# QUESTIONS- ANSWERS FROM NCERT TEXTBOOK
# CHAPTER 7: CONTROL AND COORDINATION

**(Ans hints given you can elaborate more if you wish)**

**1.** Which of the following is the plant hormone?
(a) Insulin
(b) Thyroxine
(c) Oestrogen
(d) Cytokinin

**Ans.** (d) Cytokinin

**2.** The gap between two neurons is called a
(a) dendrite.
(b) synapse.
(c) axon
(d) impulse.

**Ans.** (b) synapse.

**3.** The brain is responsible for
(a) thinking.
(b) regulating the heart beat.
(c) balancing the body.
(d) all of the above.

**Ans.** (d) all of the above.

**4.** What is the function of receptors in our body? Think of situations where receptors do not work properly. What problems are likely to arise?

**Ans.** The receptors in our body collect information about changes in the environment around us in the form of stimuli. They are located in our sense organs such as the inner ear, nose, tongue, eye, etc.

These then pass the information in the form of nerve impulses to central nervous system (spinal cord and brain) where message is interpreted and instructions are sent to effectors which reveal responses.

When receptors do not work properly, the environmental stimuli are not able to create nerve impulses and body does not respond properly so coordination is interrupted..

**5.** Draw the structure of a neuron and explain its function.

**Ans.** Functions: The information acquired at the end of the dendritic tip of a neuron sets off a chemical reaction which creates an electrical impulse. This impulse travels from the dendrite to the cell body, and then along the on to its end. At the end of on, the electrical impulse sets off the release of some chemicals, which cross the synapse and start a similar impulse in a dendrite of the next neuron.

In this way nervous impulses travel in the body. Thus, nervous tissue is made up of an organized network of neurons which are specialized for conducting information via electrical impulse from one part of the body to another.
Add diagram from video ppt.

**6.** How does phototropism occur in plants?

**Ans.** Movement of shoot towards light is called phototropism. This movement is caused due to more growth of cells towards the shaded side of the shoot as compared to the side of shoot towards light. More growth of cells is due to secretion of auxin towards the shaded side.

( • 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 the 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.
• The old parts of the roots and shoots change directions.
• New growth in shoot is in direction of sunlight.
**Conclusion:** Shoot shows phototropism.)

**7.** Which signals will get disrupted in case of a spinal cord injury?

**Ans.** (a) Reflex action
(b) Impulses from various body parts will not be conducted to brain.
(c) Message from brain will not be conducted to various organs of the body.

**8.** How does chemical coordination occur in plants?

**Ans.** In plants, chemical coordination occurs with the help of plant hormones (phytohormones). Different plant hormones help to coordinate growth, development, and responses to the environment. They are synthesized at places away from where they act and diffuse to the area for action, for example, auxin promotes cell growth, gibberellins promote stem growth, cytokinins promote cell division and abscisic acid inhibits growth and its effects include wilting of leaves.
(You can add more points from video)

**9.** What is the need for a system of control and coordination in an organism?

**Ans.** The body of a multicellular organism consists of a number of components and sub-components and each is specialized to perform a particular function. Therefore, it is necessary that various organs of the body of an organism work together in a proper manner for proper functioning to a stimulus. In human beings nervous system and endocrine system work together to control and coordination.

**10.** How are involuntary action and reflex action different from each other?

**Ans.** (a) Involuntary action involves autonomic nervous system.

(i) They occur in response to internal stimuli.

(ii) They are connected with functioning of internal body parts.

(iii) It occurs without the will of the organism. E.g., heartbeat, breathing, etc.

(iv) These are regulated by medulla oblongata (hind brain).

(b) Reflex action involves all parts of voluntary nervous system though they are not voluntary.

(i) They operate against harmful stimuli which are generally external.

(ii) They are connected with emergency i.e, response to stimuli.

(iii) Some reflexes involve the brain, rather than the spinal cord.

(iv) Reflex action is generally controlled by spinal cord.

**11.** Compare and contrast nervous and hormonal mechanism for control and coordination in animals.

**Ans.** In human beings, the nervous system controls the various functions by small units called neurons. Neurons receive the information through sensory nerves and transfer them through motor nerves. Whereas, hormones coordinate the activities and growth of the body. Important functions like sugar level metabolism, growth and development etc. are controlled by hormones secreted by endocrine glands. Hence, in human beings, hormones show long lasting responses. The action of hormones is highly specific.

**12.** What is the difference between the manner in which movement takes place in a sensitive plant and movement in our legs?

**Ans. Movement in a sensitive plant**

(i) It occurs in response to an external stimulus like touch and shock.

(ii) Plant cells change shape by changing the amount of water.

(iii) No nerves are involved.

(iv) There is no specialized tissue in plants for conduction of information.

(v) Plant cells do not have specialized proteins.

**Movement in our legs**

(i) It occurs in response to our requirements and is a voluntary action.

(ii) Movement in our legs is voluntary action which is controlled by cerebellum part of hind brain.

(iiip) Nerves carry the message for movement of legs.

(iv) There is specialized nervous tissue in animals for conduction of information and muscle cells to help in movement.

(v) Animal cells have specialized protein which help muscles to contract or relax.

# Ans of EXTRA QUESTION NO. 4 given in last pdf

1. Mention the parts of nervous system which controls
    a. Salivation-medulla
    b. Change in size of pupil-Reflex action- spinal cord
    c. Sensation of full stomach so not to eat more-Fore brain
    d. Maintenance of posture and balance of body-cerebellum
    e. Memory-Fore brain
    f. Vomiting-medulla
    g. Blood pressure-Brain stem (medulla)
    h. Picking up a pencil- cerebellum
    i. Thinking- Fore brain
    j. Hearing centre of brain- Fore brain (mid brain also )
    k. Protection of brain- cranium, meninges
    l. Relay centre of brain - thalamus