

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

NURU 114: MEDICAL PHYSICAL II

STREAMS: BSC NURSING Y1S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 08/04/2020

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS:

- **Do not write anything on the question paper.**
- **Mobile phones and any other reference materials are NOT allowed in the examination room.**
- **The paper has three sections. Answer ALL questions.**
- **All your answers for section I (MCQs) should be on one page.**
- **Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.**
- **Write your answers legibly and use your time wisely.**

PART I: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. Phagocytosis, endocytosis, autophagy, and autolysis in the cytoplasm are functions of
 - (a) Ribosomes
 - (b) Lysosomes
 - (c) Peroxisomes
 - (d) Nucleus
2. The “power house” of a cell is
 - (a) Rough endoplasmic reticulum
 - (b) Mitochondria
 - (c) Smooth endoplasmic reticulum
 - (d) Nucleus
3. Central nervous system consists of

- (a) Cranial nerves and spinal nerves
 - (b) Brain and spinal cord
 - (c) Special sense organs
 - (d) Sympathetic and parasympathetic nerves
4. Functions of Neuroglia includes
- (a) Controlling muscles activity
 - (b) Regulating glandular secretions
 - (c) Maintaining homeostasis in the Extra Cellular Fluid
 - (d) Generation of action potential
5. Bundles of axons located in central nervous system are called
- (a) Tracts
 - (b) Nuclei
 - (c) Ganglia
 - (d) Nerves
6. Grayish appearance of the grey matter is due to
- (a) Myelin sheath
 - (b) Nissl bodies
 - (c) Tracts
 - (d) Ganglion
7. The fundamental physiological properties of neurons include the following except
- (a) Excitability
 - (b) Elasticity
 - (c) Conductivity
 - (d) Secretion
8. Nervous impulse originates at
- (a) Cell body
 - (b) Cell axon
 - (c) Axon hillock
 - (d) Dendrites

9. Most neurons in the Central Nervous System are
- (a) Unipolar
 - (b) Bipolar
 - (c) Multipolar
 - (d) Unipolar and bipolar
10. Interneurons (association neurons)
- (a) Begins in almost any organ of the body
 - (b) Located entirely within Central Nervous System
 - (c) Send signals to muscle and gland cells
 - (d) Specialized to detect internal stimuli
11. Which of the following statement is true
- (a) Unmyelinated axons form the white matter in CNS
 - (b) Myelin prevent leakages of electric current
 - (c) Unmyelinated axons are larger
 - (d) Myelin decreases the speed of conduction
12. A damaged peripheral nerve fiber can regenerate if
- (a) It's soma is intact and there is some neurolemma
 - (b) It's soma is intact and its unmyelinated
 - (c) Its supply's the muscle cells or the gland
 - (d) It is a sensory nerve
13. The most common neurological disease of young adults is
- (a) Parkinson's disease
 - (b) Wallerian degeneration
 - (c) Multiple sclerosis
 - (d) Alzheimer disease

14. The resting membrane potential of a neuron is about
- (a) -40 millivolts
 - (b) -50 millivolts
 - (c) -70 millivolts
 - (d) -90 millivolts
15. Resting membrane potential results from the combined effect of following factors except
- (a) Diffusion of ions down their concentration gradients
 - (b) Selective permeability of the plasma membrane
 - (c) Electrical attraction of cations and anions
 - (d) Electrolytes distributed between ECF and ICF
16. Repolarizing phase of action potential entails
- (a) The membrane potential is restored to the resting state
 - (b) The negative membrane potential becomes less negative
 - (c) The membrane potential temporarily becomes more negative than resting level.
 - (d) Action potential is generated
17. Axoaxonic synapses entails that information is transmitted
- (a) From axon to dendrite
 - (b) From axon to cell body
 - (c) From axon to axon
 - (d) From dendrite to cell body
18. In electrical synapses
- (a) Action potentials do not conduct through gap junction
 - (b) Plasma membranes of presynaptic and postsynaptic neurons do not touch each other

- (c) There is a synaptic cleft separating presynaptic and postsynaptic neurons
 - (d) The activity of a group of neurons or muscle fibers can be synchronized
19. Excitatory postsynaptic potential
- (a) Is depolarizing
 - (b) A single one can initiate a nerve impulse
 - (c) Causes hyperpolarization of the postsynaptic membrane
 - (d) Makes generation of an Action Potential more difficult than usual
20. Ribosomes are cell organelles. They
- (a) Assemble amino acids into proteins
 - (b) Synthesize fatty acids and steroids
 - (c) Degrade intracellular organelles
 - (d) Synthesize ATP

PART II: SHORT ANSWER QUESTIONS (30 MARKS)

- 1. (i) Define apoptosis (2 marks)
- (ii) State three (3) examples of abnormal apoptosis (3 marks)
- 2. State five (5) functions of membrane proteins. (5 marks)
- 3. Explain four (4) processes involved in transport across plasma membrane. (8 marks)
- 4. State four (4) functions of the nervous system. (4 marks)
- 5. Explain four (4) properties of Local Action Potential. (8 marks)

PART III: LONG ANSWER QUESTIONS (20 MARKS)

- 1. (i) State three (3) differences between electrical synapse and chemical synapse. (6 marks)
 - (ii) Describe the events of signal transduction at a chemical synapse. (14 marks)
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