# BIOLOGY

# BOOKS - MAXIMUM PUBLICATION

# NEURAL CONTROL AND COORDINATION

## Exercise

**1.** Resting membrane potentil is maintained by

A. Hormones

B. Neurotransmitters

C. Ion pumps

D. None of the above

**Answer: C**

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**2.** The function of our visceral organs is controlled by

A. Sympathetic and somatic neural system

B. Sympathetic and para sympathetic neural system

C. Central and somatic nervous system

D. None of the above

**Answer: B**

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**3.** Which of the following is not involved in knee-jerk reflex ?

A. Muscle spindle

B. Motor neuron

C. Brain

D. Inter neurons

**Answer: C**

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**4.** Mark the vitamin present in Rhodopsin

A. Vit A

B. Vit B

C. Vit C

D. Vit D

**Answer: A**

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**5.** Human eyeball consists of three layers and it encloses

A. Lens, iris, optic nerve

B. Lens, aquous humor and vitreous humor

C. Cornea, lens, iris

D. Cornea, lens, optic nerve

**Answer: B**

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**6.** Fill up the blank with appropriate words.The nervous band that connects the two cerebral hemispheres is _____ .

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**7.** Name the region of keenest vision in our eye.

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**8.** After playing on a giant wheel, we lost our balance. Why?

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**9.** Arrange the ear ossicles in order from inner ear to the tympanum.

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**10.** Name the receptors respond to irritants such as ammonia, vinegar or hot chilly pepper.

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**11.** The tissues of eye and ear contain photoreceptors and the auditory receptors. Likewise some are found as film of liquid coating in the membranes of the receptor cells. Name it.

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**12.** Light ray $\rightarrow$ Lens $\rightarrow$ retina $\rightarrow$ pupil $\rightarrow$ cornea $\rightarrow$ brain $\rightarrow$ Vitreous chamber $\rightarrow$ Aqueous chamber $\rightarrow$ Optic nerver. Correct the sequence.

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**13.** Classify the following in to 3 groups and give appropriate headings. Thalamus, Corpora-quadrigemina, Pons, hypothalamus, Cerebrum, Medulla Oblongata.

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**14.** (## EXP_VAD_ZOO_XI_C10_E02_003_Q01 .png" width="80%">

a) Identify the above stages of nerve impulse conduction

b) Name the ions involved in this process.

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**15.** Differentiate Blindspot and Yellow spot.

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**16.** Sudden death may occur due to the damage of Medulla oblongata`. Why ?

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**17.** Observe the figure given below

a) Identify A & B

b) Write the main function of part A.

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**18.** Where do you find bipolar and multipolar neurons in our body ?

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**19.** While playing cricket, the ball hit a boy`s head. He immediately vomited and felt difficulty to breath.

a) Identify the part of brain affected.

b) Give the function of the affected part.

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**20.** Nocturnal animals like bats and owls have vision during night. Give reason.

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**21.** Light ray $\rightarrow$ Lens $\rightarrow$ retina $\rightarrow$ pupil $\rightarrow$ cornea $\rightarrow$ brain $\rightarrow$ Vitreous chamber $\rightarrow$ Aqueous chamber $\rightarrow$ Optic nerver. Correct the sequence.

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**22.** Arrange the following in the order of reception and transmission of sound wave from the external auditory canal.

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**23.** Observe the given diagram.

a) Write any one difference between A and B.

b) Through which neurone the impulse

conduction is faster. Justify.

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**24.** The given diagram is a part of myelinated nerve fibre.

a) Identify the part where there is no myelin sheath.

b) Name the type of conduction going on in that type of never fibre.

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**25.** Observe the diagram.

Identify A, B, C and D

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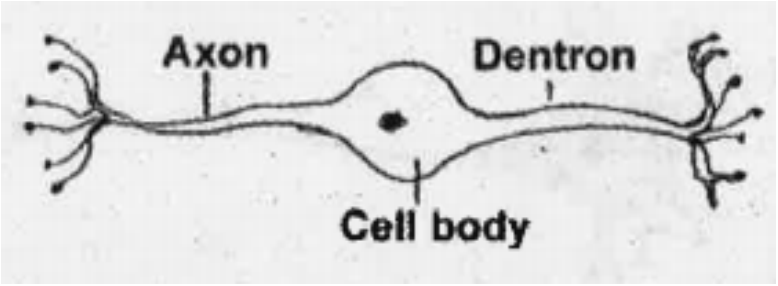
**26.** a) Identify the picture.

b) Write the peculiarity of the picture.



