JULIUS NYERERE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF PSYCHOLOGY

BACHELOR OF SCIENCE HONOURS DEGREE IN PSYCHOLOGY

LEVEL 2 SEMESTER 1

EXAMINATION QUESTION PAPER

MODULE CODE : **PSYH 211**

MODULE NARRATION : **PSYCHOBIOLOGY**

DATE : **2024**

DURATION : **2 HOURS**

INSTRUCTION TO CANDIDATES:

Answer all questions in sections A and B.
Answer one question from section C.

SECTION A: 40 Marks
Answer all questions in this section.

1. A voltage of –70 millivolts (mV) in a neuron is found during the
   A. Action potential B. Resting potential
   C. Absolute Refractory period D. relative refractory period
2. Transmission of information between neurons occurs through transmission of
   A. Electrical impulses B. Neurotransmitters
   C. Electrical vesicles D. Chemicals

3. The neurotransmitter acetylcholine's function is to
   A. Increase brain arousal. B. Modify motivated and emotional behavior.
   C. Increase arousal and alertness. D. Decrease pain and increase pleasure.
4. Agonistic drugs
   A. Fill the site and block neurotransmitter from entering the receptor site.
   B. Are the wrong shape and cannot attach to the receptor site.
   C. Facilitate the production of a specific neurotransmitter and enhance its function.
   D. Prevent the right neurotransmitters from performing their function.

5. The parts that make up the Hindbrain are the
   A. Pons, Medulla and cerebellum
   B. Cerebral cortex, thalamus, hypothalamus and the limbic system.
   C. Pons, medulla and cerebral cortex.
   D. Thalamus, hypothalamus, medulla and cerebellum.

6. The Broca's area of the brain is responsible for language
   A. Production B. Translation C. Learning D. Comprehension

7. Which part of the brain is responsible for detecting internal conditions throughout the body like glucose level, testosterone level or oestrogen level?
   A. Cerebral cortex B. Hippocampus C. Hypothalamus D. Thalamus

8. Which system is made up of the following parts; amygdala, cingulate gyrus and hippocampus?
   A. Limbic System B. Peripheral Nervous System
   C. Endocrine System D. Somatic Nervous System

9. Which lobe is responsible for processing visual information?
   A. Temporal B. Occipital C. Parietal D. Frontal lobes.
10. Which lobe is responsible for processing somatosensory information?
   A. Temporal B. Occipital C. Parietal D. Frontal lobes.

11. Which lobe is referred to as the psychic seat?
B. Temporal B. Occipital C. Parietal D. Frontal lobes.

12. Which lobe is responsible for processing auditory information?
C. Temporal B. Occipital C. Parietal D. Frontal lobes.

13. Loss of consciousness following a blow to the head and without any structural damage is called .....
A. Concussion B. Tissue damage
C. Punch drunk syndrome D. Damaged brain

14. Brain damage caused by a blood clot or other obstruction that closes an artery or an artery ruptures and disturbs the blood flow and oxygen supply to an area of the brain is called
A. Huntington's disease B. Stroke (CVA) C. Glaucoma D. Epilepsy

15. Which of the following is the common cause of stroke?
A. Diabetes B. HIV/AIDS C. hypertension D. ulcers

16. Why are animals used in psychobiological research?
A. The mechanisms that underlie behaviour are very different across species.
B. The brains of human subjects are simpler than non-human subjects.
C. Animals can be used for lab research which cannot be done on humans for legal and ethical reasons.
D. Humans have rights whilst animals do not.

17. Neurotransmitters are primarily associated with .....
A. Terminal buttons B. Pupil C. Soma D. Cornea

18. You see a snake in your backyard and immediately start running in the opposite direction. The physical symptoms you experience due to this reaction are a function of the .....
A. Central nervous system B. Parasympathetic nervous system.
C. Sympathetic nervous system D. neurotransmitter acetylcholine

19. Which part of the neuron receives information from sensory receptors?
A. Axon B. Dendrites C. Myelin Sheath D. Synaptic knobs

20. Stroke is explained in two ways which are
A. cerebral haemorhage & Ischemia B. thrombosis and embolism

C. cerebral ischemia and embolism D. thrombosis and cerebral haemorhage

21. Which of the following brain structures controls some vital reflexes including breathing, heart rate, vomiting, salivation, coughing and sneezing?
A. Hippocampus B. Thalamus C. Medulla oblongata D. Pons

22. Neuroglia are
A. Far less in number than neurons.
B. Transmit information over long distances just like neurons.
C. Are dead cells.
D. Build the myelin sheaths that surround and insulate axons.

