



Question 1. How does the evolutionary perspective explain the biological basis of behaviour?

Answer:

- Evolution refers to gradual and orderly biological changes that result in a species from their pre-existing forms in response to their changing adaptation demands of their environment.
- Physiological and biological changes that take place as a result of evolutionary processes are so slow that they become visible after hundreds of generations.

Three important features of modern human beings include:

- A trigger and developed brain with increased capacity for cognitive behaviours (like perception, memory, thinking, reasoning, etc).
- Ability to walk upright on two legs and
- Free hands with a workable opposing thumb.

The environmental demands had to biological and behavioral changes over a long period of time. In the human brain, the earliest to the most recent structures in the process of evolution are: Limbic system, brain stem and cerebellum are the oldest; and cerebral cortex is the latest developed.

Question 2. Describe how neurons transmit information.

Answer: Neuron is the basic unit of our nervous system. Neurons are specialized cells which convert various forms of stimuli into electrical impulses. They receive information from sense organs or from adjacent neurons, carry them to the central nervous system and bring motor information from the central nervous system to motor organs. Neurons transmit information with the help of dendrites, soma, axon and terminal buttons by converting stimuli into electrical impulses. This is done by the following method:

Dendrites → soma → axon → terminal buttons

- Dendrites receive the informing neural impulses from adjacent neurons or directly from sense organs.
- The nerve impulse is then passed on the main body of the neuron i.e. soma.
- From soma the impulse is passed on to the axon.
- The axon transmits the information/impulse along its length to terminal buttons.
- The terminal buttons transmit the information to another neuron, gland or muscle.

Question 3. Name the four lobes of the cerebral cortex. What functions do they perform?

Answer : Four lobes of the cerebral cortex are:

1. Frontal lobe
2. Parietal lobe
3. Temporal lobe
4. Occipital lobe

Functions of these four lobes are following:

1. Frontal lobe:
  - Frontal lobe is mainly concerned with cognitive functions, such as attention, thinking, memory, learning, and reasoning.
  - It also exerts inhibitory effects on autonomic and emotional responses.
2. Parietal lobe: The Parietal lobe is mainly concerned with cutaneous sensations and their coordination with visual and auditory sensations.
3. Temporal lobe:
  - Temporal lobe is primarily concerned with the processing of auditory information.
  - Memory for symbolic sounds and words resides here.
  - Understanding of speech and written languages depends on this lobe.
4. Occipital lobe:
  - Occipital lobe is mainly concerned with visual information.
  - It is believed that interpretation of visual impulses, memory for visual stimuli and colour visual orientation is performed by this lobe.

Question 4. Name the various endocrine glands and the hormones secreted by them. How does the endocrine system affect our behaviour?

Answer: Name and functions of the endocrine glands are following:

- The chemical substances secreted from the endocrine are known as HORMONES. These hormones influence the functions of the body and the course of its development and in the growth of personality.
- Endocrine glands also control and regulate the individual's behaviour, for instance, when there is extra-supply of sugar in the blood-stream, certain ductless glands secrete insulin which reduces the sugar level in the blood to normal state.
- Endocrine glands play role in co-ordinating the body activities. Like in sudden, fear or danger, secretion from the endocrine system is mixed with blood which brings widely diverse activities to help us face this situation.
- The different endocrine glands work intimately to maintain equilibrium and coordinate body functions. For instance, if one gland is secreting more than optimum, the other gland may secrete a hormone to reduce the excess hormone and maintain equilibrium.

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