

## [1 MARK QUESTIONS]

**Q.1. What is a neuron ?**

**Ans.** Neuron is the structural and functional unit of nervous system; it is a specialised cell, that responds to stimuli.

**Q.2. Name the structural and functional units of human nervous system. [Delhi 2004 C]**

**Ans.** Neurons.

**Q.3. What is human nervous tissue made of ?**

**Ans.** Human nervous tissue is made of neurons.

**Q.4. What are receptors ?**

**Ans.** Receptors are the specialised tips of dendrites of certain neurons.

**Q.5. What name is given to the receptors in our body, that detect (i) smell and (ii) taste respectively.**

**Ans.** (i) Smell - Olfactory receptors.

(ii) Taste - Gustatory receptors.

**Q.6. What is a synapse ?**

**Ans.** The junction/gap between two neurons, is called a synapse.

**Q.7. The gap between two neurons is called a**

(a) dendrite (b) synapse

(c) axon (d) impulse [NCERT]

**Ans.** (b) Synapse

**Q.8. In what form does the impulse travel across a synapse ?**

**Ans.** An impulse travels in the form a chemical across a synapse.

**Q.9. What happens at the synapse between two neurons ? [NCERT]**

**Ans.** The chemicals released by the axon ends/ terminals of a neuron cross the synapse and start an electrical impulse in the dendrite (s) of the next neuron.

**Q.10. What is a neuromuscular junction ?**

**Ans.** The junction/gap between a neuron and the muscle, is called a neuromuscular junction.

**Q.11. What is a reflex action ?**

**Ans.** A reflex action is a sudden or spontaneous, unconscious response of effector(s) to a stimulus.

**Q.12. We suddenly withdraw our hand, when a pin pricks. Name the type of response involved in this action. [Delhi 2004]**

**Ans.** Reflex action

**Q.13. What is the role of the brain in reflex action ? [NCERT]**

**Ans.** The brain is not involved in the reflex action, though the information reaches the brain.

**Q.14. Though reflex arcs are formed in the spinal cord itself, how does the information input reach the brain ?**

**Ans.** Nerves from all parts of the body meet in a bundle in the spinal cord on their way to the brain; hence the information input goes on to reach the brain also.

**Q.15. Which signals will get disrupted in case of a spinal cord injury ? [NCERT]**

**Ans.** The motor signals to voluntary muscles will get disrupted.

**Q.16. What does the central nervous system consist of ?**

**Ans.** The central nervous system consists of  
(i) Brain and (ii) Spinal cord

**Q.17. Name the main coordinating centre of our body.**

**Ans.** Brain is the main coordinating centre.

**Q.18. What is the function of central nervous system ?**

**Ans.** The central nervous system receives information from all parts of the body and integrates them.

**Q.19. What is peripheral nervous system made of ?**

**Ans.** Peripheral nervous system is made of cranial nerves and spinal nerves.

**Q.20. What is the function of peripheral nervous system ?**

**Ans.** Peripheral nervous system provides communication between the central nervous system and the other parts of the body.

**Q.21. What are cranial nerves ?**

**Ans.** The nerves arising from the brain, are called cranial nerves.

**Q.22. What are spinal nerves ?**

**Ans.** The nerves arising from the spinal cord, are called spinal nerves.

**Q.23. Name the main thinking part of the brain.**

**Ans.** Forebrain.

**Q.24. What are the three major parts of the brain ?**

**Ans.** Forebrain, midbrain and hindbrain.

**Q.25. Name the parts included in forebrain ?**

**Ans.** Cerebrum, hypothalamus and thalamus.

**Q.26. Where is the centre for hunger located ?**

**Ans.** The centre for hunger is located in the hypothalamus.

**Q.27. Name the parts of the brain that control involuntary actions.**

**Ans.** Midbrain and hindbrain.

**Q.28. Name the parts of the hindbrain.**

**Ans.** Pons, medulla and cerebellum.

**Q.29. Which part of the brain maintains posture and equilibrium of the body ?**

**Ans.** Cerebellum of the hindbrain. [NCERT]

**Q.30. Name any two involuntary actions controlled by medulla.**

**Ans.** Blood pressure, salivation, vomiting. (any two)

**Q.31. Mention two functions of cerebellum.**

**Ans.** (i) It controls the precision of voluntary actions.

(ii) It is responsible for maintaining the posture and balance of the body.

