1. **What are the “4 P’s”? Explain each.**

   - **Passage**: birth passage - includes pelvis and overlaying soft tissue
   - **Passenger**: size and position of baby
   - **Powers**: power generated by the uterine contractions
   - **Psyche**: the mother's psychological state - self concept, attitude, confidence, level of preparation, experience of pain, coping ability, social support

2. **Discuss face presentations. Be specific on issues, dealing with this problem, etc.**

   A face presentation is the most extreme example of deflexion and is when the face is the first to present in birth. More than half who assume the face presentation have a deformity such as anencephaly, microcephaly, multiple nuchal cord loops, or tumors on the neck. They can also be associated with macrosomia, contracted pelvis, and platypelloid pelvis. This is more likely to occur in a multiparous woman who has a more lax abdominal wall which allows the baby’s trunk to shift anterior and the neck to extend. Babies born in face presentation may have facial swelling and bruising that will resolve in the first 24-48 hours of life but interferes with the airway. Face presentations cannot typically be delivered vaginally.

3. **Discuss brow presentations. Be specific on issues, dealing with this problem, etc.**

   A brow presentation is similar to a face presentation, however the head is not as far extended in the brow presentation. They will often require a c-section because they are often in the frontum anterior, frontum transverse, or frontum posterior position. Vaginal delivery in brow presentation can only occur if the pelvis is large, the baby is small, or the baby is a macerated stillborn.

4. **Discuss compound presentations. Be specific on issues, dealing with this problem, etc.**

   A compound presentation is when there are multiple parts presenting - such as an extremity along with either the head or butt. They are often associated PROM, preterm labor, pelvic masses that displace the baby, or with inductions with a high presenting part. If a hand presents beside the head, it does not typically obstruct labor but can become bruised from being squeezed in labor. Many will opt for c-section if the baby’s hand/arm prolapses beyond the presenting part or if labor has stalled. You can try pinching the hand/arm to see if the baby will retract it to make a smoother labor. If a foot presents, it may be harder to retract and is more likely to obstruct labor. If a hand or arm presents with a vertex baby, no intervention is necessary.
5. What are the problems in occiput, especially posterior, presentations? Why do they occur? What can be done and what considerations must be taken into account? Be specific.

OP malpresentation occur in 10-20% of labors at onset, but fewer than 10% will remain OP at delivery. These babies will often be deflexed and have an increased risk of c-section due to failure to progress or cephalopelvic disproportion. There is also an increased risk of perineal periurethral lacerations as well as the slower labor and cervical lip because the deflexed head is not ideal to come through birth canal and aid in dilation as easily as a flexed head would.

If an OP baby is identified prior to delivery, steps should be taken to try to rotate the baby. This can be done through maternal position (knee-chest, lunging, hands-knees, squatting, pelvic rock, side-lying) as well as rebozo. This is especially helpful if the water has not yet been broken so the baby is more easily able to rotate within the fluid.

After dilation, you can also do a manual rotation after making sure that the mother’s bladder is empty. To do this you will place your hand palm-up behind the baby’s head like a wedge to cause the head to flex. The mother will push through a contraction while your fingers exert pressure to rotate the head anteriorly. You can also grab the head with your fingers over one ear and thumb over the other and rotate with the contraction.

6. What is a transverse lie? Why do they occur? What can be done and what considerations must be taken into account? Be specific.

This is when the baby’s longitudinal axis is perpendicular to the long axis of the uterus - laying in the hammock of the pelvis instead of being head/butt down. This often occurs in premi deliveries, multiple gestations, placenta prevue, contracted pelvis, uterine anomalies or tumors, polyhydramnios, fetal anomalies, and grand multiparty. These can sometimes also present with a prolapsed arm or cord. External version can be used to try to turn the baby, however if you are unable to rotate the baby, you will need to transfer for a c-section as a baby cannot be delivered transversely. Maternal and perinatal mortality/morbidity with these is especially high in developing countries with limited resources.

7. Discuss breech presentations. What are the main types? Why do they occur? How often do each happen?

Breech is when the butt or feet is the first thing to present. They are the most common non-cephalic presentations because the baby is typically breech until later in pregnancy - which is why they are more likely in a premature delivery. They can occur due to the shape of either the baby or the uterus and well as grand multiparty, polyhydramnios, oligohydramnios, placenta previa, uterine abnormalities or fibroid tumors, contracted maternal pelvis, multiple gestation, fetal anomalies (anencephaly, hydrocephaly, sacrococcygeal teratoma), neurological impairment, short umbilical cord, fetal death, or a baby who becomes wedged in place with extended legs.

Frank Breech (50-70% of all breech) occurs when the butt enters the pelvis. The hips are flexed, legs extended, and the feet are by the baby’s head. With legs extended, it makes it
difficult for the baby to rotate to have its head down and can become lodged in the frank position. This is the most favorable breech position for a vaginal birth.

Complete breech (5-10% of all breech) occurs when the baby is squatting or sitting cross-legged on the cervix.

Footling breech (10-30% of all breech) occurs when one or both hips and knees are extended and one or both feet are presenting. A variation of this is the kneeling breech.

