10th control and co ordination Solved Board questions By JSUNIL

1. All information for our environment is detected by specialised tips of some nerve cells. Mention the name given to such tips and also mention where are they located

Ans. Such tips are called receptors. They are located in sense organs

2. Name the sensory receptors found in the nose and on the tongue ?

Ans. Olfactory receptors and gustatory receptors.

3. Name the part of the brain which controls posture and balance of the body. Ans. Cerebellum.

4. Give one example of chemotropism. Ans. The growth of pollen tube towards ovule.

5. Name the two components of central nervous systems in humans. Ans. Brain and Spinal Cord.

6. Name the largest cell present in human body. Ans. Neuron.

7. How do the shoot and roots of a plant respond to the pull of earth s gravity?

Ans. Roots grow downward towards gravity while shoot usually grows upwards and away from earth.

8. Give reason to explain why endocrine glands release their secretions into the blood directly.

Ans. Hormones are secreted by endocrine glands. These glands do not have ducts to carry these hormones, so they are released directly in the blood stream that carries them to target organ.

9. What is synapse ? Ans. The junction between neurons is called synapse.

10. A boy runs on seeing a stray dog. His breathing becomes very fast and blood pressure also increases. Name the hormone found to be high in his blood and the gland which produces it. Ans. Adrenaline, Adrenal gland.

11. What is meant by Tropic movements ?

Ans. Plant growth movements in response to stimuli from a particular direction are called tropic movements.

12. While watering a rose plant, a thorn pricked Rita s hand. How would she respond to this situation Provide the term for such type of response?

Ans. She will withdraw her hand immediately. The name of the response is Reflex action.

13. Name the part of the neuron where information is acquired. Ans. Dendrite.

14. Name the part of neuron through which the information travels as an electric impulse. Ans. Axon.

15. Name the mechanism by which amount of hormone in the blood is regulated. Ans. Feedback mechanism.

16. Name two tissues which provide control and co-ordination in animals.

Ans. Nervous and muscular tissues.

17. Name the diseases by which a person is likely to suffer due to the deficiency of (a) Iodine (b) Insulin

Ans. (a) Goitre (b) Diabetes

Short Answer Type Questions (2/3 marks each)

Q. 1. State the role of brain in reflex action.

Ans. The sensory area of brain receives information, interprets it and makes a rapid decision in the form of electrical impulses and sends it to receptor organ.

2. How does our body maintain blood sugar level?

Ans. If sugar levels in blood rises, cells of pancreas detect and secrete more insulin which leads to fall off sugar level.

3. What happens at the synapse between two neurons?

Ans. When an electrical signal reaches the axonal end of one neuron it releases chemical substances called

Neurotransmitter that cross the synapse and move towards the dendrite end of next neuron generating another electrical signal.

4. Name the hormone responsible for the regulation of

(i) metabolism of carbohydrates, fats and proteins, (ii) balance of calcium and phosphate,

(iii) blood pressure, (iv) water and electrolyte balance.

Ans. (i) Thyroxine (ii) Parathormone (iii) Adrenaline (iv) Vasopressin or ADH (Antidiuretic hormone)

5. Write the name and functions of any two parts of brain.

Ans. **The brain has three main parts. They are fore brain, mid brain and hind brain.**

i) Fore brain: - It consists of the cerebrum and olfactory lobes**. It is the thinking part of the brain and controls voluntary actions**. It controls mental activities like thinking, learning, memory, emotions etc(cerebrum). and touch, smell, hearing, taste, sight(olfactory lobes).

ii) Mid brain :- It connects Fore brain and Hind brain. it controls involuntary actions and reflex movements of head, neck, eyes and ear etc.

iii) Hind brain :- it connects the Fore brain & Hind brain . it consists of cerebellum, pons and medulla.

Cerebellum :- controls body muscular movements , balance and posture

Pons :- it acts as a bridge between brain & spinal cord and controls respiration.

Medulla: - it controls involuntary action like heart beat, blood pressure, swallowing, coughing, sneezing, vomiting etc.

d) Spinal cord: - The spinal cord starts from the brain and extends through the vertebral column. It has 31 pairs of spinal nerves. It carries messages to and from the brain.

It also controls reflex actions. Cylindrical or tubular structure extending downwards from the Medulla oblongata.

6. Explain with the help of an example how the timing and amount of hormone released are regulated?

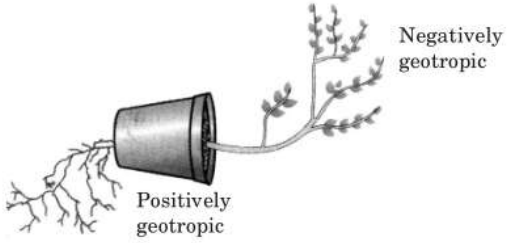
Ans. The timing and amount of hormone released are regulated by feedback mechanisms. For e.g. when there is rise in sugar level in blood, insulin secreted by pancreas. If sugar lavel in blood fall , insulin secretion is reduced.