**Q.32. The brain is responsible for**

(a) thinking

(b) regulating the heart beat

(c) balancing the body

(d) all of the above

[NCERT]

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

**Q.33. How is the brain protected from shock injury ?**

**Ans.** Inside the cranium the brain is covered by a membrane, with a fluid-filled space in between; it acts as a shock-absorbing cushion.

**Q.34. What gives protection to the spinal cord ?**

**Ans.** Vertebral column gives protection to the spinal cord.

**Q.35. Name two types of muscles in our body.**

**Ans.** (i) Voluntary muscles.

(ii) Involuntary muscles.

**Q.36. What are the two major types of movements shown by plants ?**

**Ans.** The two different types of movements are :

(i) Growth-dependent movements and

(ii) Growth-independent movements.

**Q.37. How do plant cells communicate with one another ?**

**Ans.** Plant cells use electrical-chemical means for communication.

**Q.38. How do plant cells change their shape for movement ?**

**Ans.** Plant cells change their shape by changing the amount of water in them, which results in swelling or shrinking.

**Q.39. What are tropic movements ?**

**Ans.** Tropic movements are the growth movements, which are directional (either towards or away from) in response to a stimulus.

**Q.40. Define hydrotropism.**

**Ans.** Hydrotropism is defined as the directional growth movement of plant parts in response to water.

**Q.41. What type of movement is shown by the growth of pollen tube towards ovule ?**

**Ans.** Chemotropism.



**Q.42. What are plant hormones ? [NCERT]**

**Ans.** Plant hormones are those chemicals secreted by plants at certain parts and control and coordinate the functions at a site/organ away from their site of synthesis.

**Q.43. Give an example of a plant hormone that promotes growth. [NCERT]**

**Ans.** Auxins, gibberellins. (any one)

**Q.44. Name the plant hormone that promotes cell division.**

**Ans.** Cytokinins.

**Q.45. Where is auxin synthesised in a plant ?**

**Ans.** Auxin is synthesised at the shoot apex/tip.

**Q.46. Where do you expect the cytokinins to be present in greater concentrations in plants ?**

**Ans.** They are present in areas of rapid cell division like fruits, embryos in seeds, etc.

**Q.47. Which of the following is a plant hormone ?**

- (a) Insulin                      (b) Thyroxine  
(c) Oestrogen                  (d) Cytokinin

[NCERT]

**Ans.** (d) Cytokinin

**Q.48. Name the organ systems of humans and animals, involved in control and coordination.**

**Ans.** (i) Nervous system and  
(ii) Endocrine system.

**Q.49. What are hormones in animals ?**

**Ans.** Hormones are the chemicals secreted by

animals in minute quantities, which control and coordinate the functions in their bodies.

**Q.50. What is a target tissue/ organ ?**

**Ans.** The tissue/organ on which a particular hormone acts, is called a target organ.

**Q.51. Write the function of hormone 'thyroxine' in our bodies. [Delhi 2004]**

**Ans.** Thyroxine regulates the metabolism of carbohydrates, proteins and fats in our bodies.

**Q.52. Name the element necessary for production of thyroxine by thyroid gland.**

**Ans.** Iodine.

**Q.53. What is the cause for the disorder dwarfism ?**

**Ans.** Deficiency of growth hormone in childhood causes dwarfism.

**Q.54. Which hormone is responsible for the development of moustache and beard in men ? [Foreign 2004]**

**Ans.** Testosterone.

**Q.55. Name the hormones that control the changes associated with puberty in males and females, respectively.**

**Ans.** (i) Males - Testosterone  
(ii) Females - Oestrogen.

**Q.56. Which hormone helps in lowering the level of blood glucose in human beings ?**

[Delhi 2004]

**Ans.** Insulin.

**Q.57. Name the mechanism that regulates the action of hormones.**

**Ans.** Feedback mechanism.

## [2 MARKS QUESTIONS]

**Q.1. What is the need for a system of control and coordination in an organism ?**

[NCERT]

**Ans.** • Organisms respond to stimuli (from the environment) by making a movement, *i.e.*, each kind of a change in the environment evokes an appropriate movement in response.

