CLASS: VII
SUBJECT:BIOLOGY
LESSON-NERVOUS SYSTEM

Date: 07/12/2021

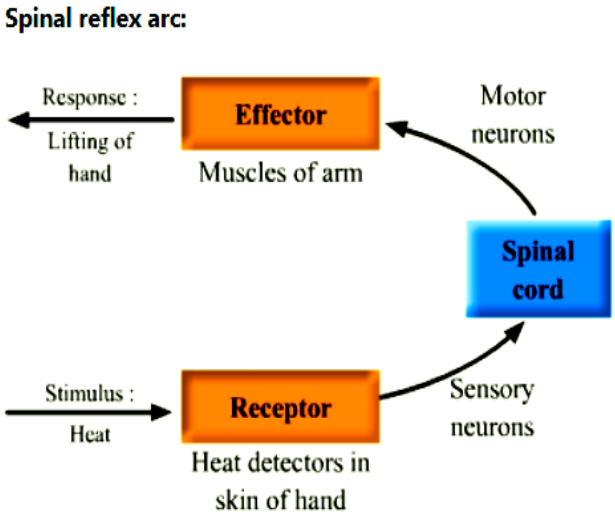
HOMEWORK

REFLEX ACTION:

Reflex action is a sudden and involuntary response to stimuli. It helps organisms to quickly adapt to an adverse circumstance that could have the potential to cause bodily harm or even death. A reflex arc is a pathway that controls a reflex.

The whole mechanism of reflex action occurs in such a fashion that there is no conscious control of the brain. Stimulation occurs through the peripheral nervous system and its response is involuntary. In a reflex action, the spinal cord is responsible for the reflex movements.

Pulling our hands away immediately after touching a hot or cold object is an example of a reflex action.



Process of Reflex Action:

1. The first event begins with the receptor detecting a stimulus from a sensory organ. The stimulus could be in the form of pressure, temperature or chemicals.
2. This is followed by the sensory neuron sending a signal to the relay neuron.
3. The relay neuron then sends the signal to the motor neuron.
4. The motor neuron sends a signal to the organ or a cell that acts to the stimuli called the effector.
5. Finally, the effector organ produces an instantaneous response, such as a knee-jerk reaction.

Examples of Reflex Action:

1. When light acts as a stimulus, the pupil of the eye changes in size.
2. Sudden jerky withdrawal of hand or leg when pricked by a pin.
3. Coughing or sneezing, because of irritants in the nasal passages.
4. The sudden removal of the hand from a sharp object.
5. Sudden blinking when an insect comes very near to the eyes.

Practice Questions:

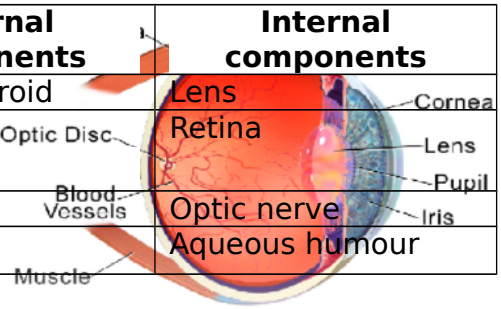
(a) What is a reflex action? Explain with the help of an example.
(b) Define reflex arc. Give the flow chart of a spinal reflex arc.
(c) How are involuntary actions and reflex actions different from each other?

SENSE ORGANS

Human Eye:

The human eye is a roughly spherical organ, responsible for perceiving visual stimuli. It is enclosed within the eye sockets in the skull and is anchored down by muscles within the sockets.

External components	Internal components
Sclera, Choroid	Lens
Cornea	Retina
Iris	Optic nerve
Pupil	Aqueous humour



The Internal Structure of an Eye

The internal components of an eye are:

Lens: It is a transparent, biconvex, lens of an eye. The lens is attached to the ciliary body by ligaments. The lens along with the cornea refracts light so that it focuses on the retina.

Retina: It is the innermost layer of the eye. It is light sensitive and acts as a film of a camera. Three layers of neural cells are present in them, they are ganglion, bipolar and photoreceptor cells. It converts the image into electrical nerve impulses for the visual perception by the brain.

Optic nerve: It is located at the posterior portion of the eyes. The optic nerves carry all the nerve impulses from the retina to the **human brain** for perception.

Aqueous Humour: It is a watery fluid present between the cornea and the lens. It nourishes the eye and keeps it inflated.

Vitreous Humour: it is a transparent, jelly-like substance present between the lens and the retina. It contains water (99%), collage, proteins, etc. The main function of vitreous humour is to protect the eyes and maintain its spherical shape.

Practice Questions:

1. Give the functions of the following parts of a human eye:

a) Cornea b) Iris c) Pupil d) Retina e) optic nerve