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**27.** A patient approaches a doctor with a problem that he was not able to sleep for the last 6 months. The doctor said that it may be due to the defect in the relay centre of his brain and advised him to take sedative pills.

a) Which part of brain is described here as $relaycentre$ ?

b) What are the actions of sedative pills in body ?

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**28.** It is said that the number and pattern of convolutions are associated with the degree of intelligence.

a) Is it true ?

b) If yes, give the scientific reason for it.

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**29.** Copy the diagram and label a, b, c and d.

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**30.** A diagram showing the chemical synaptic transmis-sion is given below. Based on the diagram prepare a flow chart showing the process of synaptic transmission.

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**31.** While playing cricket, the ball hit a boy`s head. He immediately vomited and felt

difficulty to breath.

a) Identify the part of brain affected.

b) Give the function of the affected part.

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**32.** Observe the portion of Brain and answer the following questions.

a) Name the covering of brain.

b) Identify A, B and C.

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**33.** Identify the following figure and label the parts. 

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**34.** When we step on a thorn, we withdraw our legs suddenly, if we are taking this thorn out, we will not withdraw our legs. Comment on these two statements.

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**35.** Observe the picture. 

a) Identify the part labelled as (x)

b) In our retina there are mor rod cells than cones. But our vision in darkness is poor. Give scientific explanaion to this fact.

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**36.** Find out the relationships and write the suitable word in the Ivth place.

a) Cornea : Sclera , Yellow spot :.....

b) Incus : Middle ear, Cochlea : .....

c) Scala vestibuli Perilymph , Scala media : .....

d) Rods : Rhodopsin , Cones : .....

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**37.** Arrange the organs according to the mechanism of hearing. Oval window, Perilymph, Organ of corti, Ear Ossicles, pinna, Tectorial membrane, Endolymph, Auditory canal, auditory nerve, brain.

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**38.** Copy the diagram and mark Tectorial membrane and sensory hair cell. 

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**39.** Analyse the table and fill in the blanks given in the table with appropriate words.

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**40.** In animals like bats and owls photoreceptor cells of the retina have mainly rods.

a) What can you infer from this?

b) Write down the function of rods and cons.

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**41.** Ear converts sound waves into neural impulses which are sensed and processed by the brain that enable to recognise sound.

Construct a schematic diagram showing the mechanism of hearing the sound of a bell.

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**42.** Arrange the structures found in the retina from inside to outside. Cone cells, optic nerve, Ganglion cells, Bipolar neuron.

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**43.** a) Name the receptors of smell found as mucous coated thin, yellowish patch of modified pseudo stratified epithelium.

b) Where is these receptors located?

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**44.** The diagram shows a section through a part of the human ear.

a) Identify the parts labelled A, B and C.

b) Which parts are involved in the equilibrium

of the body.

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**45.** Why does red flower look black in dim light?

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**46.** The taste buds of Humans are located in pockets around the papillae on the surface

and side of the tongue, but some on the surface of the pharynx and the larynx.

a) What are the four basic taste senses ?

b) Find out their location in tongue

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**47.** The touch receptors are either free dendritic endings or encapsulated dendritic endings present in the skin.

a) What are the main functions of receptors of free dendritic endings ?

b) Name the main receptors of encapsulated dendritic endings. Give its functions.

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**48.** The following steps are involved during synaptic transmission. Rearrange them in correct order.

a) Release of neurotransmitter at synaptic cleft.

b) Generation of a new potential at post synaptic neuron

c) Arrival of impulse at the axon terminal

d) Binding of neurotransmitter with specific receptor

e) Movement of synaptic vesicle towards the membrane.

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**49.** A sharp tap is given at your knee cap with rubber hammer. You suddenly stretch your leg.

a) Give name of this response.

b) Which nerve centre is involved in this action

?

c) Construct a flow chart of the pathway of impulses in this action.

