## AIPMT 2006

**1.** Which one of the following statements is correct?

(1) Neither hormones control neural activity nor the neuron control endocrine activity

(2) Endocrine glands regulate neural activity, but not vice versa

(3) Neurons regulate endocrine activity, but not vice versa

(4) Endocrine glands regulate neural activity, and nervous system regulates endocrine glands

**2.** Which one of the following does not act as a neurotransmitter?

(1) Norepinephrine (2) Cortisone

(3) Acetylcholine (4) Epinephrine

## AIPMT 2007

**3.** During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric charge?

(1) First positive, then negative and continue to be negative

(2) First negative, then positive and continue to be positive

(3) First positive, then negative and again back to positive

(4) First negative, then positive and again back to negative

**4.** Which one of the following pairs of structures distinguishes a nerve cell from other types of cell?

(1) Vacuoles and fibres

(2) Flagellum and medullary sheath

(3) Nucleus and mitochondria

(4) Perikaryon and dendrites

## AIPMT 2008

**5.** During the propagation of a nerve impulse, the action potential results from the movement of :

(1) $K^+$ from intracellular fluid to extracellular fluid

(2) $Na^+$ from extracellular fluid to intracellular fluid

(3) $K^+$ from extracellular fluid to intracellular fluid

(4) $Na^+$ from intracellular fluid to extracellular fluid

## AIPMT 2010

**6.** The nerve centres which control the body temperature and the urge for eating are contained in:

(1) Cerebellum (2) Thalamus

(3) Hypothalamus (4) Pons

## Pre-AIPMT 2012

**7.** A person entering an empty room suddenly finds a snake right in front on opening the door. Which one of the following is likely to happen in his neuro-hormonal control system?

(1) Hypothalamus activates the parasympathetic division of brain

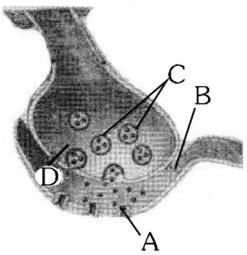
(2) Sympathetic nervous system is activated releasing epinephrine and norepinephrine from adrenal cortex

(3) Sympathetic nervous system is activated releasing epinephrine and norepinephrine from adrenal medulla

(4) Neurotransmitters diffuses rapidly across the synaptic cleft and transmit a nerve impulse

## NEET-UG 2013

**8.** A diagram showing axon terminal and synapse is given below. Identify correctly at least two of A-D.




(1) C-Neurotransmitter, D-$Ca^{++}$
(2) A-Receptor, C-Synaptic vesicles
(3) B-Synaptic connection, D-$K^{+}$
(4) A-Neurotransmitter, B-Synaptic cleft

## AIPMT 2014

**9.** How do parasympathetic neural signals affect the working of the human heart ?
(1) Reduce both heart rate and cardiac output.
(2) Heart rate is increased without affecting the cardiac output.
(3) Both heart rate and cardiac output increase.
(4) Heart rate decreases but cardiac output increases.

**10.** Injury localized to the hypothalamus would most likely to disrupt :
(1) short - term memory.
(2) co-ordination during locomotion.
(3) executive functions, such as decision making.
(4) regulation of body temperature.

## AIPMT 2015

**11.** Which of the following regions of the brain is incorrectly paired with its function?
(1) Cerebellum- language comprehension
(2) Corpus callosum-communication between the left and right cerebral cortex
(3) Cerebrum- calculation and contemplation
(4) Medulla oblongata - homeostatic control

## NEET-UG 2017

**12.** Myelin sheath is produced by:
(1) Astrocytes and Schwann cells
(2) Oligodendrocytes and Osteoclasts
(3) Osteoclasts and Astrocytes
(4) Schwann cells and Oligodendrocytes

**13.** Receptor sites for neurotransmitters are present on:
(1) Pre-synaptic membrane
(2) Tips of axons
(3) Post-synaptic membrane
(4) Membrane of synaptic vesicles

## NEET-UG 2018

**14.** Which of the following structures or regions is ***incorrectly*** paired with its function?

| | | |
|---|---|---|
| (1) | Medulla oblongata | controls respiration and cardiovascular reflexes. |
| (2) | Limbic system | consists of fibre tracts that interconnect different regions of brain; controls movement. |
| (3) | Hypothalamus | production of releasing hormones and regulation of temperature hunger and thirst. |
| (4) | Corpus callosum | band of fibres connecting left and right cerebral hemispheres. |

## NEET-UG 2019

**15.** Which part of the brain is responsible for thermoregulation?
(1) Cerebrum
(2) Hypothalamus
(3) Corpus callosum
(4) Medulla oblongata

**NEET-UG 2019 (Odisha)**

**16.** Which of the following statements is **not** correct?

(1) An action potential in an axon does not move backward because the segment behind is in a refractory phase

(2) Depolarisation of hair cells of cochlea results in the opening of the mechanically gated potassium -ion channels.

