1. **A**
2. **D**
3. **D**
4. **A**
5. **D**
6. **C**
7. **C**
8. **A**
9. **D**
10. **C**
11. **D**
12. **D**
13. **A**
14. **A**
15. **B**
16. **D**
17. **B**
18. **A**
19. **A**
20. **A**
21. **D**
22. **B**
23. **D**
24. **A**
25. **A**
26. **D**
27. **D**
28. **C**
29. **D**
30. **A**
31. **D**
32. **B**
33. **B**
34. **C**
35. **C**
36. **C**
37. **D**
38. **B**
39. **B**
40. **D**
41. **B**
42. **C**
43. **B**
44. **B**
45. **D**
46. **D**
47. **B**
48. **D**
49. **D**
50. **A**

1. A
Objective: Chapter 1, Objective 5
Page: 9 Table 1-3
Rationale: The sudden increase in acceleration produces posterior displacement of the occupants and possible hyperextension of the cervical spine if the headrest is not properly adjusted. The potential for cervical spine injuries is great.

2. D
Objective: Chapter 2, Objective 2
Page: 28 & 29
Rationale: When immediate interventions are needed, delegate them to your team members while you continue the assessment. This is an important concept that immediately addresses problems encountered and yet does not interrupt the assessment sequence and does not increase scene time. Teamwork is essential to good patient outcomes.

3. D
Objective: Chapter 6, Objective 3
Page: 108
Rationale: A carbon dioxide level below 35 mmHg indicates hyperventilation.

4. A
Objective: Chapter 4, Objective 4
Page: 68 & 69
Rationale: Bruising of the heart is basically the same injury as an acute myocardial infarction.

5. D
Objective: Chapter 4, Objective 1
Page: 60
Rationale: It is important to remember that blood pressure requires a “steady state” activity of all the preceding factors. The heart must be pumping, the blood volume must be adequate, the blood vessels must be intact, and the lungs must be oxygenating the blood.

6. C
Objective: Chapter 12, Objective 4
Page: 233
Rationale: When the ICP increases, the systemic blood pressure increases to try to preserve blood flow to the brain. The body senses the rise in systemic blood pressure, and this triggers a drop in the pulse rate as the body tries to lower the systemic blood pressure.

7. C
Objective: Chapter 10, Objective 3
Page: 188
Rationale: Certain mechanisms of trauma can overcome the protective properties, injuring the spinal column and cord. The most common mechanisms are hyperextension, hyperflexion, compression, and rotation. Less commonly, lateral stress or distraction will injure the cord.

8. A
Objective: Chapter 18, Objective 3
Page: 340
Rational: Look for signs of airway obstruction in the child, including apnea, stridor, and "gurgling" respirations. If identified, perform a jaw-thrust maneuver without moving the neck.

9. D
Objective: Chapter 2, Objective 2
Page: 28 & 29
Rationale: This team approach makes the most efficient use of time and allows you to rapidly perform the initial assessment without becoming distracted by performing the necessary interventions yourself, which can interrupt your thought process and cause errors.

10. C
Objective: Chapter 6, Objective 4
Page: 104
Rationale: Mild hemorrhage from the nose after insertion of the airway is not an indication to remove it. In fact, it is probably better to keep an NPA in place so as not to disturb the clot or reactivate the bleeding.

11. D
Objective: Chapter 8, Objective 6
Page: 163
Rationale: The development of decreased lung compliance (difficulty in squeezing the bag-mask device) in the intubated patient should always alert you to the possibility of a tension pneumothorax.

12. D
Objective: Chapter 8, Objective 3
Page: 154
Rationale: A lack of catecholamine release prevents tachycardia, pallor and sweating. Instead, vasodilation will cause decreased blood pressure, the heart rate will remain normal, or slow and the skin will remain pink, warm and dry.

13. A
Objective: Chapter 12, Objective 4
Page: 233
Rationale: When the ICP increases, the systemic blood pressure increases to try to preserve blood flow to the brain. The body senses the rise in systemic blood pressure, and this triggers a drop in the pulse rate as the body tries to lower the systemic blood pressure.

14. A
Objective: Chapter 18, Objective 2
Page: 335
Rationale: Children are most commonly injured from falls (either from standing height or higher), motor vehicle collisions, automobile–pedestrian or bicycle crashes, burns, submersion injuries (drowning), and child abuse.

15. B
Objective: Chapter 2, Objective 5
Page: 34
Rationale: Conditions that can rapidly lead to shock include penetrating wounds to the torso, abnormal chest exam, tender distended abdomen, pelvic instability and bilateral fractures.

16. D
Objective: Chapter 4, Objective 5
Page: 112
Rationale: Predictors of difficult mask ventilation can be remembered using the "BOOTS" mnemonic:
B – Beards
O – Obesity
O – Older patients
T – Toothlessness
S – Snores or stridor

17. B
Objective: Chapter 8, Objective 6
Page: 163
Rationale: Clinical signs of a tension pneumothorax include dyspnea, anxiety, tachypnea, distended neck veins, and possibly tracheal deviation away from the affected side. Auscultation will reveal diminished breath sounds on the affected side and will be accompanied by hyperresonance when percussed.