7. (a) Which structures protect the spinal cord and brain ? (b) Write an activity to show phototropism and geotropism. (c) What type of movement is shown by mimosa plant leaves when touched with a finger?

Ans. (a) Vertebral column or backbone. and cranium or brain box

(b) Fill a control flask with water. Cover the neck of the flask with a wire mesh. Keep two or three freshly germinated bean seeds on the wire mesh.

Take a cardboard box which is open from one side. Keep the flask in the box in such a manner that the open side of the box faces light coming from a window. After two or three days, you will notice that the shoots bend towards light and roots away from light.



Now turn the flask so that the shoots are away from light and the roots towards light. Leave it undisturbed in this condition for a few days. (c) Nastic movements.

8. (a) Name the part of brain which controls t (i) voluntary action (ii) involuntary action. (b) What is the significance of the peripheral nervous system ? Name the components of this nervous system and distinguish between the origin of the two.

Ans. (a) Voluntary actions Cerebellum, Involuntary action

(b) The communication between the central nervous system and the other parts of the body is facilitated by the peripheral nervous system. Cranial nerves arise from the brain; spinal nerves arise from the spinal chord.

9. Describe an activity to illustrate the phenomenon of phototropism and explain why this occurs

Ans. When growing plants detect light, Auxin synthesized at the shoot tip, helps the cells to grow longer, auxin always diffuses towards the shady side of the shoot, these concentrations of auxin stimulates the cells to grow longer on the side of the shoot which is away from light; thus the plant appears to bend towards light.

Activity: Fill a conical flask with water; cover the neck of the flask with a wire mesh. Keep two or three freshly germinated bean seeds on the wire mesh. Take a cardboard box which is open from one side. Keep the flask in the box in such a manner that the open side of the box faces light corning from a window. After 2 or 3 days, you will notice that the shoot bends towards light and roots away from light.

10. State the function of plant hormones.

Ans: There are five main types of plant hormones. They are :- Auxins, Gibberillins, Cytokinin, Abscisic acid and Ethylene.

i) Auxins: - help in cell division, cell elongation and growth.

ii) Gibberillins: - help in growth of stem and branches.

iii) Cytokinin:- help in cell division, formation of fruits and seeds.

iv) Abscisic acid :- inhibits growth and affects wilting of leaves.

vi) Ethylene: - helps in flowering and ripening of fruits.

7. Describe about gland present in our body and its secretion with functions

Some glands which act as both endocrine & exocrine

Gland	Endocrine function	Exocrine function
Pancreas	Produces insulin & Glucagon hormone.	Produces digestive enzyme. (pancreatic amylase)
Testes	Produces hormone Testosterone	Produces male gametes (reproductive cells)
Ovaries	Produces hormone Oestrogen	Produces female gametes (reproductive cells)

Important Endocrine glands, the hormone they secrete & their function

Endocrine gland	Hormone	Function
Pituitary gland	Growth hormone	Body growth, development of bones & muscles (If excess- Gigantism) (If less- Dwarfism)
Thyroid gland	Thyroxin	Regulates carbohydrate, protein and fat metabolism(If less- Goitre)
Pancreas	insulin & Glucagon	Regulates blood sugar levels (if less diabetes is caused)
Testes in males	Testosterone	Development of secondary male characters like deep voice, beard, etc.
Ovaries in females	Oestrogen	Development of secondary female characters like mammary glands, menstrual cycle, maintenance of pregnancy.

11. What are the difference between endocrine and exocrine gland?

Ans:

S.No.	Endocrine glands	Exocrine glands
1.	Ducts absent	Ducts present
2.	Secrete hormones	Secrete enzymes
3.	Secreted in blood	Secreted in ducts of glands
4.	Situated away from the site of action	Situated near the site of action

12. Name the property that causes tendril to circle around the object Explain how it happens and how is plant benefited by it.

Ans. Sensitivity to touch

When tendril of a plant comes in contact with any object, the part of the tendril in contact with the object does not grow as rapidly as that part which is away from the object. This causes the tendril to circle around the object.

The plant gets the support of the object for growing upward without falling.

13. Explain how the human body responds when adrenaline is secreted into the blood.

Ans. The heart beats faster, resulting in supply of more oxygen to our muscles.

The blood to the digestive system and skin is reduced due to contraction of muscles around small arteries in these organs.

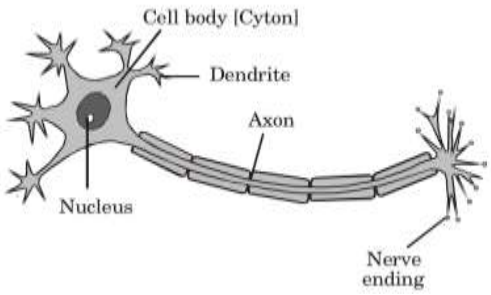
This diverts the blood to skeletal muscles. The breathing rate also increases because of the contractions of the diaphragm and the rib muscles.