- It is clear that the movement to be made depends on the event that is triggering it.
- Hence such controlled movements must be connected to the recognition of various events in the environment, followed by only the correct movement in response.
- So there is need for a system that provides control and coordination.

**Q.2. Differentiate between axon and dendrite of a neuron.**

**Ans.** Differences

<b>Axon</b>	<b>Dendrite</b>
(i) An axon is a single, elongated fibre of a neuron.	(i) Dendrites are many short branches/processes of a neuron.
(ii) An axon conducts the nerve impulse away from the cell body.	(ii) Dendrites conduct the impulse towards the cell body.

**Q.3. Give any four examples of reflex actions.**

**Ans.** (i) Knee-jerk reflexes.

(ii) Sneezing when dust particles get into the nostrils.

(iii) Blinking/closing of eyes when bright light is focussed on them.

(iv) Pulling the hand back quickly, on touching a hot object.

**Q.4. What is the difference between a reflex action and walking ?**

[NCERT]

**Ans.** Differences

<b>Reflex action</b>	<b>Walking</b>
(i) It is a sudden/spontaneous, unconscious response to a stimulus.	(i) It is a thought out voluntary action.
(ii) It occurs at the level of spinal cord and brain is not involved.	(ii) Brain is involved in the thinking process.
(iii) It is a very quick action.	(iii) It is a slow action.

**Q.5. Brain is a delicate organ. How is it protected ?**

**Ans.** (i) The brain lies inside the bony-box called cranium (skull).

(ii) Inside the bony-box, it is surrounded by a membranous covering called meninges, with a fluid-filled space in between; it acts as a shock-absorber.

**Q.6. How are involuntary actions and reflex actions different from each other ?**

[NCERT]

**Ans.** Differences

<b>Involuntary action</b>	<b>Reflex action</b>
(i) These actions are controlled by the midbrain and hindbrain.	(i) These actions are controlled by the spinal cord.
(ii) These involve the involuntary muscles.	(ii) These involve the voluntary muscles.
(iii) They occur in a rhythmic manner and not sudden responses to stimuli.	(iii) They are sudden/spontaneous responses to some stimuli.

**Q.7. Bring out the differences between the conduction of information in animals and that in plants.**

**Ans.** Differences

<b>Conduction of information in animals</b>	<b>Conduction of information in plants</b>
(i) Animals have specialised tissues to conduct the electrical-chemical means to communicate the information.	(i) Plants also use electrical-chemical means, but do not have any specialised tissue to convey the information.
(ii) Animals bring about movement by changing the structure and arrangement of special proteins in the muscle cells.	(ii) Plants bring about the change in shape of cells by changing the amount of water, that leads to shrinking and swelling.



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**Q.8. What is the difference between the manner in which movement takes place in a sensitive plant and the movement in our legs ?** [NCERT]

Ans. Differences

Movement in sensitive plant	Movement in human legs
(i) The plant uses electrical-chemical means to convey the information, but does not have any specialised tissues for conduction of information.	(i) Humans also employ electrical-chemical means to convey the information, but has specialised nervous tissue for conduction of information.
(ii) Movement involves change in the shape of cells, that is brought about by changing the amount of water in them resulting in swelling or shrinking.	(ii) Movement involves change in shape of muscle cells, brought about by change in the structure and arrangement of special proteins in the muscle cells.

**Q.9. How do auxins promote the growth of a tendril around a support ?** [NCERT]

- Ans.
- Tendrils are sensitive to touch.
  - When they come in contact with a support, the auxins move to that part of the tendril away from the contact.
  - As a result the side/part of the tendril that is away from the support grows more rapidly than the side in contact with the support; this causes the tendril to circle around the support.

**Q.10. Give an example each of the two types of phototropic movement.**

- Ans. (i) Shoots bend towards light—positive phototropism.  
(ii) Roots bend away from light—negative phototropism.

**Q.11. How is the movement of leaves of sensitive plant different from the movement of a shoot towards light ?** [NCERT]

Ans. Differences

Movement of leaves of sensitive plant	Movement of shoot towards light
(i) This movement is not growth movement.	(i) This movement is due to growth in plant/stem.
(ii) It is very quick.	(ii) It is slow.
(iii) This movement is temporary.	(iii) This movement is permanent.
(iv) There is no directional relationship with the stimulus.	(iv) The movement is directional, <i>i.e.</i> , towards light.

