BIOLOGY

BOOKS - PREMIERS PUBLISHERS

NEURAL CONTROL AND CO-ORDINATION

Evaluation Textbook Questions Answers

1. Which structure in ear conerts pressure waves to action potentials ?

A. Tympanic membrane

B. Organ of Corti

C. Oval window

D. Semicircular canal

Answer: C

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2. Which of the following pairings is correct ?

A. Sensory nerve - afferent

B. Motor nerve - afferent

C. Sensory nerve - ventral

D. Motor vnerve - dorsal

Answer: A

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3. During synaptic transmission of nerve impulse, neurotransmitter (P) is released from synaptic vesicies by the action of ions (Q). Choose the correct P and Q.

A. P = Acetylcholine, Q = Ca^{++}

B. P = Acetylcholine, Q = Na^{+}

C. P =GABA, Q = Na^{+}

D. P = Cholinesterase, Q = Ca^{++}

Answer: A

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4. Assertion : In membrane the concentration of Na^{++} and K^{+}, and proteins generates action potential.

Reason : To maintain the unequal distribution of Na^+ and K^+, the neurons use electrical energy.

A. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.

B. Both Assertion and Reason are true but the Reason is not the correct explanations of Assertion.

C. Assertion is true, but Reason is false.

D. Both Assertion and Reason are false.

Answer: C

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5. Which part of the human brain is concerned with the regulation of body temperature ?

A. Cerebellum

B. Cerebrum

C. Medulla oblongata

D. Hypothalamus

Answer: D

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6. The respiratory centre is present in the

A. Medulla oblongata

B. Hypothalamus

C. Cerebellum

D. Thalamus

Answer: A

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7. Which of the following cranial nerve controls the movement of eye ball ?

A. Trochlear nerve

B. Optic nerve

C. Olfactory nerve

D. Vagus nerve

Answer: B

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8. The abundant intracellular cation is

A. H^+

B. K^+

C. Na^+

D. Ca^{++}

Answer: B

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9. Which of the following statements is wrong regarding conduction of nerve impulse ?

A. In a resting neuron, the axonal membrane is more permeable to K^+ ions and nearly impermeable to Na^+ ions.

B. Fluid outside the axon has a high concentration of K^+, in a resting

neuron.

C. Ionic gradients are maintained by Na_K pumps across the resting membrane, which transport 3Na ions outwards for $2K^+$ into the cell.

D. A neuron is polarized only when the outer surface of the axonal membrane possess a negative a charge and its inner surface is positively charged.

Answer: D

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10. All of the following are associated with the myelin sheath except

A. Faster conduction of nerve impulses

B. Nodes of Ranvier forming gaps along the axon

C. Increased energy output for nerve imppulse conduction

D. Saltatory conduction of action potential

Answer: C

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11. Several statement are giv here in reference to cone cells which of the following option indicates all correct statement for cone cells ?

Statement

(i) Cone cells are less sensitive in bright light than Rod Cells

(ii) They are responsible for colour vision

(iii) Erythropsin is a photo pigment which is

sensitive to red colour light

(iv) They are present in fovea of retina

A. (iii), (ii) and (i)

B. (ii), (iii) and (iv)

C. (i), (iii) and (iv)

D. (i), (ii) and (iv)

Answer: B

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12. Which of the following statements concerting the somatic division of the peripheral neural system is incorrect ?

A. Its pathways innervate skeletal muscles

B. Its pathways are usually voluntary

C. Some of its pathways are referred to as reflex arcs

D. Its pathways always involve four neurons

Answer: D

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13. When the potential across the axon membrane is more negative than the normal resting potential the neuron is said to be state of

A. depolarization

B. hyperpolarization

C. repolarization

D. hypopolarization

Answer: B

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14. Why is the blind spot called so ?

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15. Sam's optometrist tells him that his intraocular pressure is high. What is this condition called and which fluid does it involve ?

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16. Why are we getting running nose while crying ?

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17. The action potential occurs in respnse to a threshold stimulus, but not at sub threshold stimuli. What is the name of the principle involved ?

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18. Pleasant smell fo food urged Ravi to Rush into the kitchen. Name the parts of the brain involved in the identification of food and emotional responses to odour.

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19. Cornea trasplant in human is almost never rejected state the reason.

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20. At the end of repolarization, the nerve membrane gets hyperpplarized. Why ?

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21. Label the parts of the neuron.

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22. The chlroid plexus secretes cerebrospinal fluid. List the function of it.