(3) Rods are very sensitive and contribute to daylight vision.

(4) In the knee-jerk reflex, stimulus is the stretching of muscle and response is its contraction.

**NEET-UG 2022**

**17.** Select the incorrect statement regarding synapses:

(1) Electrical current can flow directly from one neuron into the other across the electrical synapse.

(2) Chemical synapses use neurotransmitters

(3) Impulse transmission across a chemical synapse is always faster than that across an electrical synapse.

(4) The membranes of presynaptic and postsynaptic neurons are in close proximity in an electrical synapse.

**Re-NEET-UG 2022**

**18.** Match **List - I** with **List - II**

| | **List - I** | | **List - II** |
|---|---|---|---|
| (a) | Multipolar neuron | (i) | Somatic neural system |
| (b) | Bipolar neuron | (ii) | Cerebral cortex |
| (c) | Myelinated nerve fibre | (iii) | Retina of Eye |
| (d) | Unmyelinated nerve fibre | (iv) | Spinal nerves |

Choose the **correct answer** from the options given below :

(1) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)

(2) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)

(3) (a) – (ii), (b) – (iii), (c) – (i). (d) – (iv)

(4) (a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)



## Exercise - II (Previous Year Questions) ANSWER KEY

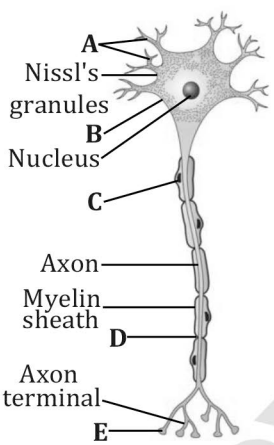
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Answer | 4 | 2 | 4 | 4 | 2 | 3 | 3 | 2 | 1 | 4 | 1 | 4 | 3 | 2 | 2 |
| Question | 16 | 17 | 18 | | | | | | | | | | | | |
| Answer | 3 | 3 | 4 | | | | | | | | | | | | |

## EXERCISE-III (A) (NCERT Based QUESTIONS)

**1.** Which system provides an organised network of point to point connection :-
(1) Integrated system
(2) Neuro-endocrine system
(3) Endocrine system
(4) Nervous system

**2.** Which role of neuron regarding different kinds of stimuli is absent :-
(1) detect (2) receive
(3) transmit (4) protect

**3.** The accompanied diagram shows the structure of neuron. Identify A to E.




| | A | B | C | D | E |
|---|---|---|---|---|---|
| (1) | Nerve fibre | Cyton or cell body | Schwann cell | Node of Ranvier | Synaptic knob |
| (2) | Dendrites | Cyton or cell body | Schwann cell | Node of Ranvier | Synaptic knob |
| (3) | Dendrites | Nerve cell | Schwann cell | Node of Ranvier | Synaptic knob |
| (4) | Dendrites | Cyton or cell body | Nerve cell | Node of Ranvier | Synaptic knob |

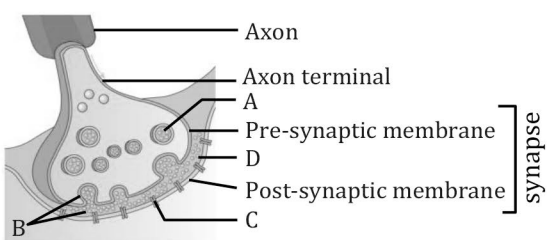
**4.** When a neuron is not conducting any impulse i.e. resting, the axonal membrane is -
(1) Comparatively more permeable to $K^+$ and impermeable (nearly impermeable) to $Na^+$
(2) Impermeable to negatively charged proteins present in the axoplasm
(3) (1) & (2) Both
(4) More permeable to $Na^+$ ions than $K^+$ ion

**5.** Pick out the incorrect statement?
(1) Myelinated nerve fibres are found in spinal and cranial nerve.
(2) Unmyelinated nerve fibre is enclosed by a schwann cell.
(3) In resting stage the axonal membrane is comparatively more permeable to potassium ion and nearly impermeable to sodium ions.
(4) Axolemma is more permeable to negatively charged protein present in the axoplasm.