**Q.12. What is chemotropism ? Give an example.**

- Ans. Chemotropism refers to the directional growth movement, in response to chemicals.  
*e.g.*, Growth of pollen tube towards ovule.

**Q.13. Bring out the differences between growth in plants and growth in animals.**

Ans. Differences

Growth in plants	Growth in animals
(i) Plant growth occurs only at specific regions.	(i) Animal growth occurs throughout their body.
(ii) Plant parts grow in the direction of stimulus.	(ii) Growth occurs in carefully controlled directions.
(iii) Growth occurs throughout life.	(iii) Growth stops after a particular age.



4. Give two reasons, why chemical communication/coordination is necessary along with nervous coordination.

Or

Mention two limitations posed to the use of electrical impulses.

15. (i) The electrical impulses can reach only those cells that are connected by nervous tissue; all cells are not connected by nervous tissue.
- (ii) Cells cannot continually create and transmit electrical impulses; once an electrical impulse is generated and transmitted, it takes some time for the cell to reset the mechanisms.

15. Mention any two characteristics of hormones produced by multicellular organisms.

- ns. (i) The hormones show a great deal of diversity, as different hormones help to coordinate growth, development, and responses to different stimuli/changes.
- (ii) They are synthesised at places away from where they act; they simply diffuse to the site of action, called target tissue or organ.

16. How does chemical coordination occur in plants? [NCERT]

- ns. • Plants secrete chemicals called plant hormones in minute quantities at different locations (like shoot tip, embryo, fruit, seeds, etc).
- These chemicals are secreted at locations away from the site of their action.
- They simply diffuse to the site of action and coordinate growth, development and responses to changes in the internal and external environment.

17. How does phototropism occur in plants? [NCERT]

- Ans. • Auxin is synthesised at the shoot tip and it helps the cells to grow longer.

- When light is coming from one side of the plant, auxin diffuses towards the shaded side of the shoot.
- This increased concentration of auxin stimulates the cells on the shaded side to grow longer.
- So the shoot/stem bends towards light.

- Q.18. Name a plant hormone that inhibits growth. Mention one more of its characteristic effect on plants.

Ans. Abscisic acid is a growth inhibitor. It causes wilting of leaves.

- Q.19. How does chemical coordination take place in animals? [NCERT]

- Ans. • In animals chemical coordination is brought about by hormones.
- Hormones are secreted by endocrine glands, directly into the blood.
- The blood carries the hormones to their respective target organs, where they function.

- Q.20. Where is thyroxine secreted from? What is its function?

Ans. Thyroxine is secreted from thyroid gland. Thyroxine regulates the metabolism of carbohydrates, fats and proteins.

- Q.21. Why is the use of iodised salt advisable? [NCERT]

- Ans. • Iodised salt is salt enriched with iodine.
- Iodine is necessary for the thyroid gland to secrete thyroxine.
- If iodine is deficient, one will suffer from goitre and the entire metabolism of the body will suffer.

- Q.22. What is goitre? What is its symptom?

Ans. Goitre is the disorder caused by deficiency of iodine.

One of its symptoms is a swelling in the neck (actually swollen thyroid gland).

- Q.23. Name the hormone secreted by pancreas. What is its function?

Ans. Pancreas secretes insulin.

It regulates the level of blood sugar in our body.

**Q.24. Why are some patients of diabetes treated by giving injections of insulin ? [NCERT]**

**Ans.** • Insulin is the hormone secreted by pancreas; it regulates the level of blood sugar.

- In patients of diabetes, this hormone is not secreted in sufficient quantity and hence the level of blood sugar increases, causing many side effects.
- So they are treated by giving injections of insulin.