18. A
Objective: Chapter 5, Objective 6
Page: 92
Rationale: Pack the hemostatic agent in the wound and hold firm pressure. The hemostatic agent is an "adjunct" to assist in controlling hemorrhage, not a hemorrhage control by itself.

19. A
Objective: Chapter 12, Objective 8
Page: 233
Rationale: Hyperventilation actually has only a slight effect on brain swelling, but causes a significant decrease in cerebral perfusion from that same vasoconstriction, resulting in cerebral hypoxia. Thus, both hyperventilation and hypoventilation can cause cerebral ischemia and increased mortality in the TBI patient.

20. A
Objective: Chapter 2, Objective 4
Page: 28
Rationale: You may interrupt the assessment sequence only if (1) the scene becomes unsafe, (2) you must treat exsanguinating hemorrhage, (3) you must treat an airway obstruction, or (4) you must treat cardiac arrest. (Respiratory arrest, dyspnea, or bleeding management should be delegated to other team members while you continue assessment of the patient.)

21. D
Objective: Chapter 6, Objective 4
Page: 110
Rationale: Bag-valve-mask ventilation has challenges because pressures generated by squeezing the bag may equal or exceed 60 cm H_2O.

22. B
Objective: Chapter 8, Objective 2
Page: 169
Rationale: Pulmonary contusion is a very common chest injury. It is caused by hemorrhage into lung parenchyma secondary to blunt force trauma or penetrating injury such as a missile. It occurs commonly with flail segment or multiple rib fractures. A pulmonary contusion takes hours to develop and rarely develops during prehospital care.

23. D
Objective: Chapter 4, Objective 4
Page: 69
Rationale: If cardiac output falls (either due to dropping or a very fast heart rate or lowered stroke volume), blood pressure will fall.

24. A
Objective: Chapter 12, Objective 6
Page: 246
Rationale: Hyperventilation and hypoventilation can cause cerebral ischemia and increased mortality in the TBI patient. Maintain normal ventilation (not hyperventilation) with high-flow oxygen at a rate of about one breath every 6 to 8 seconds (8 to 10 per minute) to maintain an end-tidal CO_2 ($ETCO_2$) of 35–45 mmHg.

25. A
Objective: Chapter 3, Objective 1
Page: 49
Rationale: Suspect head injury unless patient is alert, then suspect eye injury.

26. D
Objective: Chapter 6, Objective 3
Page: 108
Rationale: Supplemental oxygen is recommended for all trauma patients, especially if hypoxic.

27. D
Objective: Chapter 8, Objective 6
Page: 163
Rationale: Clinical signs of shock may be apparent. The neck veins are usually flat secondary to profound hypovolemia, but may very rarely be distended due to mediastinal compression. Other signs of hemothorax include decreased breath sounds and dullness to percussion on the affected side.

28. C
Objective: Chapter 4, Objective 4
Page: 63
Rationale: Hypovolemic shock victims usually have tachycardia, are pale, and have flat neck veins. So, if you find a trauma victim with a fast heart rate, who is pale, with weak radial pulses and flat neck veins, this patient is probably bleeding from some injury, either internally or externally (or possibly both).

29. D
Objective: Chapter 12, Objective 4
Page: 232
Rationale: Secondary brain injury is the result of hypoxia and/or decreased perfusion of brain tissue.

30. A
Objective: Chapter 2, Objective 4
Page: 28
Rationale: Remember, once you begin patient assessment in the ITLS Primary Survey, only four things should cause you to interrupt completion of the assessment. You may interrupt the assessment sequence only if (1) the scene becomes unsafe, (2) you must treat exsanguinating hemorrhage, (3) you must treat an airway obstruction, or (4) you must treat cardiac arrest.

31. D
Objective: Chapter 6, Objective 2
Page: 103
Rationale: It can be hand-powered or battery-powered rather than oxygen-driven.

32. B
Objective: Chapter 17, Objective 6.c
Page: 322
Rationale: The most serious and immediate injury that results from electrical contact is cardiac arrhythmia.

33. B
Objective: Chapter 18, Objective 2
Page: 349
Rationale: Changing level of consciousness is the best indicator of traumatic brain injury.

34. C
Objective: Chapter 21, Objective 4
Page: 382
Rationale: An altered mental status can be seen in every form of substance abuse. However, remember that an altered level of consciousness is always due to a head injury, shock, or hypoglycemia until proven otherwise. Also remember that all patients have an emergency medical condition until proven otherwise.

35. C
Objective: Chapter 8, Objective 5
Page: 162
Rationale: Clinical signs of shock may be apparent. The neck veins are usually flat secondary to profound hypovolemia, but may very rarely be distended due to mediastinal compression. Other signs of hemothorax include decreased breath sounds and dullness to percussion on the affected side.