23. Psychobiology emerged in 1949 following a book called ……., written by D.O. Hebb in 1949.

24. Biological Psychology B. Organisations of Behaviour
C. The history of Neuroscience D. The basics of Biological Psychology

25. Why are humans not used in other psychobiological experimental research?
A. The mechanisms that underlie behaviour are very different across species.
B. The brains of human subjects are simpler than non-human subjects.
C. Humans are political in nature
D. There are some behaviours that cannot be observed in humans for ethical reasons.

26. At which point along the neuron does action potential start?
A. Axon B. Dendrites C. Myelin Sheath D. Axon hillock

27. Which statement is true about the refractory period?
A. It comes before an action potential, the cell can produce other action potentials provided the stimulation is stronger than usual.
B. It comes immediately after an action potential, the cell resists the production of further action potentials.
C. The cell exhibits the resting potential since it is refracting.
D. It is the period when the cell experiences the action potential.

28. The nucleus of a cell is housed in the …….
A. Cell body B. Mitochondria C. Ribosomes D. Myelin sheath

29. …… are neurons of the spinal cord that receive impulses from the spinal cord to muscle or glands cells.
A. Interneuron B. Sensory neuron C. Motor neuron D. Afferent neuron

30. Which of the following is not part of the neuron?
A. Soma B. Axon C. Axon terminal D. Synapse

31. Neurotransmitters are primarily associated with?
A. Synapses B. Pupil C. Soma D. Cornea

32. Boxers and other people who experience repeated concussion suffer from cerebral scarring called .....
A. deterioration B. stroke C. punch-drunk syndrome D. haematoma

33. The main function of the myelin sheath is to
A. Generate action potentials
B. Increase the speed of nerve impulses.
C. Block the reception of acetylcholine.
D. Aid a nerve's receptivity to neurotransmitters by increasing the number of receptor sites available.

34. You see a snake in your backyard and immediately start running in the opposite direction. After a long run, your heart starts slowing down and breathing becomes normal. This is a function of the.....
A. sympathetic nervous system. B. parasympathetic nervous system.
C. central nervous system. D. neurotransmitter acetylcholine.

35. The charge that exists across the nerve cell membrane is a result of differing
A. amounts of DNA and RNA.
B. types of neurotransmitters on either side of the nerve cell membrane.
C. types of neurons inside and outside the nerve cell membrane.
D. concentrations of ions on either side of the nerve cell membrane.

36. The microscopic space between two neurons is called a(n)
A. Nodes of Ranvier B. Acetylcholine. C. Catecholamine. D. Synaptic cleft

37. Which of the following is not a property of reflexes?
A. Temporary summation B. Speed of reflex
C. Inhibitory synapse D. hyperpolarization

38. Which of the following is a behavioural mechanism of temperature used by birds
A. Tucking a leg B. pilo-erection C. sweating D. shivering

39. The following are causes of fever except
A. Huntington's disease B. allergic reactions C. D. Epilepsy

39. The charge that exists across the nerve cell membrane is a result of differing

A. amounts of DNA and RNA.

B. types of neurotransmitters on either side of the nerve cell membrane.

C. types of neurons inside and outside the nerve cell membrane.

D. concentrations of ions on either side of the nerve cell membrane.

40. Which one is a chief symptom of fever?

A. shivering B. acne C. sores on the foot D. nose bleeding

SECTION B (60 MARKS)

1. The main function of shivering is to.....(1)
2. Aneurysms can be congenital that is can be present at ..... or can result from exposure to ..... poisons that enter the blood vessel or an infection. (2)
3. A disruption of blood supply to an area of the brain is called..... (1)
4. Cerebral Ischemia is caused by three things which are.....,..... and .....(2)
5. The damaged brain can recover through.....and .....(2)
6. Differentiate among afferent neurons, inter-neurons and efferent neurons. (6).
7. State any 3 homeostatic mechanisms of temperature regulation. (3)
8. Explain the 2 different ways in which drugs affect the synaptic transmission(6)
9. State any 3 functions of glial cells. (6)
10. Explain the difference between excitatory and inhibitory synapses as applied in psychobiology(4)
11. Describe any two properties of reflexes observed by Sherrington. (8)
12. Draw and label a myelinated neuron (10)
13. State any 2 factors that influence recovery after brain damage. (2)
14. What is the difference between a hyperpolarization and a depolarization? (4)
15. What is the relationship between the threshold and an action potential? (3)

SECTION C (100 Marks)

Answer any one question in this section.

1. Outline the different causes of brain damage that may cause partial or permanent incapacitation in humans. (100)
2. Explore the behavioural and brain mechanisms of temperature regulation (100)