

FIRST RESPONDER EQUIVALENCE CHALLENGE TEST

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This is a closed-book exam. There is no time limit. Write qualifications or comments next to your answer if you wish. Pick the single best answer for each question. The exam is deliberately a difficult one, and this will be taken into account in grading, so don't worry if the questions seem difficult; just do the best you can.

1. How many valves are in the heart?
 - a. two
 - b. four
 - c. six
 - d. eight

2. The lung is covered with a smooth glistening set of membranes known as the
 - a. alveoli.
 - b. bronchi.
 - c. pericardium.
 - d. pleura.

3. Which pair of pulses is from the same extremity?
 - a. precordial and femoral
 - b. brachial and radial
 - c. brachial and femoral
 - d. carotid and femoral

4. If a patient's blood pressure is 120/80, the 80 indicates the:
 - a. systolic pressure.
 - b. diastolic pressure.
 - c. infusion pressure.
 - d. pulse pressure.

5. When the diameter of a structure increases, it is called:
 - a. aspiration
 - b. constriction
 - c. dilation (dilatation)
 - d. injection

6. Blood pressure changes with age. A useful rule of thumb for the normal systolic pressure in the male is to a maximum level of 140-150 mm Hg.
 - a. 120 plus the age of the patient
 - b. 100 plus the age of the patient
 - c. 80 plus the age of the patient

7. A single blood pressure reading of 120/90 is a good indication that:
 - a. the patient is in shock.
 - b. the patient is not in shock.
 - c. the patient is hypertensive.
 - d. Single readings aren't generally good indicators of anything; trends, or changes from the patient's normal blood pressure are what is important.

8. A narrow pulse pressure (a small difference between systolic and diastolic pressures, e.g. 100/90) may keep one from hearing the sounds normally heard with the stethoscope (*Korotkoff sounds*), although the blood pressure can usually be felt (palpated) with a finger on the pulse distal to (beyond) the blood pressure cuff.
 - a. true
 - b. false

9. Which of the following is not a possible cause of unequal pupils?
 - a. a stroke
 - b. a head injury
 - c. shock
 - d. a glass eye

10. The oral (oropharyngeal) airway will:
 - a. act as a substitute for careful positioning of the head and jaw.
 - b. frequently open the airway when other maneuvers fail.
 - c. not be tolerated by a fully conscious patient and may cause vomiting in a semi-conscious patient.

11. It is dangerous to leave an unconscious person lying on his or her back with a pillow under the head because:
 - a. the person may develop airway obstruction as the tongue drops into the back of the throat.
 - b. if the person vomits or regurgitates (stomach contents quietly coming back up the esophagus into the throat), stomach acids and other material may drain into the lungs ("aspiration").
 - c. both of the above are good answers

12. The most common cause of death in an unconscious patient is:
- shock.
 - pneumonia.
 - airway obstruction.
 - choking on vomitus.
13. In mouth-to-nose ventilation, the rescuer must open the victim's mouth to allow him to exhale.
- true
 - false
14. _____ is a quivering motion of the heart with no effective pumping of blood.
- Cardiovascular collapse (electromechanical dissociation)
 - Ventricular fibrillation
 - Respiratory arrest
 - Asystole
15. _____ means the heart is beating (its electrical system is working) but the heart is ineffective in pumping blood.
- Cardiovascular collapse (electromechanical dissociation)
 - Ventricular fibrillation
 - Respiratory arrest
 - Asystole
16. _____ is equivalent to ventricular standstill, where there is no heartbeat at all.
- Cardiovascular collapse (electromechanical dissociation)
 - Ventricular fibrillation
 - Respiratory arrest
 - Asystole
17. _____ means that the patient has stopped breathing.
- Cardiovascular collapse (electromechanical dissociation)
 - Ventricular fibrillation
 - Respiratory arrest
 - Asystole
18. Bright red blood coming in spurts indicates:
- arterial bleeding.
 - venous bleeding.
 - internal bleeding.
 - capillary bleeding.

