
   2. sight
   3. balance
   4. mind

1. Class \_\_\_\_\_ fires involve flammable or combustible liquids.
   1. A
   2. B
   3. C
   4. D

1. Class \_\_\_\_\_ fires involve combustible metals.
   1. A
   2. B
   3. C
   4. D

1. Before using a hand held extinguisher it must be checked for the \_\_\_\_\_ of fire you are fighting.
   1. class
   2. type
   3. kind
   4. category

1. Solubility is the ability of a gas to be \_\_\_\_\_ in water.
   1. liquefied
   2. dispersed
   3. dissolved
   4. suspended

1. Pools of water can release water soluble gases into the \_\_\_\_\_ when they are stirred up.
   1. air
   2. atmosphere
   3. environment
   4. surroundings

1. \_\_\_\_\_ expansion foam is light and resilient and can travel long distances to a fire without breaking down.
   1. low
   2. high
   3. positive
   4. negative

1. \_\_\_\_\_ expansion foam is very wet and heavy and can only be used when you’re close enough to a fire to force the foam directly onto the fire.
   1. low
   2. high
   3. positive
   4. negative

1. \_\_\_\_\_ \_\_\_\_\_ is explosive.
   1. Carbon monoxide
   2. Nitrogen oxide
   3. Carbon Dioxide
   4. Hydrogen sulfide

1. \_\_\_\_\_ is a supporter of combustion.
   1. Methane
   2. Nitrogen
   3. Oxygen
   4. Air

1. If smoke is so \_\_\_\_\_ as to make visibility poor, you may need to keep in constant physical contact with an object or a rib in order to feel your way along.
   1. thick
   2. dense
   3. dark
   4. heavy

1. Two types of fire cannot be fought \_\_\_\_\_ , fuel rich and spon com (spontaneous combustion).
   1. safely
   2. in-directly
   3. directly
   4. remotely

1. Team safety must not be \_\_\_\_\_ .
   1. jeopardized
   2. forgotten
   3. risked
   4. compromised

1. \_\_\_\_\_ \_\_\_\_\_ and gases helps to determine the effectiveness of firefighting and the potential danger of an explosion.
   1. Monitoring atmospheres
   2. Monitoring surroundings
   3. Checking temperatures
   4. Monitoring pressures

1. Sulfur dioxide and hydrogen sulfide are \_\_\_\_\_ \_\_\_\_\_ gases.
   1. very dangerous
   2. very poisonous
   3. water soluble
   4. highly explosive

1. Color, odor, and taste are physical properties that help to identify gases during \_\_\_\_\_ exploration.
   1. initial
   2. continued
   3. primary
   4. barefaced

1. Only detectors and chemical analysis can \_\_\_\_\_ identify a gas.
   1. correctly
   2. properly
   3. positively
   4. accurately

1. The effects of toxic gases depend on the concentration, \_\_\_\_\_ , and exposure time.
   1. toxicity
   2. solubility
   3. explosiveness
   4. flammability

1. Asphyxiates are gases which cause suffocation or \_\_\_\_\_ .
   1. wheezing
   2. gagging
   3. fainting
   4. choking

1. Firedamp is a mixture of \_\_\_\_\_ in air that will burn or explode when ignited.
   1. methane
   2. hydrogen
   3. nitrogen
   4. oxygen

1. If there is a sufficient amount of \_\_\_\_\_ in smoke, the smoke may be explosive.
   1. methane
   2. hydrogen
   3. hydrocarbons
   4. gasses

1. Ventilation controls are used underground to properly \_\_\_\_\_ air to all sections of the mine.
   1. deliver
   2. disperse
   3. disseminate
   4. distribute

1. Gases with specific gravities less than 1.0 tend to seek \_\_\_\_\_ places.
   1. high
   2. low
   3. calm
   4. airy

1. Gases with specific gravities greater than 1.0 tend to seek \_\_\_\_\_ places.
   1. high
   2. low
   3. calm
   4. airy

1. In order to \_\_\_\_\_ an airlock, one door of the airlock must be kept closed while the other is opened.
   1. maintain
   2. sustain
   3. provide
   4. hold

1. Rescue teams should build an airlock so that the two stoppings are \_\_\_\_\_ as close together as possible yet with enough space to allow room for the team and their equipment to fit in between.
   1. raised
   2. assembled
   3. constructed
   4. erected

1. If the fresh air base is underground, it should be located where it’s \_\_\_\_\_ a fresh air travelway to the surface.
   1. certain
   2. assured
   3. guaranteed
   4. confident

1. The fresh air base should be located where it’s \_\_\_\_\_ positive ventilation and fresh air.
   1. certain
   2. assured
   3. guaranteed
   4. confident

1. \_\_\_\_\_ should be tested before use following a disaster.
   1. Fans
   2. Cages
   3. Elevators
   4. Equipment

1. As a team \_\_\_\_\_ , it is important to stay in close contact with the fresh air base/command.
   1. advances
   2. moves
   3. proceeds
   4. progresses

1. Methane is \_\_\_\_\_ than air.
   1. heavier
   2. lighter
   3. higher
   4. lower

1. Normal air has a specific gravity of \_\_\_\_\_ .
   1. one
   2. 0.9
   3. 1.1
   4. 5

1. Sufficient time should be allowed for a fire area to \_\_\_\_\_ before it is unsealed.
   1. extinguish
   2. smolder
   3. cool
   4. settle

1. Team captains should inspect roof and ribs before the \_\_\_\_\_ \_\_\_\_\_ advance into the area.
   1. back-up team
   2. team members
   3. rescue team
   4. rescue members