**6.** During depolarization of the neuronal membrane-
(1) $Na^+$ ions rapidly move inside the cell
(2) $Na^+$ ions rapidly move outside the cell
(3) $K^+$ ions rapidly move outside the cell
(4) $K^+$ ions rapidly move inside the cell

**7.** Identify the correct set of statements :
(a) Limbic lobe consists of amygdala and pons.
(b) Cerebral aqueduct passes through the midbrain.
(c) The medulla contains centre which control respiration, cardiovascular reflexes and gastric secretions.
(d) Brain stem forms the connections between the cerebrum and midbrain.
(e) Knee jerk reflex is polysynaptic reflex.
Choose the correct answer from options given below :
(1) (a) and (d) only
(2) (b), (c), (d) and (e) only
(3) (a), (b), (d) and (e) only
(4) (b) and (c) only

**8.** Study the diagram of synapse-



I. Which alphabet indicate the location of the receptor molecules ?
II. Which alphabet points to a synaptic vesicles
III. Which alphabet points to neurotransmitter
IV. Which alphabet points to synaptic cleft

| | I | II | III | IV |
|---|---|---|---|---|
| (1) | C | A | B | D |
| (2) | B | A | C | D |
| (3) | C | A | D | B |
| (4) | C | D | A | B |

**9.** Which of the following statements is false about the electrical synapse ?

I. At electrical synapses, the membranes of pre and post synaptic neurons are in very close proximity.
II. Electrical current can flow directly from one neuron into the other across the synapses.
III. Transmission of an impulse across electrical synapses is very similar to impulse conduction along single axon.
IV. Electrical synapses pass electrical signal between cells with the use of Ach
V. Electrical synapses are fast.
VI. Electrical synapses are rare in our system.

(1) I and II (2) Only II
(3) Only IV (4) Only V

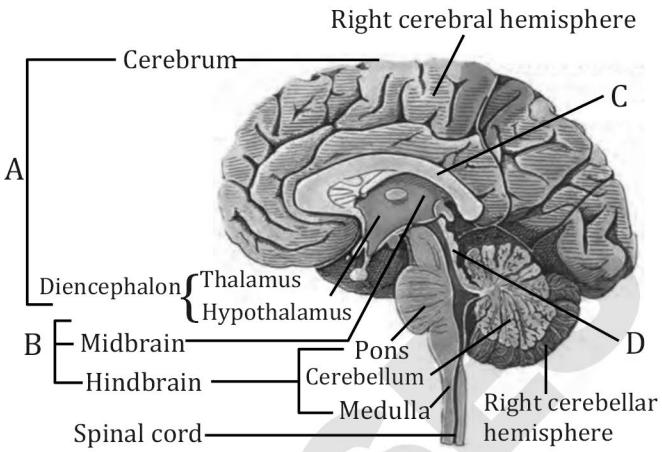
**10.** Identify the correct set of statements :

(a) Myelinated nerve fibres are found in autonomic and the somatic neural systems.
(b) The gaps between two adjacent myelin sheaths are called nodes of Ranvier.
(c) The axonal membrane is impermeable to negatively charged proteins present in the axoplasm.
(d) Electrical synapses are rare in our system.
(e) Synaptic cleft is present in chemical synapse.

Choose the correct answer from options given below :

(1) (a) and (d) only
(2) (b), (c), (d) and (e) only
(3) (a), (b), (d) and (e) only
(4) (b) and (c) only

**11.** Identify A, B, C and D in given diagram –




(1) A–Forebrain, B–Brainstem, C–Corpus callosum, D–Cerebral aqueduct
(2) A–Forebrain, B–Brainstem, C–Cerebral aqueduct, D–Corpus callosum
(3) A–Brainstem, B–Forebrain, C–Corpus callosum, D–Cerebral aqueduct
(4) A–Brainstem, B–Forebrain, C–Cerebral aqueduct, D–Corpus luteum

**12.** Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

**Assertion (A) :** Multipolar neurons are found in the cerebral cortex.

**Reason (R) :** They consists of one axon and two or more dendrites.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).
(2) (A) is correct but (R) is not correct.
(3) (A) is not correct but (R) is correct.
(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

**13.** The name of nervous band connecting the cerebral hemispheres is -

(1) Corpus albicans
(2) Corpus callosum
(3) Corpus striatum
(4) Corpus spongiosum

**14.** Which of the following statements is incorrect about cortex of cerebrum ?
(1) It consists of grey matter
(2) It consists of white matter
(3) It shows prominent folds
(4) It contains motor areas, sensory areas and association areas.