36. C
Objective: Chapter 19, Objective 1
Page: 357
Rationale: Geriatric patients can die from less severe injuries than younger patients. In addition, it is often difficult to separate the effects of the aging process or of a chronic illness from the consequences of an injury.

37. D
Objective: Chapter 1, Objective 4
Page: 14
Rationale: Generally, damage done is proportional to tissue density. Highly dense organs such as bone, muscle, and the liver sustain more damage than less dense organs such as the lungs.

38. B
Objective: Chapter 2, Objective 5
Page: 34 "PEARLS"
Rationale: The following procedures are done at the scene: control major external bleeding, open and maintain a patent airway (position, sweep, suction; intubate if indicated and necessary), ventilate, apply oxygen, initiate CPR, seal sucking chest wounds, stabilize flail segments, decompress tension pneumothorax when indicated, stabilize penetrating objects, and maintain SMR if indicated.

39. B
Objective: Chapter 8, Objective 6
Page: 163
Rationale: Clinical signs of a tension pneumothorax include dyspnea, anxiety, tachypnea, distended neck veins, and possibly tracheal deviation away from the affected side. Auscultation will reveal diminished breath sounds on the affected side and will be accompanied by hyperresonance when percussed. Shock with hypotension will follow.

40. D
Objective: Chapter 6, Objective 6
Page: 70
Rationale: For uncontrolled hemorrhage, do not hesitate to apply a tourniquet to a bleeding extremity to stop severe bleeding that cannot be otherwise controlled. If you cannot stop severe bleeding with pressure and cannot use a tourniquet (groin, axilla, neck, face, scalp), you may use a hemostatic agent. The hemostatic agent is an "adjunct" to assist in controlling hemorrhage, not a hemorrhage control by itself.

41. B
Objective: Chapter 12, Objective 4
Page: 233
Rationale: When the intracranial pressure increases, the systemic blood pressure increases to try to preserve blood flow to the brain. The body senses the rise in systemic blood pressure, and this triggers a drop in the pulse rate as the body tries to lower the systemic blood pressure.

42. C
Objective: Chapter 2, Objective 5
Page: 34 "PEARLS"
Rationale: If your patient has major bleeding, the priority is C-A-B-C. The first C stands for control life-threatening bleeding. (Do not confuse this with the American Heart Association/ILCOR's "CAB" for cardiac arrest, where the C stands for compressions.) If your patient has major external bleeding, you must immediately control it.

43. B
Objective: Chapter 8, Objective 1
Page: 165
Rationale: Pulsus paradoxus, or paradoxical pulse, may be noted. This is where the radial pulse is not felt with inspiration. The major differential diagnosis in the field is tension pneumothorax. With cardiac tamponade, the patient will be in shock with equal breath sounds and the trachea midline.

44. B
Objective: Chapter 14, Objective 2.c
Page: 265
Rationale: It is very rare for a tourniquet not to control severe extremity bleeding. Consider application of a second tourniquet in this situation. A second tourniquet should be applied just below the first one. Do not take the first tourniquet down to reapply it.

45. D
Objective: Chapter 12, Objective 5
Page: 243
Rationale: If the patient has a normal level of consciousness, the dilated pupil is not from head injury (more likely due to eye trauma or drugs such as atropine).

46. D
Objective: Chapter 10, Objective 2
Page: 184
Rationale: Immobilization onto a long backboard is not indicated in penetrating wounds of torso, neck, or head unless there is clinical evidence of a spine injury.

47. B
Objective: Chapter 16, Objective 1
Page: 296
Rationale: Hypoxemia is the most common cause of traumatic cardiopulmonary arrest. Acute airway obstruction or ineffective breathing will be clinically manifested as hypoxemia.

48. D
Objective: Chapter 8, Objective 1
Page: Starting on page 159. (Note the "Procedure" sections for each chest injury)
Rationale: Primary goals in treating the patient with chest trauma are the following:
- Ensure an open airway while protecting the cervical spine
- Administer high-flow oxygen and ventilate if necessary
- Stabilize flail segments
- Seal sucking chest wounds
- Decompress the chest if needed
- Load and go to appropriate level of care
- Obtain venous access
- Transport to appropriate level of care
- Notify medical direction

49. D
Objective: Chapter 4, Objective 2
Page: 60
Rationale: Early shock is the loss of approximately 15% to 25% of blood volume. That is enough to stimulate slight to moderate tachycardia, pallor, narrowed pulse pressure, thirst, weakness, and possibly delayed capillary refill.

50. A
Objective: Chapter 12, Objective 6
Page: 235
Rationale: Hyperventilation and hypoventilation can cause cerebral ischemia and increased mortality in the TBI patient. Maintain normal ventilation (not hyperventilation) with high-flow oxygen at a rate of about one breath every 6 to 8 seconds (8 to 10 per minute) to maintain an end-tidal CO_2 ($ETCO_2$) of 35–45 mmHg.