### [3 MARKS QUESTIONS]

**Q.1. Draw diagram of a neuron (nerve cell) and label nucleus and axon on it.**

[Delhi 2007 C]

**Ans.**

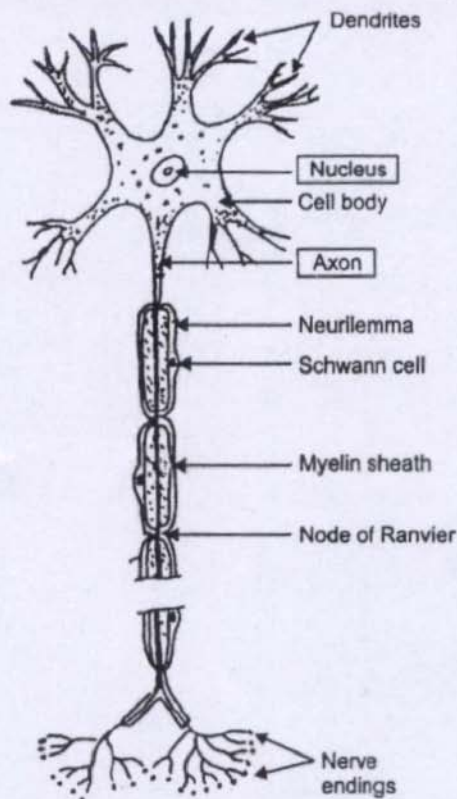


Fig. A neuron

**Q.2. Look at the diagram of a neuron. Identify and name the parts of a neuron,**

(i) where information is acquired ?

(ii) through which information travels as electrical impulse ?

(iii) where this impulse must be converted into a chemical signal for onward transmission ?

**Ans.** (i) At the tips of dendrites

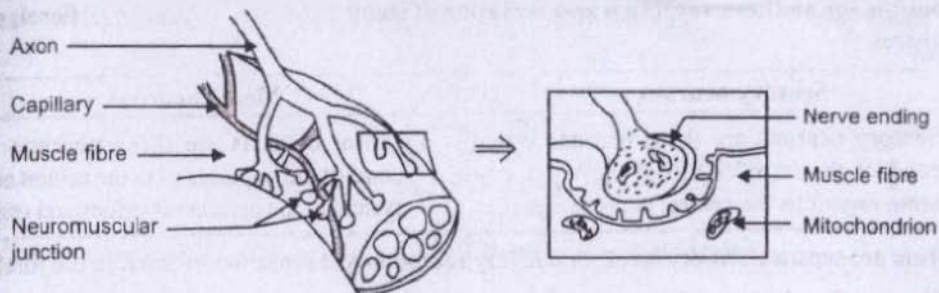
(ii) Axon

(iii) Axon terminals.



**Q.3. Draw a labelled diagram showing neuromuscular junction.**

**Ans.**



**Fig. Neuromuscular junction**

**Q.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? [NCERT]**

**Ans.** (i) Receptors detect all information from our environment.

(ii) The information acquired at the tip of dendrites, sets off a chemical reaction that creates an electrical impulse.

(iii) If the receptors do not function properly, we may not be able to see, hear or detect smell, etc. according to the receptor damaged.

**Q.5. Define 'nerve impulse'. Which structure in a neuron helps to conduct a nerve impulse**

(i) towards the cell body. (ii) away from the cell body.

[AI 2004]

**Ans.** The physical, chemical and electrical changes that pass as a wave along a neuron on stimulation, constitute a nerve impulse.

(i) Dendrites (ii) Axon.

**Q.6. What is a reflex arc? Why have reflex arcs evolved in animals?**

**Ans.** The pathway along which the nerve impulses travel to bring about a reflex action, is called reflex arc. Reflex arcs have evolved because

(i) the thinking process of the brain is not fast enough.

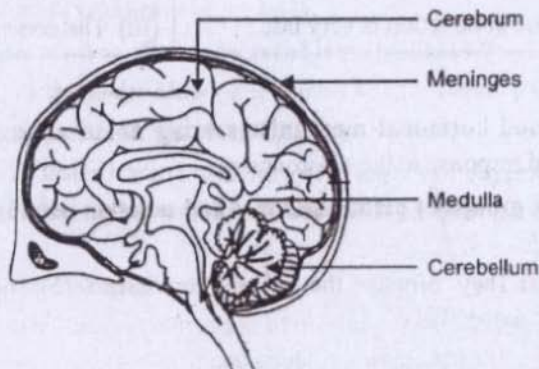
(ii) many animals have very little or none of the complex neuron network needed for thinking.