8. What complications can a breech presentation bring?
Breech babies tend to have more neurological deficits. There is also a possibility of the head getting stuck because it is unable to mold and the most flexible part of the body is born first so you may not know there is an issue until the end when it is time for the head to be born. This is most likely to occur with premature babies because the head is proportionally bigger than the body so the body could be birthed before the cervix is fully dilated and the head would get stuck. Cord prolapse and compression are also a significant risk with breech. Birth trauma can also be connected with breech if the uterus begins to contract and release the placenta which can cause hemorrhage and cutting off the baby’s oxygen supply when the head is still inutero. If the head is hyperextended before labor, there can also be severe cervical spinal cord lesions in up to 21% of cases. There is a risk of perinatal death 3-5 times greater than cephalic vaginal deliveries. The increase of c-section also creates a potential of increased future c-sections as well.

9. What is a version? How is it done? What are considerations?
Version are exercises and maneuvers that can be done to turn a breech baby. The mother will assume a knee-chest position for 20 minutes - 3x/day - making sure that it is during times when the baby is typically active and not sleeping. This will help to move the baby out of the pelvis so there is more room for it turn.

External cephalic version (ECV) is the trans abdominal manual rotation of the baby from breech to cephalic. It is about 58% successful, but has lost popularity over the years due to fetal mortality after the procedure or other issues such as fractured bones, ruptured membranes, placental abruption, fetomaternal hemorrhage, and cord entanglement. Bradycardia has also been known to occur due to the vagal response to head compression. If the mother is in active labor or has uterine earring, polyhydramnios, oligohydramnios, fetal growth restriction, uterine malformation, or other fetal anomalies are not recommended for ECV.

10. What are the modes of delivery for breech? What are the pros and cons of each?
Vaginal birth and c-section are two modes of delivery for breech.

Vaginal birth is the most natural method but also carries an increased risk of perinatal death 3-5x of a cephalic delivery - however these stats also include death due to anomalies or prematurity so isn’t accurate specifically for breech.
C-sections provide short term benefit for the infant because of an easier delivery however there is an increase of both short and long term maternal morbidity and often leads to the need of more c-sections. When a baby is delivered by c-section it also loses the benefits of vaginal delivery such as gaining the bacterial flora needed to build a strong immune system.

The WHO recommends vaginal birth if the baby is frank breech with a flexed head, the maternal pelvis is adequate for fetal size, and the woman has not undergone prior c-section for cephalopelvic disproportion - however they also state that ideally every breech should occur in the hospital with surgical capability.

Frank and complete breech presentations are more favorable for a vaginal delivery because if the baby's body and high are able to come easily then cephalopelvic disproportion is unlikely to occur. A footling or kneeling breech presentation carries more risk however because there is a greater likelihood of head entrapment.

11. How does someone assess a breech?
Leopolds can be used to assess a breech, however depending on the position of the baby a butt can be confused with a head. If the baby is high enough in the pelvis, the head can be ballototd whereas the there is more resistance with a breech. A breech position can often cause more maternal rib pain and lower abdominal cramping from the baby kicking the bladder. If you are uncertain of position by 34-36 weeks, you should recommend an ultrasound examination.

12. What are nuchal arms and how do they happen? What can be done?
Nuchal arms are when one or both of the baby's arms is wrapped around its neck/head. They can be managed by carefully rotating the baby to reduce tension so that the shoulders can slip under the pubic bone. You should also keep the back upwards and hold the baby by the thighs and wrap him in a towel for traction.

13. What is head entrapment and how does it happen? What can be done?
This occurs when the baby's head becomes trapped in the pelvis because the cervical/vaginal opening was big enough to deliver the rest of the body but not the head. This often occurs in premature deliveries because the head-body ration is greater which allows for the body to be delivered before the cervix is completely dilated but the head gets stuck because it needs the full dilation. Also when delivering breech, the baby's head is unable to mold through the birth canal.

Mother should be in an upright, supported squat, or semi-Fowler’s at the edge of a bed. She should refrain from pushing until she is fully dilated. After dilation, passive descent or open glottis pushing is recommended instead of vigorous Valsalva pushing. Episiotomies should not be performed until the baby’s anus has appeared at the introitus. Remain hands-off approach to allow the baby to maintain flexion which simplifies birth - if
touched it can cause the startle reflex which can potentially cause a shoulder dystocia and extend the neck which creates the need for a larger cervical diameter to pass through. The baby’s head should be delivered within 4 minutes from the body to reduce the risk or cord compression and anoxia.

The feet should come free as the body descends, however if the legs are extended you may need to flex each knee individually in order for them to be delivered. You can wrap the baby in a warm towel to prevent hypothermia and the baby from trying to breathe before the head is born.

If the baby’s arms are extended, you can slide a finger along the baby’s scapula over the shoulder and into the antecubital fossa to deliver the elbow between the body and the side of the vagina. If the arms are behind the neck, you can place both hands on the bony fetal pelvis with thumbs on the sacroiliac regions and fingers on the iliac crests (Lovset’s maneuver). Then apply gentle downward traction while lifting the body slightly towards the pubic bone. Rotate the baby gently through 180 degrees, bringing the posterior arm under the pubic bone and flex the elbow with your fingers to deliver the arm. Then rotate the baby back through 180 degrees without changing your grip. Repeat for the opposite arm. Remember you are relieving an obstruction - not pulling the baby out.

