



School of Undergraduate Studies

Social, Behavioral, Mathematical, and Natural Sciences

FINAL EXAMINATION

INSTRUCTOR NAME: Paula Strickland, Ph.D.

COURSE NAME Human Health and Disease BIOL 301

SECTION NUMBER: 6980

DUE DATE: Saturday, November 3, 2018 by 11:59 PM

SUBMIT to: Assignment Folder "Final Exam"

IMPORTANT: STUDENT PLEASE COMPLETE ALL ANSWERS ON THE ANSWER SHEET (ATTACHED IN THIS DISCUSSION) AND SUBMIT THE ANSWER SHEET DOCUMENT TO YOUR ASSIGNMENT FOLDER – "Final Exam"

IMPORTANT: I WILL NOT READ ANY SUBMISSIONS THAT ARE SUBMITTED IN THIS DOCUMENT

GENERAL INSTRUCTIONS: This final examination is worth **100 points**. There are five (5) sections: Multiple choice (30 points), two Matching sections (10 points), two Fill-in-the-blank sections (20 points), Short Answer (10 points), and Essay (30 points).

Read all instructions carefully.

*** Do not leave any questions blank. Make your best guesses.***

*****When answering all questions, use the Answer Sheet provided in the Discussion.***

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MULTIPLE CHOICE SECTION

INSTRUCTIONS: Read all instructions carefully. Please answer all questions, if you think more than one answer is correct then select the best answer. Each question is worth 1 point. The Multiple Choice section is worth 30 points.

****Do not enter your answers here.** Type in the letter you select as the best answer on the Answer Sheet provided in the Discussion.**

1. The most abundant plasma protein is
 - A) Fibrinogen
 - B) Thrombin
 - C) Complement
 - D) Albumin

2. Which example does NOT demonstrate the principle of homeostasis?
 - A) A rise in plasma sodium stimulates the release of a hormone that increases sodium loss in the urine.
 - B) An increase in plasma volume increases urination.
 - C) The activation of a clotting factor stimulates the production of the enzyme that activates the clotting factor.
 - D) An increase in body temperature induces sweating, which reduces body temperature.

3. The urinary bladder is located in the
 - A) Thoracic cavity
 - B) Spinal cavity
 - C) Dorsal cavity
 - D) Pelvic cavity

4. Cellular respiration of glucose yields _____ which is used to make ATP
 - A) energy
 - B) iron
 - C) carbon dioxide
 - D) amylase

5. Epithelial, Connective, Muscle, Nervous are groups of
 - A) Glands
 - B) Hormones
 - C) Tissues
 - D) Membranes

6. The blood cell that lacks a nucleus is
 - A) Monocyte
 - B) Neutrophil
 - C) Megakaryocyte
 - D) Erythrocyte

7. DNA is located in the
- A) proteins of a cell
 - B) nucleus of a cell
 - C) nucleolus of a cell
 - D) cell wall
8. To which of the following do Peyer patches belong?
- A) Lymphatic system
 - B) GALT
 - C) MALT
 - D) All of the answers are correct
9. Tissue wasting caused by a decrease in cell number is called
- A) Hypertrophy
 - B) Hyperplasia
 - C) Atrophy
 - D) Aplasia
10. Scleroderma, Lupus erythematosus, and Pemphigus are examples of what kind of diseases
- A) Prion infection
 - B) Bacterial infection
 - C) Autoimmune
 - D) Vitamin deficiency
11. While hiking in the Andes mountains wearing too many clothes. You develop a headache, a rapid pulse, and sweating profusely. From what are you most likely suffering?
- A) Heat exhaustion
 - B) Heat cramps
 - C) Heat stroke
 - D) Hypothermia
12. Which of the following is true of aldosterone?
- A) It stimulates urine production
 - B) It increases the kidney's sodium retention
 - C) It acts on osmoreceptors to stimulate thirst
 - D) It is secreted from the pituitary gland

