1. Which of the following factors can have a negative effect on uterine blood flow?
   ____ a. Hypertension
   ____ b. Epidural
   ____ c. Hemorrhage
   ____ d. Diabetes
   X  e. All of the above

2. How does the fetus compensate for decreased maternal circulating volume?
   ____ a. Increases cardiac output by increasing stroke volume.
   X  b. Increases cardiac output by increasing it's heart rate.
   ____ c. Increases cardiac output by increasing fetal movement.

3. Stimulating the vagus nerve typically produces:
   X  a. A decrease in the heart rate
   ____ b. An increase in the heart rate
   ____ c. An increase in stroke volume
   ____ d. No change

4. What initially causes a chemoreceptor response?
   ____ a. Epidurals
   ____ b. Supine maternal position
   ____ c. Increased CO₂ levels
   ____ d. Decreased O₂ levels
   ____ e. A & C
   ____ f. A & B
   X  g. C & D

5. The vagus nerve begins maturation 26 to 28 weeks. Its dominance results in what effect to the FHR baseline?
   ____ a. Increases baseline
   X  b. Decreases baseline

TRUE/FALSE

T  6. Oxygen exchange in the placenta takes place in the intervillous space.

F  7. The parasympathetic nervous system is a cardioaccelerator.

T  8. Baroreceptors are stretch receptors which respond to increases or decreases in blood pressure.
TRUE/FALSE

1. There are two electronic fetal monitoring methods of obtaining the fetal heart rate: the ultrasound transducer and the fetal spiral electrode.  
   T

2. Variability can be determined with the fetoscope.  
   F

3. Because the ultrasound transducer and toco transducer are sealed units, they can be dipped in warm water to make cleaning easier.  
   T

4. The most common artifact with the ultrasound transducer system for fetal heart rate is increased variability.  
   T

5. All fetal monitors contain a logic system designed to reject artifact.  
   T

6. The monitor should always be tested before starting a tracing, either external or internal mode and labeled a test.  
   F

7. The paper speed on the fetal monitor should always be set at 1cm/min.  
   F

8. Both internal and external monitoring methods are equally accurate means of obtaining the fetal heart rate and contraction patterns.  
   T

9. The external toco is usually placed over the uterine fundus to pick up contractions.  
   F

10. The external toco gives measurable uterine pressure.  
    F

11. The fetal spiral electrode can be placed when vaginal bleeding of unknown origin is present.  
    T

12. The ultrasound transducer is usually placed on the side of the uterus over the baby's back, as the fetal heart is heard best there.  
    F

13. The spiral electrode is used to determine uterine contractions.  
    F

14. The heart rate from a well-applied fetal spiral electrode can only be fetal, not maternal.  
    T

15. The internal spiral electrode may pick up the maternal heart rate if the baby has died.  
    F

16. The intrauterine catheter is used to pick up the fetal heart rate.  
    T

17. Fetal arrhythmias can be seen on both internal and external monitor tracings.  
    

Matching

1. Tocodynamometer  A. External heart rate
2. Spiral electrode  B. Internal heart rate
3. Intrauterine pressure catheter  C. External contraction monitor
4. Ultrasound  D. Internal contraction monitor
INTERPRETATION OF ELECTRONIC FETAL HEART MONITORING DATA
POST-TEST QUESTIONS

TRUE/FALSE

1. Variability and periodic changes can be detected with both internal and external monitoring.  
   **T**

2. Variable decelerations are a result of cord compression.  
   **T**

3. The presence of FHR accelerations in the intrapartum and antepartum periods is a sign of adequate fetal oxygenation.  
   **T**

4. Early decelerations are a vagal response.  
   **T**

5. Late decelerations have a gradual decrease in FHR (onset to nadir ≥30 seconds) and are delayed in timing with the nadir of the deceleration occurring after the peak of the contraction.  
   **T**

6. The fetal heart rate baseline can be determined during periods of marked variability.  
   **F**

7. Anything that affects maternal blood flow (cardiac output) can affect the blood flow through the placenta.  
   **T**

8. Variable decelerations are the most frequently seen fetal heart rate deceleration pattern in labor.  
   **T**

9. Minimal variability is always an indicator of hypoxia and a Cesarean section is indicated.  
   **F**
Please view the appropriate tracing when answering the following questions.