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**50.** (## EXP_VAD_ZOO_XI_C10_E03_003_Q01 .png" width="80%">

a) Identify the organ and label A and B.

b) Gait of a drunkard is not normal. Why ?

c) The death sentence given by the court is

always by "hanging" in our counry. Why this is preferred to other ways?

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**51.** Make necessary correction in the flow chart given.

Repolarisation

↓

Depolarisation

↓

Propagation of nerve impulse

↓

Stimulus

↓

Resting membrane potential

↓

Reversal of polarity

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**52.** Match the following .

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**53.** Suppose you dramatically escaped from a motor accident. Your heart beat and rate of respiration was increased at that moment.

a) Name the hormone involved in this change.

b) Which part of nervous system control these action?

c) Enlist other physiological changes that you may feel at that time.

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**54.** Neurons are the structural and functional unit of nervous system.

a) Based on the number of axon and dendrites, how the neurons are classified.

b) Give examples for each.

c) Which neuron receives signal from a sensory organ and transmit the impulse to CNS.

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**55.** A diagram of brain is given below.

a) Identify P Q R S

b) Which part is responsible for thinking, memory and reasoning

c) Name the nerve band which connects the two hemispheres of brain.

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**56.** Complete the given flowchart :

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**57.** You may have an experience of sudden withdrawal of body parts when you come in contact with objects that are extremely cold. This response occurs involuntarily without conscious efforts.

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**58.** Observe the diagram : 

a) Label the parts A and B.

b) Even though concentrated HCl is stored in the stomach, it will not generally damage the stomach wall. Why ?

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**59.** Arrange the ear ossicles in order from inner ear to the tympanum.

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**60.** Two types of synapses are given in the diagrams A and B.

a) Identify A and B.

b) Impulse transmission in $B$ is faster than that of $A$. Given reason.

c) Name the chemical substance that helps in the transmission of impulses in $A$.

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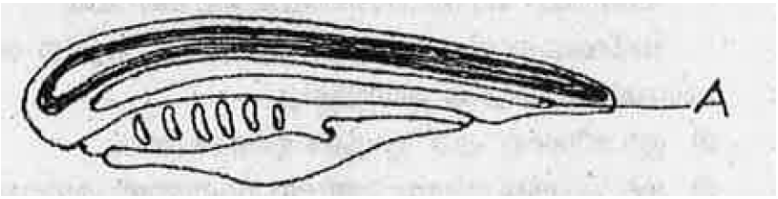
**61.** The following diagram shows the characteristics of a phylum.




a) Identify the phylum.

b) Label A in the diagram.

c) Mention four salient features ofthe phylum.

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**62.** The following steps are involved during synaptic transmission. Rearrange them in

correct order.

a) Release of neurotransmitter at synaptic cleft.

b) Generation of a new potential at post synaptic neuron

c) Arrival of impulse at the axon terminal

d) Binding of neurotransmitter with specific receptor

e) Movement of synaptic vesicle towards the membrane.

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**63.** Given below are the stages in the generation of optic nerve impulse or action potential on the retina and the role of opsin and retinal in the mechanism of vision. Arrange them in a sequential order.

a) Action potential (impulses) are transmitted by the optic nerves to the visual cortex area of the brain.

b) Light induces dissociation of retinal from opsin.

c) Generates action potential in the ganglion cells through bipolar cells.

d) Structural changes in the opsin which

induce membrane permeability changes.

e) Potential differences are generated in the photoreceptor cells.

f) Neural impulses are analyzed by visual cortex area of the brain.

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**64.** Mention the functions of the following structures in human body. (Hint: Any two each)

a) Hypothalamus

b) Axon

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**65.** Fovea of retina in eye contains .....

a) rod cells only

b) cone cells only

c) both roads and cones

d) rod and cones are absent

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**66.** Compare the following :

a) Central neural system (CNS) and peripheral

neu-ral system (PNS)

b) Resting potential and action potenial

c) Choroid and retina

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**67.** Answer briefly ,

a) How do you preceive the colour of an object ?

b) Which part of our body helps us in maintaining the body balance ?

c) How does the eye regulate the amount of light that falls on the retina.