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23. What is the ANS controlling centre? Name the parts that are supplied by the ANS.

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24. Why the limbic system is called the emotional brain ? Name the parts of it.

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25. Classify receptors based on type of stimuli.

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26. Name the first five cranial nerves, their nature and their functions.

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27. The sense of taste is considered to be the most pleasureable of all senses.

Describe the structure of the receptor involved with a diagram.

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28. Describe the structures of olfactory receptors.

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Other Important Question Answers I Choose The Correct Answer

1. Structural and functional unit of nervous system_____.

A. nephrons

B. neurons

C. neuroglia

D. interneurons

Answer: B

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2. Non-nervous special cells are called

A. afferent neurons

B. efferent neurons

C. neuroglia

D. dendrons

Answer: C

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3. The plasma membrane covering the neuron is called .....

A. cell wasll

B. primary wall

C. neurilemma

D. axolemma

Answer: C

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4. Axon is a long fibre that arises from a cone shaped area of the cell body called

A. Schwann cells

B. Node of ranvier

C. Nissil body

D. Axon hillock

Answer: D

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5. Nissil's granules are absent in the ..... Area of the neuron.

A. dendrites

B. cell body

C. axon

D. myelin sheath

Answer: C

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6. Longest cell in the human body

A. nephrons

B. axons

C. dendrons

D. neurons

Answer: D

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7. Which is the longest cell and longest axon in the human body?

A. Vagus nerve

B. Cervical nerve

C. Sciatic nerve

D. Sacral nerve

Answer: C

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8. The axon of the peripheral nerves is surrounded by:

A. nodes of ranvier

B. nissil's boies

C. axon hillock

D. schwann cells

Answer: D

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9. Name the gaps in the myelin sheath between adjacent Schwann cells

A. synaptic vesicle

B. synaptic knob

C. nodes of ranvier

D. neuromuscular junction

Answer: C

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10. The normal value of resting membrane potential is .....

A. –70mV

B. –40mV

C. –50mV

D. –17mV

Answer: A

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11. When a nerve fibre is in the stimulated stage the following action will result:

A. Sodium voltage-gate opens

B. Potassium voltage-gate opens

C. Sodium voltage-gate closes

D. Ligand-gated opens

Answer: A

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12. When the potential across the axon membrane is more negative than the normal resting potential the neuron is said to be state of

A. depolarization

B. repolarization

C. hyperpolarization

D. hypopolarization

Answer: C

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13. Nerve impulses travel at the speed of:

A. 1-3 m/s

B. 1-300 m/s

C. 2-250 m/s

D. 1-310 m/s

Answer: B

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14. Junction between two neurons

A. synapse

B. nodes of ranvier

C. synaptic cleft

D. septum pellucidum

Answer: A

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15. Small gap between pre and post synaptic membranes is called

A. synaptic cleft

B. synaptic vesciles

C. synaptic knob

D. synapse

Answer: A

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16. The synaptic vesicles of the synaptic knob are filled with .

A. neurotransmitters

B. cerebrospinal fluid

C. plasma

D. mucus

Answer: A

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17. The outer duramater and the median Arachnoid membranes of the brain has separated from each other by means of space called:

A. dural space

B. arachnoid space

C. sub arachnoid space

D. sub dural space

Answer: D

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18. ..... Part of the brain is called "Seat of intelligence" and forms the major part of the brain.

A. Cerebrum

B. Cerebellum

C. Diencephalon

D. Hypothalamus

Answer: A

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19. The cerebral hemispheres are connected by a tract of nerve fibres called .....

A. infundibulum

B. corpus callosum

C. cauda equina

D. chroid plexus

Answer: B

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20. ..... Serve as a relay centre for impulses between the spinal cord, brainsteam, and cerebrum.

A. Hypothalamus

B. Pineal body

C. Thalamus

D. Infundibulum

Answer: C

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21. ..... Is the major coordinating centre for sensory and motor signaling.

A. Olfactory bulbs

B. Brainstem

C. Thalamus

D. Corpora quadrigemina

Answer: C

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22. The hypothalamus contains a pair of small rounded body called ..... which are involved in olfactory reflexes and emotional responses to odour.

A. corpora quadrigemina

B. mamillary bodies

C. foramen of Monro

D. hippo campus

Answer: B

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23. The ..... system is called emotional brain.