TRACING 1  *Fetal Scalp Electrode in Place and Tocotransducer*

10. What is the baseline fetal heart rate?
   a. 115
   b. **120**
   c. 125
   d. 145

11. What is the variability?
   a. Absent
   b. Minimal
   c. **Moderate**
   d. Marked

12. What type of periodic or episodic changes are present?
   a. Early deceleration
   b. Late deceleration
   c. **Variable deceleration**
   d. Prolonged deceleration

13. What is the resting tone of the contractions?
   a. 10-20 mmHg
   b. 20-30 mmHg
   c. **Determine by palpation**
14. What is your first intervention in management of this strip?
   a. Immediate delivery
   b. Change maternal position
   c. No treatment indicated
   d. Oxygen
   e. Stop oxytocin infusion

15. Following assessment of this tracing, you will:
   a. Discontinue electronic fetal monitoring
   b. Notify pediatrician to attend delivery
   c. Anticipate immediate delivery by cesarean birth
   d. Continue to observe patient

TRACING 2
External Monitoring for FHR and Contractions

16. What is the baseline fetal heart rate?
   a. 135
   b. 145
   c. 165
   d. 185

17. What is the variability?
   a. Absent
   b. Minimal
   c. Moderate
   d. Marked
18. This baseline FHR has been demonstrated for one hour. It is classified as:
   a. Tachycardia
   b. Bradycardia
   c. Normal
   d. Sinusoidal

19. Etiology of this baseline FHR can be:
   1. Maternal supine hypotension
   2. Maternal fever
   3. Maternal dehydration
   4. Unknown
   a. 1 and 2
   b. 1, 2 and 3
   c. 2, 3 and 4

20. Following assessment of this tracing, you will:
   1. Check maternal temperature and pulse
   2. Hydrate client
   3. Continue EFM
   4. Notify provider
   5. Anticipate immediate delivery by cesarean birth
   a. 1, 3 and 4
   b. 1, 2 and 5
   c. 1, 2, 3 and 4

TRACINGS 3(A), 3(B), and 3(C)
External Electronic Fetal Monitoring Prior to AROM then FSE Applied, External Tocotransducer (Note: Tracings 3(A), 3(B), and 3(C) are all segments of the same strip and represent a continuous tracing.)

3(A)
21. What is the baseline fetal heart rate?
   a. 125
   b. 135
   c. 145
   d. 85

22. What is the variability?
   a. Absent
   b. Minimal
   c. Moderate
   d. Marked
23. What type of periodic or episodic changes are present?
   a. Early deceleration
   b. Late deceleration
   c. Variable deceleration
   d. Prolonged deceleration

24. Following assessment of this tracing, you will:
   1. Change maternal position
   2. Give oxygen at 8-10 L/min
   3. Perform a vaginal exam
   4. Give fluid IV bolus
   5. Adjust toco transducer
   a. 1, 2 and 3
   b. 1, 3 and 4
   c. All of the above

TRACING 4
G1P0 at 3 cm, FSE and IUPC in place

25. What is the baseline fetal heart rate?
   a. 115
   b. 120
   c. 135
   d. 150

26. What is the variability?
   a. Absent
   b. Minimal
27. What type of periodic or episodic decelerations are present?
   a. Early deceleration
   c. Late deceleration
   d. Variable deceleration
   e. Prolonged deceleration

28. What is the most probable cause of this pattern?
   a. Utero-placental insufficiency
   b. Head compression
   c. Cord compression
   d. Etiology unknown

29. Management will include:
   1. Change maternal position
   2. Oxygen at 8-10 L/min
   3. Vaginal exam
   4. Decrease or stop oxytocin infusion if running
   a. 1, 2 and 3
   b. 1, 2 and 4
   c. All of the above

30. Following assessment of this tracing, you will:
   1. Notify provider of findings
   2. Request provider to come to department to assess the strip
   3. Continue observation of patient
   4. Anticipate need for extra personnel to attend delivery
   5. Anticipate cesarean birth if tracing continues and delivery is not imminent
   a. 1, 2 and 3
   b. 1, 2 and 5
   c. 1, 2, 4 and 5
ANTEPARTUM FETAL SURVEILLANCE
POST-TEST QUESTIONS