**15.** Association areas in cerebral cortex are -
(1) Sensory areas
(2) Motor areas
(3) Responsible for intersensory associations, memory and communication
(4) None of the above is correct

**16.** The cerebrum wraps around a structure called thalamus, which is-
(1) A major coordinating centre for sensory signal only
(2) A major centre for motor signaling
(3) A major coordinating centre for sensory and motor signaling
(4) Not a nervous part of a brain

**17.** Hypothalamus does not control -
(1) Thermoregulation
(2) Urge for eating and drinking
(3) Produces hormones that regulate the synthesis and secretion of pituitary hormone
(4) Creative thinking and consciousness

## EXERCISE-III (B) (ANALYTICAL QUESTIONS)

**18.** The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus, etc; form a complex structure called-
(1) Recticular system
(2) Corpora quadrigemina
(3) Limbic lobe/limbic system
(4) Arbor vitae

**19.** Which of the following statements or structures is not correct about the midbrain ?
(1) Located between the thalamus / hypothalamus and pons
(2) Has arbor vitae
(3) Has a canal (Cerebral aqueduct)
(4) Its dorsal part consists of 4 lobes (corpora quadrigemina)

**20.** Read the following statements and choose the correct option –
I. Cerebellum has very convoluted surface in order to provide the additional space for more neurons.
II. The medulla is connected to the spinal cord
III. Medulla contains controlling centres for respiration, cardiovascular reflexes and gastric secretion.
(1) All are correct
(2) Only I is correct
(3) Only I and III are correct
(4) Only II is correct.

**21.** Different components of reflex arc are given below:
I. Effector organ
II. Interneuron
III. Motor neuron
IV. Sensory neuron
V. Sensory receptor
Choose the correct order an action potential follows after a sensory receptor is stimulated-
(1) V, IV, III, II, I (2) V, IV, II, III, I
(3) V, III, IV, I, II (4) V, II, IV, III, I

**22.** Where A stands for axon, D for dendrite, S for synapse, and CB for cell body, a typical sequence of structures between a receptor and an efferent is?
(1) D – CB – A – S – D – CB – A
(2) A – D – CB – S – A – D – CB
(3) D – CB – A – S – A – CB – D
(4) D – A – S – CB – D– A – CB

**23.** What is meant by a reflex arc in the nervous system?
(1) An inherited behaviour pattern, that functions through a certain neural pathway
(2) A functional unit consisting of a receptor, neural pathway, and an effector
(3) Peripheral nerves, spinal cords and brain
(4) A homeostatic system of sensory nerves, synapses and motor nerves

**24.** Read the following statements :-

(A) Nervous system provides an organised network of point to point connection.

(B) The endocrine system provides chemical integration through hormone.

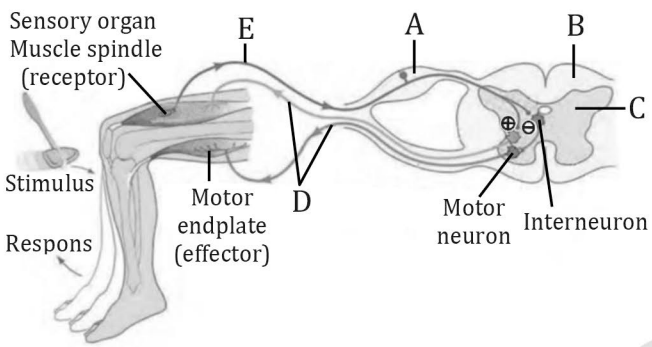
(C) The neural organisation is very complex in lower invertebrates.

(D) Neuron can detect & receive stimuli but can't transmit.

How many of above statements are false.