13. A protein that makes up hair and nails is
- A) Collagen
 - B) Melanin
 - C) Keratin
 - D) Carotene
14. A population of microorganisms that grow on and within the human body and typically cause no harm
- A) Pathogens
 - B) Normal flora
 - C) Algae
 - D) All of the above
15. The best treatment for anaphylaxis is
- A) Epinephrine
 - B) Cortisol
 - C) Insulin
 - D) Growth hormone
16. Which is the smallest unit of life that can exist as a living, separate entity?
- A) Virus
 - B) Cell
 - C) Organ
 - D) Chemical molecule
17. One of the roles of the urinary system is to help maintain the extracellular fluid pH by causing a re-distribution of _____ ions.
- A) Hydrogen
 - B) Potassium
 - C) Sodium
 - D) Calcium
18. A 15-year-old boy was bitten by a rabid dog, he was given immunoglobulins. Which of the following best describes his immunity to rabies?
- A) Naturally acquired passive immunity
 - B) Naturally acquired active immunity
 - C) Artificially acquired active immunity
 - D) Artificially acquired passive immunity

19. The head of the spermatozoon contains large amounts of
- A) DNA
 - B) Mitochondria
 - C) Cytoplasm
 - D) All of the above is correct
20. Neurons that carry impulses from the body to the CNS are called
- A) Interneurons
 - B) Sensory neurons
 - C) Senses
 - D) Digestive
21. The term that describes the capacity of a food to raise blood glucose levels is
- A) Glucose effect
 - B) Basal index
 - C) Glycemic effect
 - D) Supplemental index
22. The skin is a primary barrier against invasion because it is capable of
- A) Shedding – removes infectious agents
 - B) Protects against bacterial toxins
 - C) Interlocking pattern helps to prevent penetration
 - D) None of the above
23. Good skin care includes all below **except**
- A) Excessive sunlight
 - B) Nutrition
 - C) Blood circulation
 - D) Moisturizers
24. Menses results from a(n)
- A) Decline in estrogen and progesterone
 - B) Increase in estrogen and progesterone
 - C) Increase in luteinizing hormone
 - D) Increase in follicle-stimulating hormone
25. _____ is where most nutrients are absorbed
- A) Stomach
 - B) Small intestine
 - C) Large intestine
 - D) Mouth

26. The structure that secretes colostrum is the
- A) Mammary glands
 - B) Uterine glands
 - C) Placenta
 - D) Amniotic membrane
27. The skin cells of the elephant contain 56 chromosomes. How many chromosomes will an elephant spermatozoon contain?
- A) 56
 - B) 23
 - C) 46
 - D) 28
28. Choose the disorder that is congenital but NOT hereditary?
- A) Fetal alcohol syndrome
 - B) Cystic fibrosis
 - C) Huntington disease
 - D) Albinism
29. The ability of a particular gene to determine phenotype can be altered by
- A) Environmental factors
 - B) Gender
 - C) Other genes
 - D) All of the above
30. Blood pressure readings are reported via
- A) Cardiac output/peripheral resistance
 - B) Diastolic pressure/systolic pressure
 - C) Systolic pressure/diastolic pressure
 - D) Peripheral resistance/lung output

MATCHING SECTION

INSTRUCTIONS: Read all instructions carefully. Please answer all questions in both Sections A and B. Each question is worth 1 point. The Matching section is worth 10 points.