19. A person has sustained a fracture of the midshaft (middle) of the femur (thighbone). After careful examination, you see no break in the skin; there no other evidence of external bleeding, and there is nothing to suggest bleeding into the abdomen or chest. Therefore, you are safe in assuming the patient has no reason to go into shock from blood loss.
- true
 - false
20. A proper size oropharyngeal airway may selected using the distance from the patient's mouth to the angle (back corner) of the jaw.
- true
 - false
21. High flow oxygen (e.g. 10 liters/minute) should be given to patients with COPD (Chronic Obstructive Pulmonary Disease: emphysema or chronic bronchitis):
- never.
 - only when the patient is cyanotic.
 - with caution, only when needed, and only under close supervision, as some COPD patients may stop breathing when exposed to such high concentrations of oxygen.
 - continuously.
22. Epileptic seizures (fits) generally show three distinct phases, the first being relatively brief (seconds), the second usually lasting seconds to minutes, and the last phase lasting for minutes to hours. The names for these phases are:
- petit mal, grand mal, and post-mal.
 - tonic, clonic, and postictal.
 - tonic, clonic, and multiclonic.
 - Precambrian, Cambrian, and Mesozoic.
23. Seizures may be caused by high temperatures ("febrile seizures"), especially in children. The proper treatment to prevent additional seizures is to bring the child's temperature down to near normal.
- true
 - false
24. A person having a seizure should be forcibly restrained, and a padded tongue blade or similar object should be forced between the teeth.
- true
 - false

25. A type of fracture, occurring almost solely in children, where the bone is more bent than broken, is the fracture.
- a. fatigue
 - b. autonomic
 - c. greenstick
 - d. pathologic
26. A type of fracture caused by repeated stress, such as a marathon runner's foot bones, is the fracture.
- a. fatigue
 - b. autonomic
 - c. greenstick
 - d. pathologic
27. Which of the following would be the best choice for splinting a fractured clavicle?
- a. air splint
 - b. traction splint
 - c. sling and swathe
28. Which of the following would be the best choice for splinting a fractured tibia (lower leg)?
- a. air splint
 - b. traction splint
 - c. sling and swathe
29. Which of the following would be the best choice for splinting a fractured femur (thigh)?
- a. air splint
 - b. traction splint
 - c. sling and swathe
30. Impaled objects should generally be left in place except:
- a. when in the chest.
 - b. when in the eye.
 - c. when in the face or cheek.
 - d. when it interferes with airway maintenance.

31. You encounter a person with some foreign fluid (stove cleaner) in the eye. No sterile irrigation fluid is readily available. You should:
- Get some sterile irrigating solution while arranging transport to the hospital.
 - immediately flush the eye with large amounts of tap water.
 - get the scrub-brush the person was about to use on the oven, and use it to scrub out the eye.
32. A dressing is:
- used to hold a bandage in place.
 - sterile if possible.
 - use mostly to absorb blood; need not be sterile.
 - used on salad.
33. When alkali (e.g. Drano, lye, caustic soda) is in the eye, the eye should be treated by:
- moist dressings.
 - dry dressings.
 - ointment.
 - flushing with saline or water for about 20 minutes.
34. The ureter connects the kidneys to the urinary bladder, and the urethra connects the urinary bladder to the outside. A kidney stone impacted (stuck) anywhere along this course may cause severe pain and blood in the urine.
- true.
 - false.
35. Injury where the lung is collapsed by blood in the pleural space is called:
- hemothorax.
 - subcutaneous emphysema.
 - tension pneumothorax.
 - pericardial tamponade.
36. _____ may occur after a stab wound to the heart. The signs of this condition include distant heart sounds, a weak and thready pulse (a narrow pulse pressure), and a large drop in blood pressure when the patient breathes in (pulsus paradoxus).
- hemothorax.
 - subcutaneous emphysema.
 - tension pneumothorax.
 - pericardial tamponade.

