

Review for Unit Test #1: Medical Emergencies and the Respiratory System

Answers to Multiple Choice Questions

1. c	8. d	15. c	22. a	29. d	36. b	43. a
2. d	9. d	16. c	23. d	30. a	37. c	44. a
3. a	10. d	17. b	24. c	31. b	38. d	45. b
4. b	11. d	18. d	25. c	32. b	39. a	46. c
5. a	12. a	19. b	26. c	33. d	40. a	
6. b	13. b	20. a	27. d	34. a	41. c	
7. a	14. d	21. d	28. c	35. a	42. d	

Part A: Introduction to Medical Emergencies (short and long answer questions)

- What are six (6) types of hazards at an emergency scene that could put the emergency personnel at risk?
 - fire
 - downed electrical wires
 - hazardous materials such as gasoline or spilled chemicals
 - broken glass and other physical hazards
 - violent or unpredictable people
 - criminal activity such as gangs or drugs
- What is the “rhyme” that can be used to remember the basic types of hazards at a scene?
 - no fire, no wire
 - no gas, no glass
 - no thugs, no drugs
- Classify the following body fluids as high risk or low risk for transmitting pathogens:

a) Semen	high	f) Vomit	low
b) Feces	low	g) Amniotic fluid	high
c) Saliva	low	h) Mucous	low
d) Blood	high	i) Urine	low
e) Cerebrospinal fluid	high	j) Vaginal secretions	high
- Which of the following are pathogens?

a) trichinella parasites in pork	yes	(it is a parasite)
b) Staph aureus bacteria in pimples	yes	(it is a bacteria)
c) X-rays that cause cancer	no	(it is not a biological, or living, agent)
d) cigarette smoke that causes lung cancer	no	(it is not a biological, or living, agent)
e) varicella virus that causes chicken pox	yes	(it is a virus)
f) drinking alcohol that causes liver disease	no	(it is not a biological, or living, agent)
- Which of the following are universal precautions?
 - Using PPE such as glove: yes
 - Hand-washing: yes
 - Wearing an SCBA at all fires: no (it is a type of PPE, but it does not prevent the spread of disease)
 - Using a disposable face shield when performing ventilations (rescue breathing): yes
 - Never re-capping sharps such as needles: yes
 - Using alcohol to sterilize equipment: yes
 - Locking out a machine before working on it: no (it is a good practice, but does not prevent the spread of disease)

6. An ambulance just transported a child who was bleeding badly. The inside of the ambulance is covered with blood. List three (3) universal precautions the attendants should take when cleaning the ambulance.
 - a) wear gloves
 - b) they may want to wear a gown or apron so they don't get blood on their clothes
 - c) use an antiseptic to sterilize all surfaces
 - d) remove the gloves carefully when they are finished
 - e) wash their hands carefully when they are finished
 - f) send out any clothes that got blood on them for washing
7. What is the single most important thing that emergency personnel can do to prevent the transmission of pathogens?
 - wash their hands properly and frequently
8. When treating any patient, what assumption should be made by emergency personnel?
 - assume all patients are infected with transmissible pathogens such as HIV/AIDS and take appropriate precautions
9. Describe the proper method for effective hand-washing. What two regions of the hands are often missed?
 - wet hands with warm water
 - use soap, scrub and lather hands for 20 seconds (scrub under and around nails)
 - rinse hands well in such a way that water runs down and away from the wrists
 - dry with a paper towel
 - turn off the tap using the paper towel

The parts of the hands that are most often missed when hand-washing are the wrists and around the fingernails. The creases in the hands also trap bacteria.
10. Give two examples of diseases that are spread by **air-borne** transmission.
 - chicken pox
 - tuberculosis
11. Give two examples of diseases that are spread by body fluids.
 - hepatitis B and C
 - HIV/AIDS
12. What are the five Rs that must be checked before administering or assisting with medication?
 - right medication
 - right patient
 - right dose (how much to give them)
 - right route (method of administration eg. oral or spray under tongue)
 - right time (they haven't taken too much in too short a period of time)
13. A fire truck is dispatched by tiered response to a domestic dispute. A woman with two small children is being threatened by her husband, who is armed with a long knife. He threatens to kill anyone who comes inside. What should the firefighters do?
 - report back to the dispatcher that the scene is violent and police are needed
 - wait a safe distance away (stage) and let police secure the scene before approaching
14. A police car is dispatched by tiered response to a MVC. A truck has hit a hydro pole and wires are draped over the truck. The driver is in the truck and seems to be badly hurt. What should the police do?
 - stay back a safe distance from downed wires (2x the distance between the hydro poles)
 - call for hydro or E-1 to secure the scene and turn off the power to the wires before approaching