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**68.** The region of the vertebrate eye, where the nerve passes out of the retina is called the

A. fovea

B. iris

C. blind spot

D. optic chiasma

**Answer: A**

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**69.** Which of the following is not related to the autonomic nervous system ?

A. Peristalsis

B. Digestion

C. Excretion

D. Memory and learning

**Answer: D**

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**70.** Comprehension of spoken and written words take place in the region of

A. association area

B. motor area

C. wernicke`s area

D. Broca`s area

**Answer: C**

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**71.** How many laminae are present in the grey matter of spinal cord ?

A. Four

B. six

C. Eight

D. Ten

**Answer: D**

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**72.** Animals possess nerve or nervous systems to respond to their environment. But the single celled amoeba does not possesses any nerve cell , so, how it come to know whether a particle it encounters is a grain of sand and not its dinner by /

A. thermotaxis

B. skin

C. hormones

D. chemotaxis

**Answer: D**

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**73.** Thermoregulatory centre of human body is associate with

A. cerebrum

B. cerebellum

C. hypothalamus

D. medulla oblongata

**Answer: C**

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**74.** Sensation of stomach pain is due to

A. interoceptors

B. exteroceptors

C. proprioceptors

D. chemotactors

**Answer: A**

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**75.** Where do you find bipolar and multipolar neurons in our body ?

A. vertebrate embryos

B. retina of eye

C. brain and spinal cord

D. skeletal muscles

**Answer: B**

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**76.** Which foramen is paired in mammalian brain ?

A. Foramen of Luschka

B. Foramen of magendie

C. Foramen of monro

D. Inter-ventricular foramen

**Answer: A**

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**77.** Which is thickened to form organ of corti ?

A. Reissner`s membrane

B. Basilar membrane

C. Tectorial membrane

D. All of these

**Answer: B**

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**78.** Skeletal muscles are controlled by

A. sympathetic nerves

B. parasympathetic nerves

C. Somatic nerves

D. autonomic nerves

**Answer: C**

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**79.** Thermoregulatory centre of human body is associate with

A. Medulla oblongata

B. Cerebellum

C. Cerebrum

D. Hypothalamus

**Answer: D**

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**80.** Alzheimer`s disease in humans is associated with the deficiency of

A. dopamine

B. glutamic acid

C. acetyleholine

D. Gamma Amino Butyric Acid (GABA)

**Answer: C**

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**81.** The posterior part of the retina, Which is just opposite to the lens is

A. cornea

B. yellow spot

C. fovea centralis

D. Both (b) and c

**Answer: B**

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**82.** In the central nervous system, myelinated fibres from the _____ while the non-myelinated fibre cells from the _____

A. grey matter, white matter

B. white matter, grey matter

C. ependymal cells, neurosecretory cells

D. neurosecretory cells, ependymal cells

**Answer: B**

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**83.** The potential difference across the membrane of nerve fibre when it does not shown any physiological activity is called resting potential. It is about

A. -6OmV`

B. -8OmV`

C. +6OmV`

D. +9OmV(e)-36mV`

**Answer: B**

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**84.** Vomiting centre is located in the

A. stomach and sometimes in duodenum

B. gastro-intestinal tract

C. hypothalamus

D. medulla oblongata

**Answer: D**

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**85.** The function of vagus nerve innervating the heart is

A. initiate the heart beat

B. reduce the heart beat

C. accelerate the heart beat

D. maintain constant heart beat

**Answer: B**

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**86.** The size of pupil is controlled by the

A. ciliary muscles

B. suspensory

C. Cornea

D. iris muscles

**Answer: D**

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**87.** An action potential in the nerve fibre is produced when positive and negative charges on the outside and the inside of the axon membrane are reversed because

A. more potassium ions enter the axon as compared to sodium ions leaving it

B. more sodium ions enter the axon as compared to potassium ions leaving it

C. all potassium ions leave the axon

D. all sodium ions enter the axon

**Answer: B**

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**88.** A 22 years student goes to his ophthalamologist. He has problem in reading books because he is not be able to contract his

A. suspensory ligament

B. pupil

C. iris

D. ciliary muscles

**Answer: D**

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