1. ___ The most prevalent risk factor associated with fetal death before the onset of labor is:

a. Low socioeconomic status
b. Fetal malpresentation
c. Uteroplacental insufficiency
d. Uterine anomalies

2. ___ Which of the following is NOT used for antepartum fetal surveillance?

a. Fetal movement counting
b. Antepartum fetal heart rate testing
c. Biophysical profile testing
d. Maternal HCG levels

3. ___ Which of the following conditions is not an indication for antepartum fetal surveillance?

a. Gestational hypertension
b. Diabetes in pregnancy
c. Fetus in breech presentation
d. Decreased fetal movement

4. ___ Which of the following does not affect the degree of fetal activity?

a. Vibroacoustic stimulation
b. Smoking
c. Fetal position
d. Gestational age

5. ___ To be considered reactive, a nonstress test must have:

a. 4 fetal heart rate accelerations in a 20 minute window
b. 2 fetal heart rate accelerations in a 10 minute window
c. 4 fetal heart rate accelerations in a 40 minute window
d. 2 fetal heart rate accelerations in a 20 minute window
6. If a nonstress test is nonreactive after 40 minutes, the next step should be:
   a. Have the client go home and do fetal movement counts
   b. **Do a biophysical profile or contraction stress test**
   c. Repeat the nonstress test within a week
   d. Admit the client for delivery

7. All of the following are components of a biophysical profile except:
   a. Contraction stress test
   b. Assessment of fetal breathing
   c. Amniotic fluid volume measurement
   d. Fetal movement assessment

8. A modified biophysical profile includes a nonstress test and:
   a. Contraction stress test
   b. Ultrasound assessment of fetal movement
   c. **Ultrasound assessment of amniotic fluid volume**
   d. Fetal movement counts

9. For a contraction stress test to be interpretable, you must have a minimum of:
   a. 5 contractions in a 10 minute window
   b. **3 contractions in a 10 minute window**
   c. 4 contractions in a 10 minute window
   d. 2 contractions in a 10 minute window

10. A negative contraction stress test is one in which:
    a. No contractions are seen
    b. There are late decelerations with > 50% of the contractions seen
    c. **There are no fetal heart rate late decelerations with the contractions**
    d. There is one fetal heart rate deceleration seen
TRUE/FALSE

1. T____ Malpractice can be established if a nurse does not follow the standard of care and harm occurs to either the mother or infant.

2. T____ The chain of command should be initiated any time conflict exists between the judgement of a nurse and the primary care provider as it relates to patient care management.

3. T____ It is important when a “bad” outcome occurs that the nurse notify her nurse manager and the hospital risk manager.

4. T____ Failure to obtain and document a complete and ongoing assessment of a patient with an admission BP of 152/98 would be an example of care that increases a nurse’s liability.

5. F____ In 2008 you cared for a patient who had a baby with APGARs of 1/2/4. In 2010 the attorney representing the plaintiff reviews the case using the standards of care that currently exist.

6. T____ A nurse practicing in a small community hospital is expected to follow the same standard of care for a given clinical situation as the nurse who practices at a large perinatal center.

MULTIPLE CHOICE

1. The best defense against being named in a lawsuit would include the following:
   a. Follow the standard of care
   b. Develop policies that address educational requirements and competency requirements for fetal monitoring
   c. Ensure that all documentation is complete and recorded on a timely basis
   d. All of the above
2. You are caring for a patient whose monitor tracing displays late decelerations, and decreased long term variability. You have been interpreting the decelerations as early and assumed the fetus was sleeping so did not perform any interventions. An attorney reviewing your practice and documentation could establish malpractice on what grounds?
   a. Breach of duty
   b. Causation
   c. Harm
   d. Foreseeability

3. You are assigned to develop a policy on fetal heart rate monitoring. You would use which of the following resources to help you with this task.
   a. Published recommendations from professional organizations e.g., AWHONN, ACOG
   b. Current literature
   c. State medical and nurse practice acts
   d. All of the above