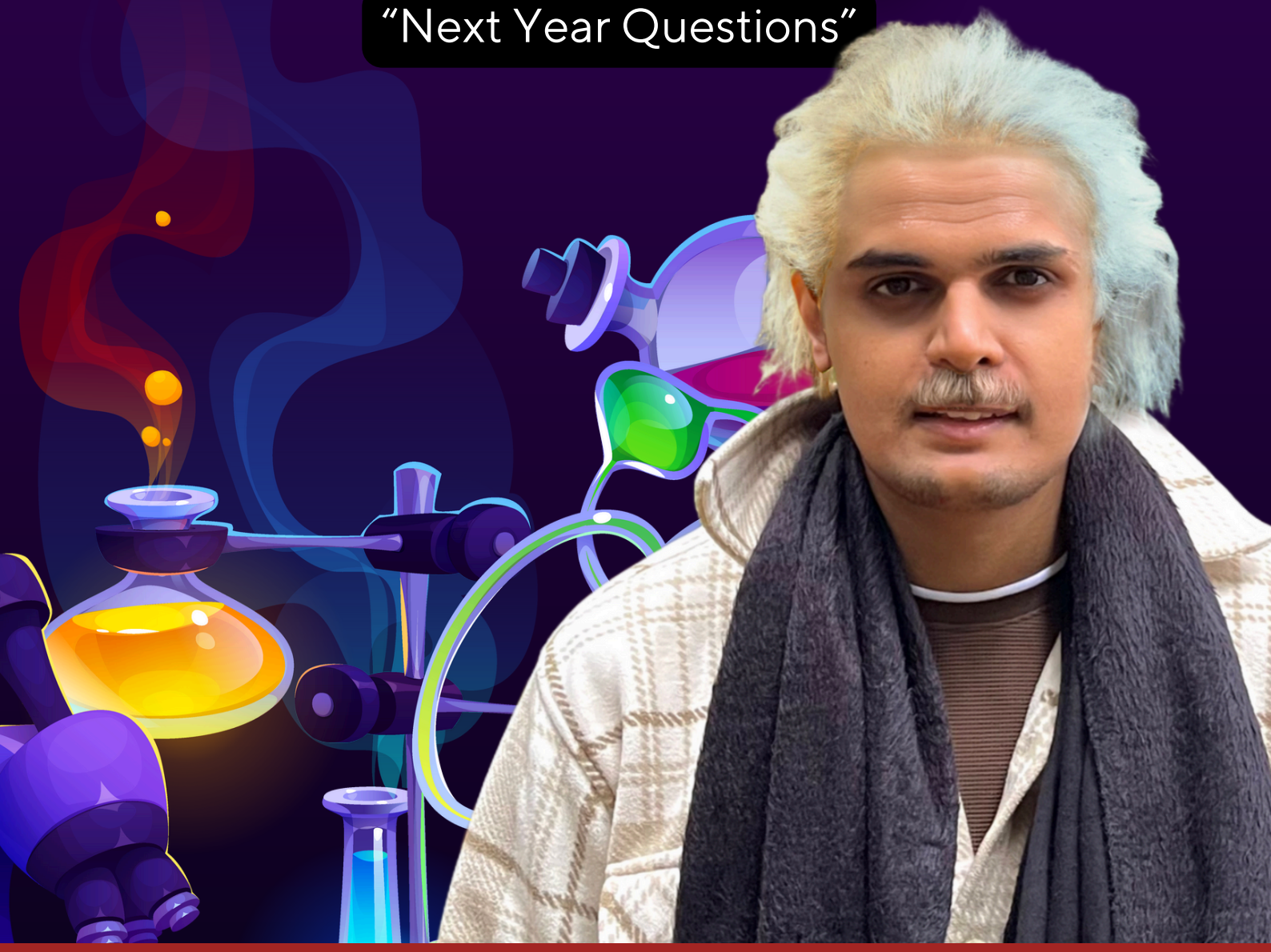
Next Toppers

Class X

अभय

NYQs

"Next Year Questions"