****Do not enter your answers here.** Type in the letter you select from the right column (symptom or sign) as the best answer on the Answer Sheet.**

Section A - MATCH the clinical symptom or sign with the Disease or Health issue

Disease or Health Issue	Symptom or Sign
1. Urethritis	a. irreversible kidney damage
2. Pyuria	b. difficulty with thinking and judgment
3. Anemia	c. low hematocrit value
4. Down syndrome	d. accumulation of phenylalanine in blood
5. Hodgkin disease	e. glucose deficiency
	f. presence of white blood cells in urine
	g. stones in the bladder
	h. frequent and painful urination
	i. unexplained itching all over the body
	j. extra copy of chromosome 21

Section B - MATCH the definitions or associations with term or concept

TERM or CONCEPT	Definition/Association
6. Embolus	a. dome-shaped muscle
7. Mesoderm line	b. hardening of the arteries
8. Thymus	c. blockage of a blood vessel
9. Arteriosclerosis	d. maintenance of health and weight control
10. Polysaccharide	e. B cell maturation site
	f. redness, pain, swelling, heat
	g. pluripotent stem cells
	h. Shrinks after puberty
	i. starches
	j. pumps oxygenated blood to the body

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FILL- IN THE BLANK – SECTIONS A and B

INSTRUCTIONS: Provide the best answer for the items in Sections A and B below. Each item is worth 1 point. This section is worth 20 points. Please answer all questions in **both** sections.

****Do not enter your answers here.** Type in your best answer on the Answer Sheet.**

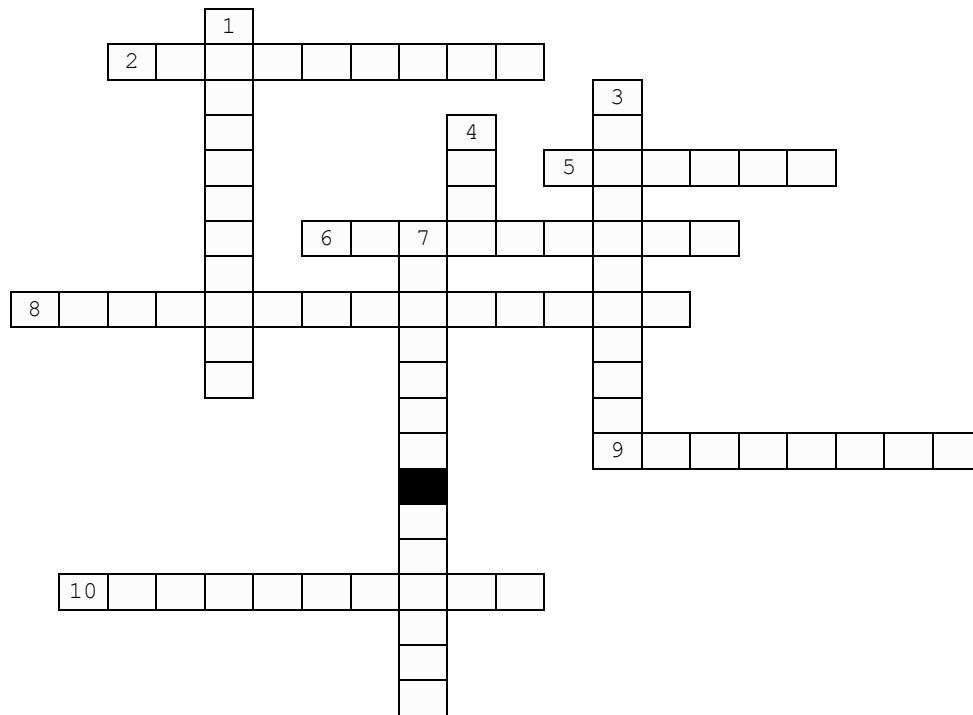
Section A:

1. Traits determined by more than one gene pair are termed _____.
2. The results of a urinalysis evaluation identified abnormal constituents, two possibilities are _____ and _____.
3. A picture of chromosomes lined up in pairs is a(n) _____.
4. The _____ in the brain stem controls heartbeat.
5. Accumulation of bile pigments in the blood causes _____.
6. Transcription of the DNA strand CGTAC would produce an mRNA strand with the sequence _____.
7. Severe protein-energy malnutrition in infancy is termed _____.
8. Under low oxygen (hypoxic) conditions such as high altitudes, the kidneys secrete _____ to stimulate erythrocyte (red blood cell) production.
9. Severe protein-energy malnutrition in infancy is termed _____.
10. The sex steroid called _____ induces the development of male secondary sex characteristics.

