

FINAL

Name: _____

SID: _____

MCB135E - Physiology of Human Development
Tuesday, December 17, 1996

I. (36 points) Multiple choice questions: only one choice is correct.

1. The usual source of testosterone that masculinizes the brain of the male fetus is the:
 - a. placenta
 - b. fetal testes
 - c. mother
 - d. fetal pituitary

2. The aggression toward homosexual individuals is due to behaviors that do not meet the expectations of the:
 - a. siblings
 - b. sexualized brain
 - c. genderized society
 - d. same sex

3. Unlike the other organ systems of the body, the function of the _____ system is **not** the survival of the individual.
 - a. lymphatic
 - b. nervous
 - c. reproductive
 - d. endocrine

4. The prenatal sexualization of the cerebral cortex is important for future:
 - a. survival and parenting skills
 - b. cycles of sex hormone secretion
 - c. mating behaviors
 - d. development of the gonads

5. Which one of the following statements is false?
 - a. Macrophages and neutrophils have phagocytic activities.
 - b. Only macrophages have antigen processing and presentation activity.
 - c. Natural killer cells and T-killer cells have cytotoxic activities.
 - d. T-cells and B-cells are lymphocytes but not macrophages.

6. Which one of the following statements is false?
 - a. B-cells differentiate into plasma cells.
 - b. The CD-4 receptor is a component of T-helper cells.
 - c. Complement activation can result in cell lysis.
 - d. Postnatally, the liver is the primary site of stem cell production.

7. With development:
 - a. there is an overproduction of antibodies
 - b. the T-cells become B-cells
 - c. the Ig G from the mother can cross the placental barrier to provide protection to the developing fetus.
 - d. T-cells can first be detected at birth

FINAL

Name: _____

SID: _____

8. The thymus:
- reaches its maximum weight at puberty
 - reaches its maximum weight to body weight ratio at birth
 - is composed of thymocytes, epithelial cells, fat, and connective tissue
 - all of the above
9. With regard to development, which of the following is false?
- Ig M is the first immunoglobulin to reach adult levels after birth.
 - The thymus develops at around 7 weeks gestation.
 - Complement factors are first produced at birth.
 - The spleen develops at around 14-16 weeks gestation.
10. Choose the incorrect statement:
- Ig A is present in breast milk and may provide protection to the newborn.
 - All the lymphocytes are derived from stem cells which are produced primarily in bone marrow.
 - All immunoglobulins are antibodies.
 - T-killer cells are often involved in destroying cells infected by virus.
11. At the end of adolescence, cardiac output reaches adult values because:
- the stroke volume increases
 - the cardiac rate decreases
 - the systolic contraction is stronger
 - the diastolic relaxation is greater
 - all of the above
12. Estrogens, progesterone and androgens
- exert a negative feedback on the synthesis and release of hypothalamic GnRH
 - exert a negative feedback on the synthesis and release of pituitary FSH and LH
 - estrogens exert a positive feedback on LH secretion
 - all of the above
 - none of the above
- 13 (8 points) List 2 major male secondary sex organs that reach maturity at puberty

List 2 major female secondary sex characters that reach maturity at puberty

FINAL

Name: _____

SID: _____

14. (24 points) To regulate and balance functions, our bodies utilize control mechanisms that have been compared to "stats" i.e. stabilizing agents or devices (example: thermostat). Discuss three of these regulatory controls including, for each system :

- 1) describe the major players involved and their locations (e.g. structures, hormones),
- 2) which function is regulated and how this regulation occurs
- 3) explain some repercussions of malfunction of the "stat" control

FINAL

Name: _____

SID: _____

15. (30 points) For the following conditions state:

- 1) the specific structural/functional characteristics associated with the abnormal development**
- 2) the causes that are responsible for it.**

Pygmy

Female pseudohermaphroditism

Precocious puberty

Cretinism

Small-for-date newborns

Eunuchism

FINAL

Name: _____

SID: _____

16. (12 points) Contrast the ovaries and testes in terms of:

OVARIES

TESTES

duration of function
during lifespan

type of hormonal
secretory pattern

age at onset of
postnatal maturation

17 (16 points) A child is brought to a clinic presenting swollen feet, striped discoloration of hair , enlarged abdomen, irritability :

Name the overall condition affecting this child and what is/are the cause(s) of the condition?

Explain the mechanism(s) of each symptom affecting the child

Name two other pathological conditions induced by undernutrition:

FINAL

Name: _____

SID: _____

18. (20 points) T. and F., 2 points each

T. F. During the menstrual cycle, the follicular phase is dominated by the secretion of estrogens with significant proliferation of the cells of the uterine mucosa.

T. F. The fetal heartbeat can be heard(auscultated) through the maternal womb at one month of gestation.

T. F. Home-use kits for determining occurrence of pregnancy depend on the detection of hCG in the maternal urine.

T. F. Thalidomide is a drug taken by the mother to overcome nausea but with toxicity for the embryo.

T. F. Growth hormone is a steroid

T. F. After ovulation, the optimal time for egg fertilization lasts up to 72 hours

T. F. Menarche represents the first menstrual period.

T. F. The loop of Henle is longer in infants than in adults.

T. F. Sudden infant death syndrome (SIDS) is due to a deficiency of alveolar surfactant.

T. F. Bulimia is an eating disorder characterized by lack/loss of appetite for food