(1) 4 (2) 3 (3) 2 (4) 1

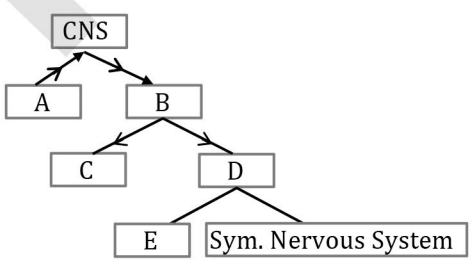
**25.** The following diagrammatic representation of reflex action shows knee jerk reflex.




In which of the following options corrects words for all the 5 blanks (A to E) are indicated?

| | A | B | C | D | E |
|---|---|---|---|---|---|
| (1) | Dorsal root ganglion | White matter | Gray matter | Afferent pathway | Efferent pathway |
| (2) | Dorsal root ganglion | White matter | Gray matter | Efferent pathway | Afferent pathway |
| (3) | Dorsal root ganglion | Gray matter | White matter | Efferent pathway | Afferent pathway |
| (4) | Ventral root ganglion | White matter | Gray matter | Efferent pathway | Afferent pathway |

**26.** Which of the following answer shows the correct arrangement of nerve fibre.




(1) (A)–Centrifugal, (B)–Efferent, (C)–PNS, (D–ANS, (E)–Parasympathetic

(2) (A)–Centripetal, (B)–Afferent, (C)–PNS, (D)–ANS, (E) Parasympathetic

(3) (A)–Centrifugal, (B)–Afferent, (C)–SNS, (D)–ANS, (E) Parasympathetic

(4) (A)–Centripetal, (B)–Efferent, (C)–SNS, (D) ANS, (E)–Parasympathetic

**27.** Which statement is correct regarding neuron.

(1) Neuron is composed of 4 parts containing cell body dendrite, axon & telodendria

(2) Nissl's granules are found in both cell body & axon

(3) Impulse are divided into apolar, bipolar & multipolar

(4) Dendrites transmit impulse toward the body while axon transmit impulse away from the body

**28.** Which of the nervous system transmit impulse from CNS to involuntary organs & smooth muscle ?

(1) Sympathetic nervous system

(2) Parasympathetic nervous system

(3) Autonomic nervous system

(4) Somatic nervous system

**29.** Read the following statement :-

(A) Peripheral nervous system divide's in somatic nervous system & autonomic nervous system.

(B) Central nervous system includes brain & vertebral column.

(C) Afferent nerve fibre transmit impulse from CNS and vise versa is also correct

How many of above statements is/are false

(1) A & B (2) B & C (3) C & A (4) All

**30.** Which of the following statement is correct.

(A) The electrical potential difference across the polarised plasma membrane is called as action potential in resting stage.

(B) $Na^+$ ion is responsible for generating an action potential.

(C) The impulse is action potential

(1) A & B (2) B & C

(3) C & A (4) All

**31.** Which of the statement is false regarding synapse?

(1) Synapse is formed by 2 membrane first presynaptic membrane of synaptic knob & second post synaptic membrane of dendrite.

(2) Synaptic membrane always be separated by a gap called synaptic cleft.

(3) Electrical synapse in very similar to impulse conduction along a single axon.

(4) In chemical synapse, neurotransmitter is released and either excitatory or inhibitory potential is generated on post synaptic membrane.

**32.** $Na^+ - K^+$ pump –

(A) Transports $3Na^+$ inwards & $2K^+$ outwards.

(B) Maintain ionic gradients by active transport.

(C) Works against a concentration gradient.

How many of above statements are false ?

(1) All are correct (2) 3

(3) 2 (4) 1

**33.** Which of the following are controlled by limbic system :-

(A) Emotional reaction

(B) Sexual behaviour

(C) Respiration

(D) Olfaction

(E) Body balance

Choose the correct option –

(1) A, B, C, D, E (2) A, B, D

(3) A, B, C, D (4) A, B, D, E

**34.** The prime area of brain where different type of information are integrated –

(1) CNS (2) ANS

(3) PNS (4) SNS



## Exercise - III ANSWER KEY

| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Answer | 4 | 4 | 2 | 3 | 4 | 1 | 4 | 1 | 3 | 2 | 1 | 1 | 2 | 2 | 3 |
| Question | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Answer | 3 | 4 | 3 | 2 | 1 | 2 | 1 | 2 | 3 | 2 | 4 | 4 | 3 | 2 | 2 |
| Question | 31 | 32 | 33 | 34 | | | | | | | | | | | |
| Answer | 2 | 4 | 2 | 1 | | | | | | | | | | | |