1. Why was it necessary for the microscope to be invented before the science of embryology could really start to understand development?

2. What is the difference between the theory of preformation and that of epigenesis?

3. What organs are involved in the menstrual cycle? Which ones produce hormones and which organs are the target organs for each of these hormones?

4. How is the pituitary related to the activities of the hypothalamus?

5. Describe follicle formation and development up to ovulation on both a time and structural basis. What becomes of the follicle after ovulation?

6. When is the concentration of FSH highest? When is LH highest in concentration? On which days is the concentration of estrogen and progesterone going down?

7. Describe the layer of tissue lost at menstruation from the uterus. What is the function of that tissue in pregnancy, and what prevents its breakdown in pregnancy?

8. What is the difference between each of the two meiotic divisions and a mitotic division? (The differences are not the same for the two.)

9. How many products are there after meiosis of a spermatogonium? of an oogonium? How many of these are gametes? What further differentiations must occur in the spermatids?

10. What structures are found in the head, middle piece and tail of the sperm? When an egg is ovulated, what kinds of material coats it and are there any cells attached to it? How do sperm and egg compare in size?

11. Describe the male ducts through which the sperm have to travel before being deposited in the vagina. Describe the genital organs of the female and know the different functions of each part for conducting egg, sperm, capacitation of sperm, implantation of egg.

12. What is the difference between the chemical acting and the mechanical block contraceptives? Give examples of each. How does altering the secretions inhibit implantation? Why does inhibition of sperm capacitation or motility work as a contraceptive?

13. Why can the IUD be considered both as a mechanical block and a chemical contraceptive? Which is the most effective contraceptive and how does it work? How may the effectiveness of the IUD be related to the immune system (white blood cells?)?

14. Compare the numbers of sperm in the vagina, uterus, oviduct roughly, and explain the differences. Where is the egg fertilized? What happens to the egg after fertilization (polar body, fusion of pronuclei, initiation of cleavage).

15. What kinds of different cells are there in the blastocyst stage? What is the inner cell mass going to become? What is different about the syncytiotrophoblast cells, and what is their function? Approximately which day does implantation occur?
16. Where is the amniotic cavity formed? Where is the primitive yolk sac formed? What is the embryonic disc? What kinds of germ layers are present in these structures? What is the name of the mesoderm associated with the amnion, the chorion and the yolk sac?

17. What is gastrulation and through which structure on the surface of the disc does it occur? Which kind of cells move to the inside through the Hensen’s node? through the primitive streak?

18. How does neurulation result following gastrulation? Why is the allantois essential to the development of the placenta?

19. What is a coelom and what kinds of cells line it inside the embryo? What is the name of the mesoderm associated with the ectoderm, with the endoderm?

20. Where does the heart start its development, and why is it one of the most important things to develop early?

21. What is the relationship of the maternal blood, the lacunae, the villi of the placenta? Is the placenta a part of the uterus or the embryo?

22. Discuss the different kinds of twins and the different types of placental relationships between them.

23. Name the areas of the brain and their arrangement at the neural tube stage. What kinds of cells are found in the dorsal spinal cord, the ventral spinal cord and the spinal ganglia, sympathetic ganglia?

24. From which germ layer does muscle develop? What makes the development of skeletal muscle different from that of smooth or cardiac muscle?

25. What kinds of nerves make connections with these various types of muscle?

26. Where are actin, myosin, tropomyosin found?