37. Air under the skin, often due to a broken rib lacerating a lung, is known as:
- hemothorax.
 - subcutaneous emphysema.
 - tension pneumothorax.
 - pericardial tamponade.
38. An open ("sucking") chest wound may be changed by a flap of skin or muscle into a one-way valve, allowing air into the chest cavity but not out again. This, or a similar one-way valve in a lung puncture, may cause the pleural space pressure to become higher than outside atmospheric pressure, compressing vital structures in the chest. This is known as:
- hemothorax.
 - subcutaneous emphysema.
 - tension pneumothorax.
 - pericardial tamponade.
39. Which of the following is often the first warning that the patient may be going into shock?
- falling blood pressure
 - rapid, weak and thready pulse (small pulse pressure)
 - decreased level of consciousness
 - restlessness and anxiety
40. Which of the following is not a sign of hypovolemic (loss of blood or other fluid) shock?
- rapid breathing
 - inability to remember climbing out of automobile
 - thirst
 - dilated (large) pupils
41. A severe allergic reaction, such as to a bee sting, may cause damage to blood vessels' ability to keep fluid within them, resulting in:
- hypovolemic shock.
 - psychogenic shock.
 - cardiogenic shock.
 - anaphylactic shock.
 - septic shock.
42. Severe infection may cause a form of shock where the skin is often warm and dry ("warm shock"), which is called:
- hypovolemic shock.
 - psychogenic shock.
 - cardiogenic shock.
 - anaphylactic shock.
 - septic shock.

43. Raising the legs is generally a good treatment for almost all kinds of shock. In one kind of shock, the primary problem is the heart's inability to pump strongly enough. In this case, increasing the return of blood to the heart may overload it, and therefore for this type of shock raising the legs is not indicated. This kind of shock is called:
- a. hypovolemic shock.
 - b. psychogenic shock.
 - c. cardiogenic shock.
 - d. anaphylactic shock.
 - e. septic shock.
44. When one faints after hearing bad news, it is called:
- a. hypovolemic shock.
 - b. psychogenic shock.
 - c. cardiogenic shock.
 - d. anaphylactic shock.
 - e. septic shock.
45. This kind of shock is usually treated by subcutaneous injection of epinephrine (adrenaline).
- a. hypovolemic shock
 - b. psychogenic shock
 - c. cardiogenic shock
 - d. anaphylactic shock
 - e. septic shock
46. This is a temporary, self-limited form of shock; provided the patient is not held in an upright condition, no problems should result from it.
- a. hypovolemic shock
 - b. psychogenic shock
 - c. cardiogenic shock
 - d. anaphylactic shock
 - e. septic shock
47. When transporting a patient with this type of shock, the sitting position is often best.
- a. hypovolemic shock
 - b. psychogenic shock
 - c. cardiogenic shock
 - d. anaphylactic shock
 - e. septic shock

48. The abdominal cavity is lined by a smooth glistening layer called the peritoneum. Spillage of intestinal contents, bile, or digestive juices into the abdominal cavity causes intense inflammation of this layer, often causing a painful, rigid abdomen.
- pleura
 - pericardium
 - peritoneum
 - meninges
49. A bluish discoloration of the skin, often seen around the lips and in the nail beds, is called:
- cyanosis
 - ecchymosis
 - erythema
 - constriction
50. Most cardiac arrests ("codes") are a result of an irregular heart rhythm. Irregular heart rhythms may come from areas of heart muscle that are ischemic (that is, inadequately perfused, meaning their blood supply is inadequate), or are scarred from a previous infarction.
- true
 - false
51. Coronary artery disease ("CAD") refers to narrowing of the arteries of the heart, usually caused by plaques of fatty material (cholesterol). This is almost always the result of a generalized narrowing of arteries called atherosclerosis.
- true
 - false
52. Angina pectoris (in English, "chest pain") is a result of ischemia (inadequate blood supply) of part of the heart muscle. This is usually brought on by something that increases the heart's demand for blood beyond the ability of a diseased coronary artery to carry blood. Which of the following is not likely to bring on chest pain in a patient with a history of angina pectoris?
- shoveling snow out of a driveway
 - strong emotional upset (e.g. death of a relative)
 - eating a large meal prior to a walk
 - taking a sublingual nitroglycerin tablet

