Please read all questions carefully before answering. Make sure your name is on every page (1 point). Please write legibly and as concisely as possible. This examination is worth 100 points. There are four bonus questions worth 20 points.

1. Briefly, define the following terms. (16 points)

   Parturition - birth
   Dystocia - atypical or difficult birth
   Retained placenta (bovine) - placenta still present in the uterus after 12 hrs
   Cystic ovary (bovine) - follicle > 25mm for more than 10 days
   Paraphimosis - condition where penis is stuck outside of prepuce
   Colostrum - 1st milk after parturition, high in Ig
   Peracute mastitis - infection of mammary tissue that goes systemic
   Subclinical mastitis - infection of mammary tissue that causes local effects only
      No overt clinical signs

2. Which of the following hormonal changes occur at the time of parturition? (4 points)

   a. Decreased fetal cortisol, increased maternal prostaglandin F2α, increased
      maternal progesterone, increased oxytocin.
   b. Increased fetal cortisol, decreased maternal progesterone, decreased maternal
      estrogen, decreased maternal oxytocin.
   c. Increased fetal cortisol, decreased maternal progesterone, increased maternal
      estrogen, increased oxytocin
   d. Decreased fetal cortisol, decreased maternal oxytocin, decreased progesterone,
      increased maternal estrogen.
   e. None of the above

3. Briefly, outline the three stages of labor in the cow. (6 points)

   I  Dilation of Cervix (2-5 hrs)
   II Expulsion of Fetus (5-1 hrs)
   II Expulsion of Placenta (6-12 hrs)

4. What are three mechanisms/causes of dystocia that we discussed in class? (6 points)

   Maternal - Un-dilated Cervix or Vagina
   Mechanical - Uterine torsion
   Fetal - Malpresentation
5. Give two reasons why you would do a fetotomy in preference to a C-section. (4 points)
   - Fetus Dead
   - Fetus too large to pass through maternal pelvis/vagina

6. List four risk factors for retained placenta in the bovine. (8 points)
   - Hypocalcemia
   - Dystocia
   - Hypomagnesemia
   - Low levels of progesterone

7. Which of the following pathogens is not associated with post-partum metritis? (2 points)
   a. Dictyocaulus viviparous
   b. Arcanobacter pyogenes
   c. Fusobacterium necrophorum
   d. Bacteroides melanogenicus
   e. All of the above

8. Which of the following is not a common agent involved in epididymitis in the bull? (2 points)
   a. Arcanobacter pyogenes formerly Actinomyces pyogenes
   b. Brucella abortus
   c. Trichomonas foetus
   d. None of the above

9. List the key elements of the bull breeding soundness exam as discussed in class. (4 points)
   - Semen quality
   - Bull conformation (esp. feet/legs)
   - Trichomonads testing (management of STD's) —文化 源
   - Libido testing

10. Which State listed below has a mandatory test and tag program for Trichomonas foetus in mature breeding bulls prior to turn out? (2 points)
    a. Montana
    b. Iowa
    c. Nebraska
    d. Idaho
    e. None of the above
11. What functions do the fetal membranes perform? (3 points)
   - Nutrient exchange
   - Waste collection
   - Protection of fetus

12. List three by-pass circuits in the fetal circulatory system. (3 points)
   - Ductus arteriosus
   - Ductus venosus
   - Foramen ovale

13. What is failure of passive transfer? What does failure of passive transfer predispose the neonate to? (3 points)
   - Failure of passive transfer means the neonate did not/is not able to absorb the Immunoglobulins from Colostrum. Predisposes neonate to disease, emphysema, and environmental pathogens.

14. What is the fundamental difference between beef cow and dairy cow colostrum? (2 points)
   - Beef cow colostrum has more highly concentrated Ig's compared to Dairy cow colostrum.

15. Which of the organisms listed below that cause calf scours is most likely to occur in the first three days of life? (2 points)
   a. Rotavirus
   b. Coronavirus
   c. Cryptosporidium parvum
   d. E. coli
   e. None of the above

16. Which of the following parasites has zoonotic potential? (2 points)
   a. Cryptosporidium parvum
   b. Toxoplasma gondii
   c. Sarcocystis sp.
   d. Taenia saginata
   e. All of the above
17. Which of the following diseases has an arthropod vector? (2 points)
   a. Babesiosis
   b. Anaplasmosis
   c. Bluetongue Virus
   d. All of the above

18. What is the major source of gastrointestinal nematodes? When are the most common times for infection? How would you propose controlling GI nematodes? (8 points)
   - Wet Pasture (Environment)
   - Commonly infect late spring/early fall
   - Control by rotating pasture to avoid nematodes, keeping cattle off wet pasture, worming cattle in late spring/early fall when most likely to be infected, not crowding the cattle.

19. What is the difference between an indirect and direct parasite life cycle? Give an example of a parasite for each type of life cycle? Common names will be accepted. (6 points)
   indirect: requires more than one host to complete lifecycle (ex: Liver Fluke -> requires snail & cow)
   direct: can complete entire lifecycle in one host animal (ex: Ostertagia ostertagii)

20. Which of the following mastitis pathogens is a contagious pathogen? (2 points)
   a. E. coli
   b. Staphylococcus aureus
   c. Klebsiella sp. (a type of coliform)
   d. Streptococcus uberis
   e. None of the above

21. List five control procedures for environmental mastitis. What is the reservoir of infection for environmental mastitis pathogens? (6 points)
   - Keep area clean
   - Calve heifers separately
   - Keep bedding clean & dry (Bedding can be reservoir of infection)
   - Keep cows healthy (all cows predisposed)
   - Separate dry & lactating cows
AVS 471
Examination #2
Name: Emily Dahlgren

22. Which of the following is the most common mastitis pathogen in beef cattle? (2 points)
   a. Staphylococcus aureus
   b. Streptococcus agalactiae
   c. Corynebacterium bovis
   d. E. coli
   e. None of the above

23. Which of the following diseases of the bovine digit is laminitis-related? (2 points)
   a. Sole hemorrhage
   b. White line disease
   c. Under-run heels
   d. Horizontal wall grooves
   e. All of the above

23. The principle pathogen in bovine foot rot is which of the following? (2 points)
   a. Fusobacterium necrophorum
   b. Arcanobacter pyogenes
   c. Dictyocaulus viviparous
   d. Staphylococcus aureus
   e. None of the above

BONUS QUESTIONS (20 points total)

List the four mechanisms of edema. (4 points)
   increase vascular permeability
   decrease lymphatic drainage
   increase hypotonic pressure
   decrease blood protein concentrations

List the key elements of a control program for contagious mastitis. (5 points)
   - Keep milking parlors clean
   - Decrease lomites
   - Use teat dip paste
   - Make sure workers practice sanitary handling
   - Sanitize udders and teats
   - Clean udder before milking
   - Don't spray down, though

Give the events that occur in a secondary rumen contraction. (3 points)
   - Rumen contracts from reticulum through rumen, this pushes partially digested matter from reticulum — rumen and from rumen — omasum, omasum for further digestion

   \[ \text{ secondary rumen contraction } = \text{ contraction of rumen } \]
What factors at the time of parturition contribute to the development of laminitis, which manifests as claw disease later in lactation? (8 points) List your answers.

- large amount of weight on hind legs (from fetus & milk)
- nutrient draw from bones → milk (esp. calcium)
- general low nutritive use of cow
- breakdown of laminar papillae
- more movement on concrete pens (causes toes down; causes ulceration later too)