NCERT ANNEXURE

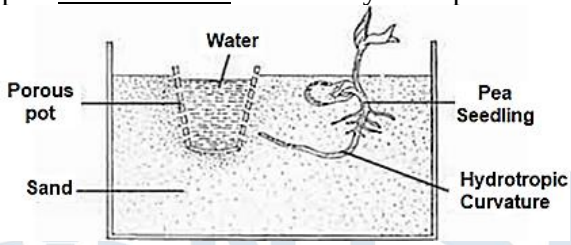
Given below are Subjective type questions and answers:

1. What is the role of the brain in reflex action?

Ans. Although the brain has no role in reflex action but a modified response is given by the brain. Some reflexes which involve the brain are called cerebral reflexes. For example: When bright light is focused on our eye, the receptors relay impulses via sensory nerves to the CNS & later transmit messages to the effectors. Other examples of cerebral reflex are: Salivation at sight or smell of food.

2. Design an experiment to demonstrate hydrotropism.

Ans. The movement of the plant part towards water is called hydrotropism.



Experiment:

1. Keep a few pea seeds in moist cotton.
2. Transfer the seedlings in a sand pit having a porous pot of water.
3. After a few days the radicals emerge and start growing downwards.
4. Soon after, each radical bends towards the nearest supply of moisture.
5. Conclusion can be drawn out of this, that roots first moved towards gravity and then started moving towards water (hydrotropism).

3. Compare and contrast nervous and hormonal mechanisms for control and coordination in animals.

Ans:

Nervous Mechanism	Hormonal mechanism
1. Information is passed on very quickly.	Information travels slowly.
2. Information is targeted to specific organs.	Information is spread out throughout the body via blood.
3. Information is electro-chemical in origin.	Information is chemical in origin.
4. Response is very quick.	Response is slow.

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

Ans. Control and coordination is required so that;

(a) Two or more organs interact with each other and help in functioning of each other.

(b) Organisms may respond to the changes in the external environment.

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

Ans. Structure of neuron

(i) Cyton or cell body

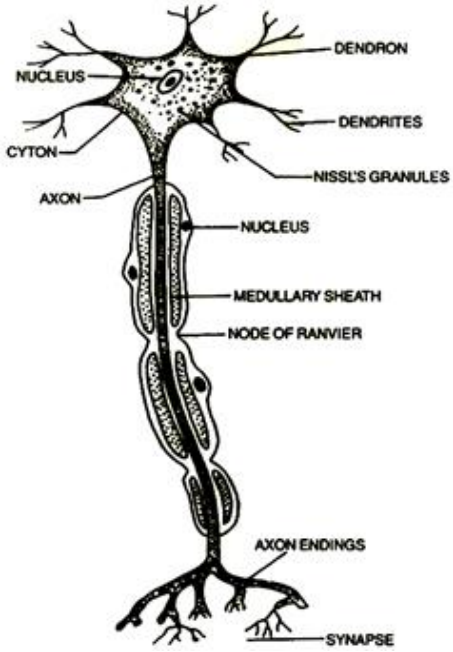
Contains a central nucleus and cytoplasm with characteristics deeply stained particles called Nissl's granules [i.e., clumps of ribosomes].

(ii) Cell processes

These are of 2 types:

(a) Dendrites – These may be one to many, generally short and branched cytoplasmic processes. Dendrites are different processes because they receive impulse from a receptor or other neuron and bring it to cyton.

(b) Axon – It is single generally long efferent process which conducts impulse away from cyton to other neurons.



Function: Dendrites of a neuron receive information. This information travels in axon as an electrical impulse and reaches towards synapse. At synapse, axon endings secrete chemical substance and this will be then passed to other nerve cells. This chemical is called as Neurotransmitter

NCERT EXEMPLAR

Given below are multiple choice questions from the chapter.

1. Which of the following statements is correct about receptors?
(A) Gustatory receptors detect taste while olfactory receptors detect smell.
(B) Both gustatory and olfactory receptors detect smell.
(C) Auditory receptors detect smell and olfactory receptors detect taste.
(D) Olfactory receptors detect taste and gustatory receptors smell.
Ans: (A)

2. Electrical impulse travels in a neuron from:
(A) Dendrite → axon → axonal end → cell body
(B) Cell body → dendrite → axon → axonal end
(C) Dendrite → cell body → axon → axonal end
(D) Axonal end → axon → cell body → dendrite
Ans: (C)

3. In a synapse, chemical signal is transmitted from:
(A) Dendritic end of one neuron to axonal end of another neuron
(B) Axon to cell body of the same neuron
(C) Cell body to axonal end of the same neuron
(D) Axonal end of one neuron to dendritic end of another neuron
Ans: (D)

4. In a neuron, conversion of electrical signal to a chemical signal occurs at/in
(A) Cell body (B) Axonal end (C) Dendritic end (D) Axon
Ans: (B)

5. 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
Ans: (D)