53. Acute myocardial infarction ("acute MI") is classically associated with crushing substernal chest pain that radiates to the arms and jaw, is not relieved with sublingual nitroglycerin, and is usually associated with cold sweats, shortness of breath, and nausea or vomiting.
- a. true
 - b. false
54. An acute MI may happen with no outward signs, especially in a diabetic.
- a. true
 - b. false
55. Patients with "stable angina" may only need an occasional nitroglycerin tablet to help them when they overexert themselves, and a stable angina patient who needs to take a single sublingual nitro (which brings relief) does not need any emergency care. On the other hand, if the patient's chest pain is not relieved by three nitroglycerin tablets over a 10 minute period, the patient may be having a myocardial infarction, or a worsening of his angina. Does this second patient need to be taken to the hospital?
- a. yes
 - b. no
56. Patients with heart damage from past MI's (or other causes) are very susceptible to fluid overload from eating too much salt and water, or not taking enough medicine. When this happens, fluid may build up under the skin of the ankles; this is called edema. Fluid may also back up into the lungs; this is known as pulmonary edema. Should patients with pulmonary edema generally be in a sitting position rather than lying, to use gravity to minimize the amount of fluid accumulating in the lungs (a little extra fluid in the ankles may be ugly, but it isn't life-threatening)?
- a. yes
 - b. no

57. Insulin shock results from too much insulin or not enough sugar in the blood. It usually comes on suddenly when an insulin-using diabetic (not all need insulin) takes an insulin dose but forgets to eat the meal on time. Insulin shock has many of the same signs as shock: dilated pupils, cold clammy skin, thirst, and confusion. (The blood pressure is often but not always normal; as with these same signs in shock, they are caused by a massive stimulation of the sympathetic nervous system. This serves both to keep blood pressure up and to cause release of glucose stores.) Which of the following is the best treatment for insulin shock?
- If the patient is conscious, give some orange juice with sugar dissolved in it.
 - Place a sugar cube in each nostril.
 - Find the patient's insulin and help give him a small injection.
 - treat for shock: raise the feet, keep from chilling, give oxygen if available.
58. Diabetic ketoacidosis (sometimes called diabetic coma, though most diabetics in ketoacidosis are at least partially conscious, even if very sick) is caused by a deficiency of insulin, causing the sugar level in the blood to be very high, though very little gets into the cells where it is needed. This generally leads to severe dehydration (the blood sugar spills over into the urine, causing large amounts of urine to form, even though the patient is already dehydrated). Since diabetic ketoacidosis and insulin shock may be difficult to tell apart, and some sugar will cure insulin shock and not make much if any difference to someone in ketoacidosis, should you generally give sugar to a sick diabetic, if you don't know what the exact problem is?
- yes
 - no
59. In caring for a burn victim, the priorities, after taking care of hazards to victim and rescuer, are (1) stopping the burning (cooling the patient's skin), (2) checking and maintaining airway and breathing. The major cause of death from fire is:
- "burn shock," a form of hypovolemic shock resulting from evaporation from burned skin and from fluids escaping from injured blood vessels into the skin.
 - breathing problems from poisonous gases from the fire, either directly or from damage to the airway.
 - cardiac arrest.
 - hiccups.

60. Jewelry, especially rings and bracelets, should generally be removed from burned limbs because of the possibility of swelling turning it into a tourniquet.
- true
 - false
61. Painful partial thickness burns ("first" or "second" degree burns) of a small area should be treated by immediate immersion in cold water. This treatment is good because (1) it quickly stops the burning process and (2) it relieves the pain. Why is this treatment not recommended for large partial thickness burns?
- the danger of causing hypothermia
 - the danger of infection
 - because someone important once said so
 - because it requires a larger bathtub than carried on most ambulances
62. In the routine prehospital environment (i.e. not in the wilderness) "burn ointments," butter or lard, or even approved burn treatments such as Silvadene cream or sulfamylon cream should not be placed on burns. This is because the burn will need to be cleaned once the patient reaches a medical facility, and the creams or ointments just get in the way.
- true
 - false
63. For medicine overdose or poisoning, the best advice is to quickly contact a Poison Control Center for the recommended treatment. When this advice is not available, you should generally follow the standard first aid for poisoning, which consists of (1) dilute with several glasses of water, (2) induce vomiting with a standard dose of Syrup of Ipecac, (3) give a standard dose of activated charcoal, and (4) save all of the pill or medicine bottles, poison containers, and vomitus for analysis. Why is it important for you to save all these materials?
- Treatment is often based on the amount of drug or poison the person took, and this can be estimated from the medicine or poison remaining in the bottle.
 - Sometimes, the pills or poison in the bottle will not be the same as the label says.
 - Sometimes the vomitus contains pills or pill fragments, and this will allow better estimation of the amount actually in the patient's stomach.
 - All of the above (a-c) are good reasons.