A. Neural system

B. Muscular system

C. Sensory receptor system

D. Limbic system

Answer: D

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24. Four rounded bodies found in mid brain

A. corpora quadrigemina

B. mamillary bodies

C. olfactory bulbs

D. cauda equina

Answer: A

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25. ..... Is the reflex centre of the brain for vision and hearing.

A. Cerebral peduncles

B. Septum pellucidum

C. Corpora quadrigemina

D. Choroid plexus

Answer: C

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26. the_____is the second largest part of the brain.

A. Cerebrum

B. Medulla oblongata

C. Cerebellum

D. Pons varoli

Answer: C

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27. Which of the following controls and coordinates the muscular movements and body equilibrium?

A. Cerebrum

B. Hypothalamus

C. Vermis

D. Cerebellum

Answer: D

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28. Cardio vascular reflexes, respiration and gastric secretions are controlled by:

A. Medulla oblongata

B. Interventricular foramen

C. Cerebral hemispheres

D. Cerebellum

Answer: A

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29. The 1st and the 2nd ventricles of the brain is communicated with the 3rd ventricle through an opening called:

A. aqueduct of sylvius

B. foramen of Monro

C. intervertebral foramina

D. pupil

Answer: B

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30. The thick bundle of elongated nerve roots within the lower vertebral canal is called

A. choroid plexus

B. cauda equina

C. peripheral neural system

D. intervertebral foramina

Answer: B

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31. There are ..... Pairs of cranial nerves which arise from the brain.

A. 11

B. 12

C. 13

D. 14

Answer: B

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32. There are ..... Pairs of spinal nerves emerge out from the spinal cord.

A. 30

B. 29

C. 31

D. 13

Answer: C

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33. The spinal nerves emerge out from the spinal cord through spaces called:

A. foramen of Monro

B. intervertebral foramina

C. aqueduct of sylvium

D. synapse

Answer: B

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34. ..... Located in the upper lateral region of each orbit of an secrete tears.

A. Sebaceous glands

B. Lacrymal glands

C. Melbomian glands

D. Oil glands

Answer: B

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35. The excell of aqueous humor in an eye is drains out through:

A. foramen of Monro

B. canal of schelemm

C. fovea centralis

D. macula lutea

Answer: B

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36. ..... is the highly vascularized pigmented layer that nourishes all the eye layers.

A. Sclera

B. Choroid

C. Retina

D. Eyelids

Answer: B

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37. The normal value of intraocular pressure of an eye is:

A. 16 mmHg

B. 61 mmHg

C. 22 mmHg

D. 6 mmHg

Answer: A

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38. The convexity of the lens of an eye for near and far vision is altered by:

A. sphincter muscle

B. ciliary muscle

C. suspensory ligaments

D. dilator papillae

Answer: B

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39. ..... Is responsible for sharp detailed vision of eye, which is present in the centre of the posterior region of retina.

A. Macula lutea

B. Fovea centralis

C. Pupil

D. Canal of Schlemm

Answer: A

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40. The pigment present in the cone cells of an eye is:

A. anthocyanin

B. carotenoids

C. phytochrome

D. photopsin

Answer: D

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41. Due to aging, the lens of an eye looses its elasticity and the power of accommodation, what is the condition called?

A. Astigmatism

B. Myopia

C. Presbyopia

D. Hypermetropia

Answer: C

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42. There are about ..... Million rod cells in the human eye.

A. 1200

B. 120

C. 12

D. 102

Answer: B

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43. The wax glands present in an ear is called:

A. sebacaeous glands

B. melbomian glands

C. oil glands

D. ceruminous glands

Answer: D

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44. The hair cells of the basilar membrane of the inner ear has hair like projection called:

A. cilia

B. flagella

C. stereocilia

D. ciliary epithelium

Answer: C

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45. The intensity of sound is measured in

A. mV

B. decibels

C. kelvin

D. mole

Answer: B

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46. The receptors of taste and smell are called

.

A. chemoreceptors

B. mechanoreceptors

C. tactile receptors

D. phono receptors

Answer: A

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47. The tongue has many small projections called ..... .

A. papillae

B. dilator papillae

C. sphincter papillae

D. ruffini endings

Answer: A

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48. ..... are the small light pressure receptors found numerous in hair less skin areas such as finger tips and soles of the feet.

A. Pacinian corpuscles

B. Meissner's corpuscles

C. Krause end bulbs

D. Tactile merkel disc

Answer: B

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49. ..... are thermoreceptors that sense temperature.

