

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN NURSING

NURS 115: MEDICAL PHYSIOLOGY II

STREAMS: BSC (NURS) Y1S2

TIME: 2 HOURS

DAY/DATE: MONDAY 06/04/2020

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS: ALL QUESTIONS ARE COMPULSORY

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. The blood-CSF barrier is formed by the following except:
 - (a) Blood capillaries
 - (b) Endothelial cells
 - (c) Oligodendrocytes
 - (d) Protoplasmic astrocytes

2. Destruction of the anterior pituitary gland causes the following except:
 - (a) Diabetes insipidus
 - (b) Amenorrhea
 - (c) A fall in basal metabolic rate
 - (d) Inability to survive severe stress

3. Damage to the following nerve could result in defects of eye movement
 - (a) Optic
 - (b) Trigeminal
 - (c) Facial
 - (d) Abducens

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4. Epinephrine (adrenaline) is secreted by:
 - (a) Sympathetic preganglionic fibers
 - (b) Sympathetic postganglionic fibers
 - (c) Parasympathetic preganglionic fibers
 - (d) Parasympathetic postganglionic fibers
5. The integrative functions of the nervous system are performed mainly by the :
 - (a) Interneurons
 - (b) Afferent neurons
 - (c) Efferent neurons
 - (d) Neuroglia
6. The following skin cell type alerts the immune system to pathogens:
 - (a) Fibroblasts
 - (b) Melanocytes
 - (c) Keratinocytes
 - (d) Dendritic cells
7. Corticotropin release hormone secretion would not raise the blood concentration of:
 - (a) Aldosterone
 - (b) Thyroxine
 - (c) Cortisol
 - (d) Corticosterone
8. The following hormone would no longer be secreted if the hypothalamohypophyseal tract were destroyed:
 - (a) Thyroid stimulating hormone
 - (b) Follicle-stimulating hormone
 - (c) Oxytocin
 - (d) Adrenocorticotrophic hormone
9. The receptors for insulin are located at the:
 - (a) Pancreatic beta cells
 - (b) The target cell membrane
 - (c) The target cell cytoplasm
 - (d) The target cell nucleus

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10. The first hormone secreted at the onset of puberty in males is:
 - (a) Testosterone
 - (b) Follicle-stimulating hormone
 - (c) Gonadotropin releasing hormone
 - (d) Luteinizing hormone

11. The first haploid stage in oogenesis is:
 - (a) The oogonium
 - (b) The primary oocyte
 - (c) The secondary oocyte
 - (d) The primordial follicle

12. Tubular secretion of hydrogen is directly linked to:
 - (a) Tubular secretion of potassium
 - (b) Tubular secretion of sodium
 - (c) Tubular reabsorption of potassium
 - (d) Tubular reabsorption of sodium

13. All the following contribute to the absorptive surface area of the small intestine except:
 - (a) Its length
 - (b) The brush border
 - (c) The haustra
 - (d) The circular folds

14. The following cell types secrete digestive enzymes:
 - (a) Chief cells
 - (b) Parietal cells
 - (c) Goblet cells
 - (d) Enteroendocrine cells

15. Concerning the intestinal secretion, the following is true except:
 - (a) The fluid is alkaline
 - (b) The fluid contains hydrochloric acid
 - (c) The fluid contains mucus
 - (d) The fluid contains water

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16. Use the values below to answer the following question:
Glomerular capillary hydrostatic pressure = 47mm Hg
Bowman's space hydrostatic pressure = 10 mm Hg
Bowman's space oncotic pressure = 0 mm HG
At what value of glomerular capillary oncotic pressure would glomerular filtrations stop?
- (a) 10 mm Hg
 - (b) 37 mm Hg
 - (c) 47 mm Hg
 - (d) 57 mm Hg
17. The following would cause an increase in both the glomerular filtration rate and renal blood flow:
- (a) Dilation of the afferent arteriole
 - (b) Dilation of the efferent arteriole
 - (c) Constriction of the afferent arteriole
 - (d) Hyperproteinnemia
18. The following is the most abundant nitrogenous waste in the blood:
- (a) Ammonia
 - (b) Urea
 - (c) Creatinine
 - (d) Uric acid
19. Gastric acid secretion is increased by:
- (a) Parasympathetic stimulation
 - (b) Parasympathetic inhibition
 - (c) Sympathetic stimulation
 - (d) Cholinergic antagonists
20. Concerning the preganglionic neuron, the following is true except:
- (a) The cell body is located in the central nervous system
 - (b) The axon is a small diameter myelinated typed B fiber
 - (c) The cell body is located in the autonomic ganglia
 - (d) The axon exits the CNS as part of a cranial or spinal nerve

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

1. Explain the physiological events that occur in the following organs during the post-ovulatory phase of the menstrual cycle:
 - (a) Ovary [3 marks]
 - (b) Uterus [3 marks]
2. State four (4) effects of each of androgens in the human body [4 marks]
3. Describe two (2) effects of each of the following hormones on renal function:
 - (a) Angiotensin II [4 marks]
 - (b) Antidiuretic hormone [4 marks]
4. Explain the mechanisms of water reabsorption by the kidneys [4 marks]
5. Describe three (3) function of the thalamus [6 marks]
6. Explain three physiological functions of the cerebrospinal fluid [6 marks]
7. Explain the main effects of parasympathetic stimulation in the following body organs:
 - (a) Heart [3 marks]
 - (b) Small intestine [3 marks]

SECTION C: LONG ANSWER QUESTIONS (40 MARKS)

1. The process of absorption of nutrients that occurs mainly in the small intestine:
 - (a) Explain how the small intestine absorbs the following nutrients
 - (i) Monosaccharides [5 marks]
 - (ii) Amino acids [5 marks]
 - (iii) Lipids [5 marks]
 - (b) Explain the adaptations in the small intestine that facilitate the process of absorption [5 marks]
 2. The homeostatic function of hormones is mediating communication between different body tissues:
 - (a) Explain the principal effects of insulin on the following
 - (i) Carbohydrates metabolism [6 marks]
 - (ii) Protein metabolism [6 marks]
 - (b) Describe four (4) physiological effects of thyroid hormones [8 marks]
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