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Section B

What are seven (7) health-related terms that could be used to complete the crossword puzzle?
Use the descriptions below the puzzle to find the correct terms.



Down

- 1.** the process of chewing-prepares the food to be swallowed
- 3.** the expulsion of undigested food or body wastes
- 4.** a yellowish-green fluid important in the breakdown of fats
- 7.** Secretions (two words) from the stomach lining that contain pepsin and acids

Across

- 2.** a burning pain in the center of the chest after eating
- 5.** has a role in the activation of Vitamin D
- 6.** the mechanical **and** chemical breakdown of foods for use by the body's cell
- 8.** system supplies digestive organs with oxygen and processed nutrients
- 9.** the functional units of the kidneys
- 10.** the passage of digested food from the digestive tract into the circulatory system

SHORT ANSWER SECTION

INSTRUCTIONS: Each question is worth 2 points. Total of 10 points for this section.

Answer each question thoroughly but concisely. You should address the question that is asked. Do not include “irrelevant” cut and paste content in your answers. You will receive point deductions for including content that is not relevant to the question.

Instructions: For questions 1 - 3, you will state or describe the **differences or distinctions** between the two terms in the **paired sets** below.

1. Glucose metabolism in a cell that has adequate oxygen and one that does not
2. Primary and secondary antibody response
3. Essential amino acid and **non-essential** amino acid.

Instructions: For questions 4 and 5, provide **brief answers (3-4 sentences per question)**.

4. A woman was born without sweat glands. Will this have a significant effect on her ability to maintain normal water balance? Explain your answer, discussing the relative amounts of fluids lost via different body systems.
5. Discuss the role of bile in digestion.

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ESSAY SECTION

INSTRUCTIONS: Complete questions in this Essay Section – there are five (5) questions. Answer all questions. Each question is worth 6 points. Total of 30 points for this section.

Answer each question thoroughly but concisely. You should address the question that is asked with some details. Do not include irrelevant content in your answers.

1. A young male, is afflicted with a muscle wasting disease. His mother's two brothers also had the disease. No other family members (his father, his father's relatives, his mother, or his mother's female relatives) have the disease. Is this muscle wasting disease (A) autosomal or sex-linked, and (B) dominant or recessive? Defend your answers.
2. Explain why the role of oxytocin in labor is an example of positive feedback. Do any other roles of oxytocin exhibit this same principle?

3. A young girl has a rare disorder in which she does not produce memory cells. What are memory cells, and what will likely be the effect of this disorder on her overall health?
4. Explain why the heart is described as a double pump. Provide specifics and use the correct technical terms in your answer.
5. Draw/diagram a Punnett square in which, upper case Tt represents two sets of genes (alleles) for a female with normal height, Tall female and lower case tt represents two sets of genes (alleles) for a short male. Note that upper case T represents a dominant trait—tallness and lower case t represents the recessive trait—shortness.

In this scenario, the female is tall in appearance (phenotype) and the male is short in appearance (phenotype).

- i) Given that the female carries both genes (alleles), that is T and t , for height, explain why her appearance is tall.
- ii) Next, draw a Punnett square for the offspring that could be produced from the union of this female Tt and this male tt .
- iii) After drawing the Punnett square, discuss the phenotypes (appearances) of the four representative offspring whose genotypes are provided in the Punnett Square.

NOTE: Your diagram must be an original created by you.

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You have completed the exam.

*Congratulations on
Completing Human Health and Disease*

*I hope that you learned more about the human body and now have a better sense of how
you and your family can live healthier lives.*

*Best wishes for all your future endeavors,
Paula Strickland, Ph.D.*

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