1. The roof and ribs should be tested before \_\_\_\_\_ a fire.
   1. extinguishing
   2. fighting
   3. hosing
   4. crossing

1. \_\_\_\_\_ \_\_\_\_\_ should be marked to warn other teams that may enter the area after yours.
   1. Bodies found
   2. Copper heads
   3. Hazardous areas
   4. Loose towels

1. \_\_\_\_\_ \_\_\_\_\_ should include reports on roof and rib conditions and gas conditions.
   1. advancement report
   2. movement report
   3. progress report
   4. team report

1. The time spent under oxygen by a rescue team is usually limited to \_\_\_\_\_ \_\_\_\_\_ or less.
   1. four hours
   2. three hours
   3. two hours
   4. one hour

1. When looking for \_\_\_\_\_ , it is important to both look and listen for clues.
   1. fires
   2. bodies
   3. persons
   4. survivors

1. For a Class C fire (electrical), if power has been cut off to the \_\_\_\_\_ equipment, it may be treated as a Class A or B fire.
   1. affected
   2. effected
   3. burning
   4. energized

1. When \_\_\_\_\_ are located, their location, identities, and condition should be reported immediately to the command center.
   1. fires
   2. bodies
   3. persons
   4. survivors

1. When \_\_\_\_\_ are located, the location, time, and date should be marked on the team’s map and on the rib where they are found.
   1. fires
   2. bodies
   3. persons
   4. survivors

1. When \_\_\_\_\_ are located, they should be transported to safety and fresh air as quickly as possible.
   1. fires
   2. bodies
   3. persons
   4. survivors

1. The main objective of \_\_\_\_\_ work is to put the affected area of the mine back in operation as soon as possible.
   1. recovery
   2. rescue
   3. salvage
   4. reclamation

1. All temporary seals should be well \_\_\_\_\_ in the floor roof, and ribs to improve their strength.
   1. niched
   2. hitched
   3. seated
   4. anchored

1. \_\_\_\_\_ foam is an effective sealant when used around the perimeter of a seal.
   1. Expanding
   2. Neoprene
   3. Urethane
   4. Sealing

1. High volatile coal \_\_\_\_\_ much faster than low or medium volatile coal.
   1. ignites
   2. burns
   3. collapses
   4. crushes

1. It may be \_\_\_\_\_ to double or triple the thickness of the material in order to improve the effectiveness of a temporary seal.
   1. necessary
   2. essential
   3. required
   4. needed

1. Seals should be built at locations with good roof and even \_\_\_\_\_ and ribs.
   1. floor
   2. roof
   3. ribs
   4. top

1. Rescue teams may encounter many \_\_\_\_\_ while fighting fires directly by hand.
   1. problems
   2. dangers
   3. hazards
   4. obstacles

1. When fires are sealed in gassy or dusty mines, a thick coating of \_\_\_\_\_ \_\_\_\_\_ should be applied to the ribs, roof and floor for several hundred feet outby the seals.
   1. positive foam
   2. negative foam
   3. wet dust
   4. rock dust

1. The main objectives of \_\_\_\_\_ work during a mine fire are locating the fire and assessing conditions in the fire area.
   1. advancing
   2. exploration
   3. survey
   4. investigative

1. A self-contained breathing apparatus is a completely portable unit that supplies oxygen or air \_\_\_\_\_ of the surrounding atmosphere.
   1. freely
   2. independently
   3. sufficient
   4. natural

1. A \_\_\_\_\_ \_\_\_\_\_ is used to show the direction and velocity of slow moving air.
   1. Davis anemometer
   2. digital anemometer
   3. smoke tube
   4. magnehelic gauge

1. If a team member must \_\_\_\_\_ to the fresh air base because of a problem, it is standard practice among teams for the entire team to go back with that person.
   1. retreat
   2. return
   3. evacuate
   4. run

1. Thermal imaging cameras should only be used in less than \_\_\_\_\_ percent of Methane.
   1. 0.5
   2. 1
   3. 1.5
   4. 2.0

1. Once rescued, survivors should never be left \_\_\_\_\_ .
   1. unattended
   2. alone
   3. isolated
   4. solo

1. The lower explosive limit of hydrogen is \_\_\_\_\_ percent.
   1. 2.5
   2. 4.5
   3. 4.0
   4. 12.1

1. The IDLH of Nitrogen Dioxide is \_\_\_\_\_ ppm.
   1. 200
   2. 20
   3. 2000
   4. 20000
2. Clean, dry air at sea level is made up of \_\_\_\_\_ percent nitrogen and 21 percent oxygen.
   1. 79
   2. 78
   3. 77
   4. 76

1. After a \_\_\_\_\_ has been sealed, it is recommended to wait 72 hours before making the initial visit to the seals.
   1. mine
   2. cavity
   3. vicinity
   4. fire

1. When appropriate, a fire area is not un-sealed until the oxygen content is low enough to make explosions impossible and the \_\_\_\_\_ \_\_\_\_\_ has disappeared.
   1. methane gas
   2. harmful smoke
   3. carbon monoxide
   4. carbon dioxide

1. Firefighters force inert gases into areas where they are trying to \_\_\_\_\_ the oxygen leg of the fire triangle.
   1. remove
   2. eliminate
   3. eradicate
   4. decapitate

1. A team is a \_\_\_\_\_ made up of individuals working toward a common goal.
   1. group
   2. unit
   3. crew
   4. gang