A. Gustatory epithelial cells

B. Olfactory receptor cells

C. Krause end bulbs

D. Pacinian corpuscles

Answer: C

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Other Important Question Answers Ii Answer The Following

1. What are the basic functions of the neural system of higher animals?

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2. What are the divisions of human neural system?

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3. What are the divisions of neurons based on their function?

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4. Write the functions performed by Neuroglia.

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5. Explain the structure of a neuron.

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6. Classify neurons according to their structural difference with simple diagram.

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7. What are the two main phases of transmission of impulses?

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8. What is meant by resting membrane potential?

9. List out the phases in action membrane potential.

10. Is there anys peed difference among the neurons? Why there is such a difference?

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11. Write a note on saltatory conduction.

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12. Explain the transmission of nerve impulses.

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13. What are the three meanings of the brain? Where are they present

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14. Write an account on the structure and function of forebrain.

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15. Corpora quadrigemina

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16. Given an account on the different areas of hindbrain region.

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17. What are the fluid filled spaces of the brain called? Write few lines about its position.

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18. Explain C.S of spinal cord with neat diagram.

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19. (i) Describe the structure of spinal cord.

(ii) What are heart sounds? How are they produced?

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20. In what way the grey and white matter of the brain and the spinal cord differs.

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21. When dust falls in our eyes, the eyelids close immediately not waiting for our willingness, on touching a hot pan, the hand is withdrawn rapidly. Do you know how this happens?

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22. What are the functional components of a reflex arc? Explain.

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23. Explain the type of reflexes.

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24. What is peripheral nervous system?

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25. Write about cranial nerves which are arising from the brain coming under peripheral neural system.

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26. How many spinal nerves emerged from the spinal cord and how are they named?

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27. What is somatic neural system? Write its functions.

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28. What is ANS ? Explain the components of ANS.

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29. Name the neural systems coming under autonomic system.

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30. Differentiate between sympathetic and parasympathetic Neural system.

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31. Name the senses occur in our brain.

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32. Classify receptors based on their location.

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33. What are the muscles involved in placing the eyeball held its position in the orbit of the skull?

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34. What are the functions of the extrinsic muscle of the eye?

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35. What are the functions of the eye lids?

Watch Video Solution

36. What are the glands present related with the eyes? What is it function?

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37. Explain the structure of human eye.

Watch Video Solution

38. Explain the mechanism of vision.

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39. Arun cannot able to see the near by object clearly. What is his problem with his eye called? How this condition occurs and how can it be rectivied?

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40. What is long sightedness? What is the condition of the eye in this case? How can it be rectified?

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41. Differentiate between rod and cone cells.

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42. Write few lines about eye lens.

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43. What is stye?

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44. What is Madras eye ?

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45. What are the visual pigments present in the cones for colour vision?

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46. Explain the refractive errors of eye.

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47. Name the parts of the organ of equilibrium involved in the following functions.

(a) Linear movement of the body.

(b) Changes in the body position.

(c) Rotational movement of the head.

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48. Write the anatomy of the ear.

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49. Explain the mechanism of hearing.

Watch Video Solution

50. Write a short note on defects of ear.

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51. Explain the organ of equilibrium or proprioception.

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52. What are Receptors? Write a short note on Receptors.

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53. What is vitiligo? What are its symptoms?

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54. What is spike potential?

Watch Video Solution

55. What is meant by threshold potential?

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56. Define the following:

Leakage channels.

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57. Define the following:

Ligand-gated channels.

 Watch Video Solution

58. Define the following:

Voltage-gated channels.

 Watch Video Solution

59. What are the action takes place during Ligand-gated channels?

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60. How potential difference across the axolemma is maintained during leakage channels.

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61. List out the types of voltage gated channels.

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Solution To Textual Questions Text Book Page No 60

1. Can you state why some areas of the brain and spinal cord are gray and some are white?

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Solution To Textual Questions Text Book Page No 61

1. Human brain is formed of a large number of parts like cerebrum, thalamus, hypothalamus, pons, cerebellum and medulla oblongata. Each part performs some specialized function and all the parts are essential for the survival of a person. Discuss the following statements :

(a) Thalami are called relay centres of the brain.

(b) Damage to medulla may cause the death of organism.

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Solution To Textual Questions Text Book Page No 61

1. Damage to the medulla may cause the death of organism. How?

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Solution To Textual Questions Text Book Page No 71

1. Your friend is returning home after his visit to USA. All at home are waiting for his arrival. How would you feel? State the division of ANS that predominates and mention few changes that take place in your body.

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