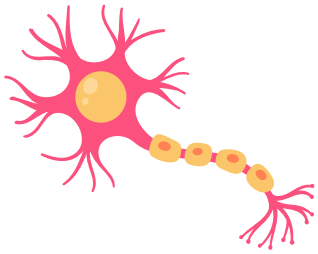


Control and Coordination

PRASHANT KIRAD

Control and Coordination

Q1. A microscopic gap between a pair of adjacent neurons over which nerve impulses pass is called
(a) neurotransmitter
(b) dendrites
(c) axon
(d) synapse



Q2. Which of the following acts as both endocrine and exocrine gland?
(a) Pancreas
(b) Thyroid
(c) Adrenal
(d) Liver

Q3.The secretion of which hormone leads to physical changes in the body when you are 10-12 years of age?
(a) Oestrogen from testes and testosterone from ovary.
(b) Estrogen from adrenal gland and testosterone from pituitary gland.
(c) Testosterone from testes and estrogen from ovary.
(d) Testosterone from thyroid gland and estrogen from pituitary gland.

Q4. Which plant hormone promotes dormancy in seeds and buds?
(a) Auxin
(b) Gibberellin
(c) Cytokinin
(d) Abscisic acid

Q5. Which is the correct sequence of the components of a reflex arc?
(a) Receptors → Muscles → Sensory neuron → Motor neuron → Spinal cord
(b) Receptors → Motor neuron → Spinal cord → Sensory neuron → Muscle
(c) Receptors → Spinal cord → Sensory neuron → Motor neuron → Muscle
(d) Receptors → Sensory neuron → Spinal cord → Motor neuron → Muscle

Q6.(a) Draw a neat diagram of a neuron and label (i) dendrite and (ii) axon.
(b) Which part of the human brain is:
(i) the main thinking part of the brain?
(ii) responsible for maintaining the posture and balance of the body?

Q7. State the two types of movements seen in plants. Give one example of each type.

Q8. Name the fluid-filled between the meninges of the brain. What are its functions?

Q9.A person suffered a head injury, due to which he faces breathing problems. No problem was detected with his respiratory system. What could be the cause of this problem?

Q10. Reflex arcs continue to be more efficient for quick responses". Justify this statement giving reason

Q11. What are plant hormones? Name the plant hormones responsible for the following :
(i) Growth of stem
(ii) Promotion of cell division
(iii) Inhibition of growth
(iv) Elongation of cells

Q12.A cheetah, on seeing a prey moves towards him at a very high speed. What causes the movement of his muscles? How does the chemistry of cellular components of muscles change during this event

Q13.Complete the following table:

Name of the hormone	Gland which secretes the hormone	Functions of the hormone
(i) Thyroxine	Thyroid	_____
(ii) Growth Hormone	_____	Regulates growth and development of the body
(iii) Insulin	Pancreas	_____

Q14.State how concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light ?

Q15.(a)Name two main parts of hind brain and state the functions of each.

(b)Name the hormone secreted by human testes. State its functions.

SOLUTION

Ans1.d

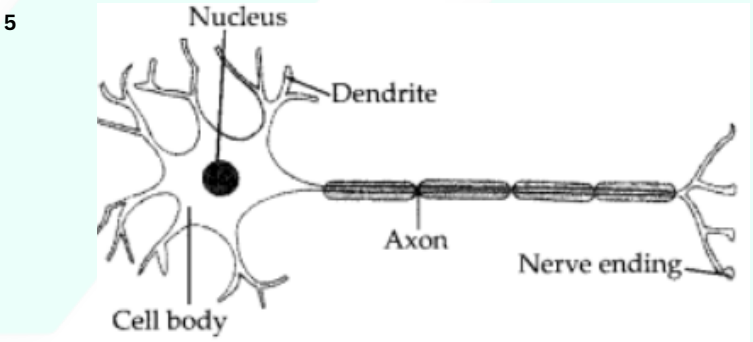
Ans2.a

Ans3.c

Ans4.d

Ans5. d

Ans6.(a) Diagrammatic representation of a neuron is as follows:



b) (i) The main thinking part of the brain is the cerebrum which is the largest part of the forebrain.
(ii) Cerebellum, part of hindbrain is responsible for maintaining the posture and balance of the body.