When it is time for the head, support the body in order to encourage head flexion. As the hairline becomes visible, gently lift the baby upwards so that the arteries will not be occluded. Since the chin is often posterior, you can do the Muariceau-Smellie-Veit maneuver. You can do this by placing the baby’s body over one arm and place a finger on each side of the baby’s nose, on the fetal maxilla. Place one or two fingers of your other hand on the baby’s head. Flex the head with pressure from body hands - but avoid compressing the neck or inserting fingers in the mouth. You can also insert two fingers to check for an anterior lip or cervix.

If the head does not deliver, then quick transport is needed. You should insert your hand into the vagina and create an airway by keeping maternal tissue away from the baby’s face. Then thread O2 tubing into the space to create a blowy supply at 6-8L/min. Make sure that the baby’s body remains wrapped, dry, and warm to preserve heat. Establish IV access in the mother and have the mother on high flow O2. Continue to have the mother push hard with contractions while you lift the baby parallel to the floor. An assistant should apply suprapubic pressure.

In a footling breech, make sure that the woman’s bladder is empty. Do not pull on the baby’s feet. If everything appears ok and there is no evidence of fetal distress or cord prolapse, use expectant management to allow the cervix to completely dilate around the breech. Then proceed as you would in a frank breech delivery. If preterm, remember there is an increased risk of cord prolapse and head entrapment.

15. How do you handle the undiagnosed out of hospital breech?
• Call 911 and initiate transfer protocol
• Explain the situation to the mother and her family
• Empty the bladder with a catheter
• Assist the woman into a position that allows the breech to dangle
• When the presenting part is seen at the vaginal opening, encourage strong pushing
• Allow the baby to deliver unassisted - hands off the breech
• After baby delivers to umbilicus, ensure that delivery occurs within 4 minutes of this point
• Assist delivery of legs if necessary
• If there is progress, keep hands off
• Wrap the baby’s emerging body in a towel and gently provide support
• Assist birth of the arms as necessary
• Encourage the back to rotate anteriorly
• When the baby’s hairline is seen, position his body on your forearm and place fingers on the fetal maxilla
• Place your opposite hand over the baby’s back with 2 fingers over his shoulders and middle finger pressing on the head
• Lift the baby to the horizontal plane to deliver the face with flexion from your fingers
• Assist birth of the arms as necessary
• Encourage the back to rotate anteriorly
• When the baby’s hairline is seen, position his body on your forearm and place fingers on the fetal maxilla
• Place your opposite hand over the baby’s back with 2 fingers over his shoulders and middle finger pressing on the head
• Lift the baby to the horizontal plane to deliver the face with flexion from your fingers
• Prepare for postpartum hemorrhage and neonatal resuscitation

16. What is a cord prolapse? How is it managed? What are the major concerns and how can it be prevented?
Cord prolapse is when the umbilical cord slips down alongside or before fetal presenting part. This is most likely to occur with an unengaged fetal presenting part, multiple gestation, preterm premature rupture of the membrane, polyhydramnios, or a fetal presentation other than vertex.

If the cord gets compressed or if the cord vessels begin to spasm, the baby will become hypoxic or anoxic. It can also cause decels. With these, a vaginal delivery is rarely possible unless the mother is fully dilated, is multiparous, and the baby can be delivered within 4 minutes of the prolapse.

To manage a cord prolapse, have the mother in a knee-chest position (better for FHR) quickly or lay her on her back with several pillows elevating her hips. Get sterile gloves and insert your hand into the mother’s vagina. Find the presenting part of the baby and push it upward so it is not on the cord. Sustain this through contractions even though the contractions will try to force the baby downward. Your hand will remain in the vagina until the baby can be delivered - most likely even under the drapes during surgery. Call 911 and inform the OB unit at the hospital that a cord prolapse is en route and will need an immediate c-section.

Another option is to insert a Foley catheter and quickly fill the maternal bladder with 500-700ml of normal saline with the client in steep Trendelenberg. The distended bladder raises the presenting part and alleviates cord compression. Tocolytic therapy with ritodrine or terbutaline increases the efficiency of this technique and has not been associated with postpartum hemorrhage.
17. What steps are taken when a cord prolapse occurs?
- Call 911 and initiate transfer protocol
- Explain the situation to the client and her family
- Place woman into knee-chest or Trendelenberg
- Elevate the fetal head using manual pressure, bladder distention, or both
- Wrap cord loosely in warm saline compresses if it protrudes from vagina
- Avoid handling or moving the cord
- Supply high-flow oxygen
- Continuously monitor FHR
- If FHR is not reassuring, try changing maternal position without discontinuing head displacement
- Obtain intravenous access with blood draw and bolus 1000cc of lactated Ringer’s or normal saline
- Consider vaginal delivery only if the client is multiparous, complete, and pushing and delivery can accomplished in less than 4 minutes
- If the baby delivers, prepare for resuscitation and postpartum hemorrhage.