Part B: Respiratory System and Emergencies

1. What are the normal or average values for the following:
 - a) Number of breaths most people take, on average, per minute: 12 – 15 breaths/minute
 - b) Tidal volume: 500 mL (1/2 L)
 - c) Vital capacity (maximum air exchanged in one breath): 4 – 4.5 L
2. Explain the difference between tidal volume and vital capacity.
 - tidal capacity is the amount of air breathed in and out in one normal breath
 - vital capacity is the amount of air that can be forcefully exhaled after breathing in as much air as possible
 - vital capacity is much greater than what is normally breathed in and out in one breath
3. Describe the steps that take place during one complete breath (breathing in and out).
 - the diaphragm contracts
 - the muscle shortens and pulls down
 - the volume of the chest cavity increases
 - the pressure in the chest cavity is decreased so air moves into the lungs
 - the diaphragm relaxes
 - the muscles lengthen and move up
 - the volume of the chest cavity decreases
 - the pressure in the chest cavity is increases to air moves out of the lungs
4. Why is exhalation considered to be a “passive” process?
 - exhalation occurs when the muscles of the diaphragm relax, and relaxing is passive
5. What is the main signal that triggers us to take a breath?
 - high levels of CO₂ (carbon dioxide) in the blood
6. What are three factors that can affect vital capacity?
 - body size (large chests hold more air)
 - sex (males are usually larger)
 - smoking (decreases lung capacity)
 - fitness
 - illness (diseases such as asthma, emphysema and bronchitis decrease lung capacity)
7. What two age groups of people are at the greatest risk for choking?
 - young children (less than 3 years)
 - elderly people
8. What are two diseases or medical conditions that increase the risk of choking?
 - stroke
 - Parkinson’s disease
 - Lou Gehrig’s disease (multiple sclerosis and related illnesses)
9. Why are people who are intoxicated with drugs or alcohol at a high risk for choking?
 - when people are intoxicated, the reflex that causes the epiglottis to close over the trachea is impaired
 - if a person swallows or vomits when they are intoxicated, the epiglottis may not cover the trachea so food or vomit may be inhaled into the lungs

10. What are three ways that a person's airway can be obstructed?
 - Suffocation when an object covers the mouth and nose, for example when a child puts a plastic bag or pillow over its head
 - Strangulation when an object is wrapped around the throat, for example when a string from a hoodie gets wrapped around a child's throat
 - Asphyxiation (aspiration) when an object is inside the airway and blocking it, for example, a child choking on a peanut or hard candy
11. What are three common causes of strangulation in children?
 - strings on window blinds that have a loop at the bottom
 - sleepers, jackets or hoodies that have strings around the neck or hood
 - the straps on bicycle helmets
12. Describe what happens in the lungs during an asthma attack that makes breathing difficult.
 - the muscle around the bronchioles contracts, squeezing the bronchiole shut
 - cells in the bronchiole make too much mucous, which plugs up the bronchioles
 - the lining of the airways (bronchioles) become inflamed and swollen, so the bronchioles get smaller inside
13. Which emergency service(s) can legally administer medications, such as a puffer or epi-pen?
 - only EMS (paramedics) can administer medications
14. Before administering any medications, what must the emergency personnel check?
 - they must check the 5 R's
 - right medication
 - right patient
 - right dose (how much to give them)
 - right route (method of administration eg. oral or spray under tongue)
 - right time (they haven't taken too much in too short a period of time)
15. Describe what happens to a person's lungs when they have emphysema.
 - emphysema is a disease of the alveoli
 - the alveoli are damaged and the cells separating them from each other die
 - instead of being many small alveoli with large surface area, they join together into large alveoli with much smaller surface area
 - lower surface area means that the person has trouble exchanging enough air, so they feel short of breath
 - often, people with emphysema also have chronic bronchitis, so their lungs are full of mucous
16. How does COPD affect tidal volume?
 - COPD stands for chronic obstructive pulmonary disease, and includes both emphysema and chronic bronchitis
 - COPD damages the lungs and decreases both tidal volume and vital capacity
17. What part of the respiratory system is affected by asthma? Emphysema? Chronic bronchitis?
 - asthma is a disease of the bronchioles
 - emphysema is a disease of the alveoli
 - chronic bronchitis affects the bronchi and bronchioles

18. What are four symptoms of an anaphylactic reaction?
- hives (itchy, red rash)
 - difficulty breathing (coughing, noisy wheezing or “stridor”)
 - cyanosis (blue tinge around the lips or nail beds)
 - rapid heart rate
 - swollen face, lips, eyes, tongue and neck
 - clammy, cool skin (early shock)
 - vomiting
 - person may be confused or unresponsive
19. What are four common allergens that can trigger an anaphylactic reaction?
- venoms such as bee or wasp stings
 - ingested allergens such as peanuts, shellfish, soy
 - skin contact with poison ivy, latex
 - drugs such as penicillin, sulfa drugs
20. What is the most effective first aid treatment for anaphylaxis?
- administer epinephrine in the form of an epi-pen
21. You come across a person in a public washroom who is choking. The person is coughing forcefully. Describe exactly what you should do.
- as long as the person is coughing effectively, do not touch them
 - encourage them to cough
 - watch them carefully in case the situation gets worse or the person loses consciousness
22. You see a student in hallway who is stumbling. Her face is swollen and her breath is noisy and laboured. Describe exactly what you should do.
- tell her to sit down, loosen tight clothing
 - call for help, 911
 - ask her if she is anaphylactic or look for a medic alert bracelet or necklace
 - if she is anaphylactic and conscious, help her give herself the epi-pen
 - if she is unconscious or unable to give her the epi-pen, get a teacher to help or give it yourself
 - stay with her until help arrives
 - if necessary, give a second epi-pen
 - she should go to the hospital