Ans7.Two types of movements seen in plants are:
(i) Nastic movements are movements independent of growth that are non-directional and occur due to turgor changes, e.g., closing of leaves in response to touch stimulus in 'touch me not' plant.
(ii) Tropic movements or tropism are movements due to growth, that are directional and very slow, e.g., movement of a part of the plant in response to light.

Ans8. The fluid-filled between the meninges of the brain is known as the cerebrospinal fluid. Its function is to protect the brain from mechanical shocks.

Ans9 .A person suffered a head injury, faces breathing problems because he had injured his medulla oblongata. Medulla oblongata controls the respiratory system so he will be affected by breathing problems.

Ans10. Reflex action is an automatic and spontaneous response to a stimulus. The pathway taken by nerve impulses and responses in a reflex action is called a reflex arc. It consists of receptor, sensory nerve (afferent), spinal cord, motor nerve (efferent) and effector (muscles or glands). Reflex arc is evolved in animals because the thinking process of the brain is not fast enough. Reflex arc enables the body to give quick responses to harmful stimuli so that chances of damage to body are decreased. It also prevents overloading of brain, so prevents its fatigue. Many animals have very little or none of the complex neuron network needed for thinking. So, it is likely that reflex arc has evolved as an efficient way of functioning in the absence of true thought processes. However, even after complex neuron networks have came into existence, reflex arcs continue to be more efficient for quick responses.

Ans11.Plant hormones or phytohormones are chemical substances produced naturally in plants and capable of translocation and regulating one or more physiological processes when present in low concentration. These are also known as plant growth substances or plant growth regulators.
The plant hormones responsible for different functions are as follows:
(i) Growth of stem : Gibberellins (Gibberellic acid) promote growth in stems.
(ii) Promotion of cell division : Cytokinin's promote cell division in plants.
(iii) Inhibition of growth : ABA (Abscisic acid) promotes dormancy in seeds as well as in buds and thus inhibits growth.
(iv) Elongation of cells : Auxins.

Ans12.The cheetah senses its prey by photoreceptors and the information is sent to the central nervous system. The response is then carried by neurons. Along with nervous system, the hormonal system also plays a role. Adrenaline hormone produced by the adrenal glands triggers the flight or fight action. On seeing a prey, these hormones are released into the cheetahs blood stream. It speeds up heartbeat, breathing increases blood flow into leg muscles and causes liver to put more stored glucose into

cheetahs blood. All these actions of adrenaline hormone produces a lot of energy which helps cheetah to run fast.

As13.(i) Functions of thyroxine hormone is regulation of carbohydrates, protein and fat metabolism.
(ii) Gland that secretes growth hormone is pituitary gland.
(iii) Function of insulin is to regulate the conversion of glucose to glycogen, i.e., it lowers blood glucose level.

Ans14.When light falls on the side of the shoot auxin diffuses towards the shady side of the shoot. This concentration of the auxin stimulates the cell to grow longer on the side of the shoot which is away from light. Thus plant appears to bend towards light.

Ans15.(a)Two main parts of hind-brain are — Medulla and Cerebellum. Their functions are:
Medulla : Involuntary actions such as blood pressure, salivation and vomiting.
Cerebellum : It is responsible for precision of voluntary actions and maintaining the posture and balance of the body.
(b) The hormone secreted by human testes is testosterone.
Functions:

- Development of male reproductive organs.
- Promotes secondary sexual characteristics (facial hair, deep voice, etc.).
- Aids in sperm production.