14. (a) Draw the structure of neuron and label cell body and axon.

(b) Name the part of neuron

(i) Where information is required.

(ii) Through which information travels as an electrical impulse.



Ans. (b) (i) The information is acquired at the end of the dendrite lip of a nerve cell. (ii) The information travels as an electrical impulse from the dendrite to the cell body and then along the axon to its end.

15. Define reflex action. Give one example. Show with the help of a flow diagram the path of the reflex action.

Ans. Reflex action is a sudden action in response to something in the environment e.g., pulling out hand from the flame if accidently touched.

The path of the reflex action is as follows : Receptors --> sensory neuron -> spinal cord --> motor neuron-->effector

16. Why is it important for as to have iodised salt in our diet ? Name the disease caused due to deficiency of iodine and mentions its main symptom.

Ans. Iodine is necessary for the thyroid gland to make thyroxin hormone. The disease caused due to deficiency of iodine is Goitre. Its main symptom is swollen neck.

17. How do Auxins help in bending of stem towards light? Explain.

Ans. When growing plants detect light a hormone ailed Auxin, synthesized at the shoot lip helps the cells to grow longer, when light is coming from one side of the plant, Auxin diffuses towards the shady side of the shoot. This concentration of Auxin stimulates the cells to grow longer on the side of the shoot which is away from light. Thus, plant appears to bend towards light

18. Name the hormone that is secreted by our body to deal with scary situations. List any two responses shown by our body when this hormone is secreted into the blood.

Ans. Adrenaline. Two responses :

(i) It acts on heart due to which heart beasts faster, resulting in supply of more oxygen to our wooden.

(ii) The breathing rate increases because of the contractions of the diaphragm and the rib muscles

(iii)The blood to the digestive system and skin is reduced due to contraction of muscles around small arteries in these organs.

19. Electrical impulses are an excellent means of quick transfer of information in animals but there are limitations to the use of electrical impulses.

List such two limitations. State the other means of communication used by most multi cellular organisms between the cells.

Ans. Two limitations are

(i) They reach only those cells that are connected by nervous tissue and not each and every cell in

(ii) Once an electrical impulse is generated in a cell and transmitted, the cell will take some time to reset its mechanisms before it can generate and transmit electrical impulse.

Other means of communication is chemical communication or chemical co-ordination by compounds called hormones.

20. How do we respond when adrenal gland secretes its hormone?

Ans. (i) Adrenaline is carried to target organs/heart.

(ii) Heart beats faster, supply of more oxygen to muscles. (iii) Blood supply to digestive system and skin reduced.

(iv) Breathing rate increases. (v) Blood supply diverted to skeletal muscles.

(vi) Animal body becomes ready to deal with situation.

21. List in tabular form three differences in the movement of leaves of a Touch me-not plant (the plant of Mimosa family) when touched and movement of a tendril towards a support

Ans. Mimosa Leaves	Tendril
(i) Growth independent response	Growth dependent response.
(ii) It is a fast process.	It is a slow process.
(iii) It is non-directional.	It is directional.

Q. 22. List in tabular form three difference be weep nervous control and chemical control. [Board Term I 2012 (49)]

Ans. Nervous Control	Chemical Control
(i) Fast process	Slow process
(ii) Less persistent / neurons take time to reset.	More persistent.
(iii) Reach to connected cells only.	Reach all the cells of the body

23. What are the different types of movement seen in plants?

Ans: Movements in plants:- Movements in plants are of two main types. They are:-Tropic movements and Nastic movements.

a) Tropic movements :- are directional movements towards or away from the stimulus and it depends on growth. They are of different types like Phototropism, Geotropism, Chemotropism, Hydrotropism etc.

i) Phototropism :- is movement of plants in response to light. If it is towards light, it is called positive phototropism. Eg:- Bending of shoot towards light. If it is away from light, it is called negative phototropism. Eg:- Bending of root away from light.

ii) Geotropism: - is the movement of plants in response to gravity. If it is towards gravity it is called positive geotropism. Eg:- Downward growth of roots. If it is away from gravity it is called negative geotropism. Eg:- Upward growth of shoot.

iii) Chemotropism :- is movement of plant in response to chemical stimuli. e.g.:- Growth of pollen tube towards the ovule.

b) Nastic movements: - are non directional movements which are neither towards or away from the stimulus and it does not depend on growth. E.g. :- If we touch the leaves of touch me not plant, its leaves fold up and droops down immediately due to the change in the amount of water in the leaves. Depending upon the amount of water in the leaves, it swells or shrinks.