64. The standard first aid for medicine overdose (when you can't reach a Poison Control Center) includes diluting and inducing vomiting. However, there are many exceptions to this general rule. There are more of these exceptions than the first aider, First Responder, or EMT can memorize (and they change as more is learned about poisoning); that's why we have Poison Control Centers. However, there are a few major exceptions that every first aider should know. Which of the following exceptions is incorrect?
- Do not induce vomiting with acids or caustics (e.g. hydrofluoric acid, drain cleaner) because the primary problem with these is esophageal burns, and what burns on the way in may burn on the way out.
 - Do not induce vomiting if a patient has a decreased level of consciousness, because of the possibility of aspiration of vomitus into the lungs.
 - Do not give activated charcoal to a patient who has overdosed on acetaminophen (Tylenol), because it may interfere with the specific antidote for acetaminophen poisoning.
 - All of the above (a-c) are correct exceptions to the general first aid rules for poisoning.
65. The cut-and-suck method of treatment for snakebite is almost always unnecessary when within an hour or two of a medical facility, but may be appropriate in the backcountry. Which of the following is not a true statement about the cut-and-suck method?
- Use of the mouth for suction will most likely cause the snakebite wound to become infected.
 - As the swelling spreads, the cut and suck method may be used to remove venom from the swollen parts of the limb, even if they are well away from the initial bite.
 - Cross-shaped ("cruciate") cuts should not be used; instead, make linear cuts along the axis of the limb. This minimizes the chances of cutting a nerve, blood vessel, or tendon.
 - The cut-and-suck method must be applied within the first few minutes after the bite to be effective.
66. The use of ice or cold packs for North American snakebites is useless and sometimes worse than useless.
- true
 - false

67. Heat exhaustion is caused by overexertion in a hot environment; it is a result of water and salt depletion at a time when a large blood volume is needed for exercise. Heat exhaustion looks much like shock; should you treat heat exhaustion like a mild case of shock? (I.e. lay the patient down with feet elevated, keep from chilling.)
- a. yes
 - b. no
68. Once the nausea of heat exhaustion has passed, sipping Gatorade or a similar salty but dilute liquid will help recovery, since it replaces the salt and water that have been lost.
- a. true
 - b. false
69. Heatstroke
- a. should be treated as a form of shock.
 - b. is a severe medical problem; the patient must be cooled to near-normal temperatures as soon as possible, to avoid further damage to vital organs.
 - c. is more common in people who are well-acclimatized to a hot environment, and who are working in dry (as opposed to humid) conditions.
 - d. requires immediate surgery in most cases.
70. A person with frostbitten feet may walk on them, but only after they are rewarmed.
- a. true
 - b. false
71. On the march to Moscow, Napoleon's chief physician developed a treatment for frostbite: rub the affected parts with snow. Is this still an accepted treatment for frostbite in the field?
- a. yes
 - b. no
72. A person with severe (deep) or chronic (longstanding) hypothermia will probably develop severe medical problems during rewarming, so aggressive rewarming should not take place in the field (limited rewarming, such as warm inspired oxygen, will serve primarily to prevent further cooling and is not considered aggressive rewarming).
- a. true
 - b. false

73. Frostbite of the feet is commonly caused by poor circulation, often from tight-fitting boots. Wearing two pair of socks under a pair of boots fitted for one pair of socks is an invitation to frostbite.

- a. true
- b. false