**Q.7. Draw a diagram of human brain and label on it, the following of its parts :**

(i) Cerebrum (ii) Meninges (iii) Medulla oblongata (iv) Cerebellum

[Delhi 2005]

**Ans.**



**Fig. Human brain**

**Q.8. What is the difference between sensory and motor neurons ? Which parts of human brain are responsible for auditory reception and sensation of smell ?** [Foreign 2004]

Ans. Differences

Sensory neurons	Motor neurons
<ul style="list-style-type: none"> <li>Sensory neurons are those neurons which conduct the impulses from the receptors/sense organs to the central nervous system.</li> </ul>	<ul style="list-style-type: none"> <li>Motor neurons are those neurons which conduct the impulses from the central nervous system to the peripheral tissues and organs.</li> </ul>

- There are separate sensory areas for auditory reception and sensation of smell in the forebrain.

**Q.9. How do muscle cells move ?**

- Ans.
- When a nerve impulse reaches the muscle, the muscle cells move by changing their shape, so that they become shorter.
  - Muscle cells have special proteins that change both their shape and their arrangement in a cell in response to the nerve impulses.
  - The new arrangements of these proteins give the muscle cells a shorter form, *i.e.*, muscle contraction is achieved.

**Q.10. What is geotropism ? Give an example each of its two types.**

- Ans. Geotropism refers to the directional growth movement of plant parts, in response to the pull of gravity. *e.g.*, The roots of a plant always grow downwards, *i.e.*, towards gravity (positive geotropism). The shoots of a plant usually grow upwards and away from gravity (negative geotropism).

**Q.11. Compare and contrast nervous and hormonal mechanisms for control and coordination in animals.** [NCERT]

Ans. Differences :

Nervous mechanism	Hormonal mechanism
(i) Information is conveyed in the form of electrical impulses	(i) Information is conveyed in the form of chemicals called hormones.
(ii) Electrical impulses reach only those cells that are connected by nervous tissue, but not each and every cell in the animal body.	(ii) The chemical compound can diffuse all around the original cell and potentially reach all the cells of the body regardless of nervous connections.
(iii) The impulse conduction is very fast.	(iii) The communication is slow.

**Similarities :**

Both nervous and hormonal mechanisms bring about control and coordination of growth, development and response to the environment.

**Q.12. Name any three groups of plant hormones and mention one function of each of them.**

Ans. Plant hormones

- Auxins :** (a) They promote the cells to grow longer. (b) They are involved in bringing about phototropic movements.
- Cytokinins :** They promote cell division.
- Gibberellins :** They help in the growth of stem.



3. Draw a diagram showing endocrine glands in a male body. Label the following glands on it.

(i) Pituitary

(ii) Thyroid

(iii) Adrenal

(iv) Testis

[Foreign 2005]

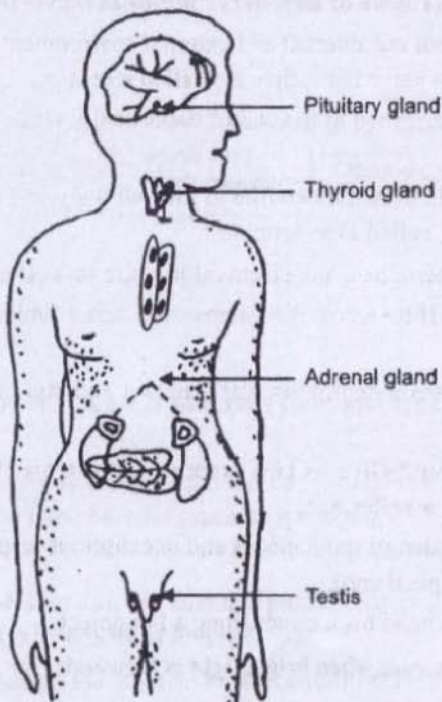


Fig. A human male body showing endocrine glands

14. Write the name and function of the hormones secreted by

(i) Thyroid

(ii) Pancreas and

(iii) Pituitary

ns. (i) Thyroxine

- It regulates the metabolism of carbohydrates, proteins and fats.

(ii) Insulin

- It regulates the blood sugar level.

(iii) Growth hormone

- It regulates growth and development of the body.

15. How does body respond when adrenaline is secreted into the blood ?

- ns.
- When adrenaline is secreted into the blood, it is carried to all different parts of the body.
  - It reaches its target organ, heart and stimulates it.
  - As a result the heart beats faster leading to an increased supply of oxygen to our muscles.
  - The blood supply to digestive system and skin is reduced as the muscles around the small arteries contract.
  - So blood is diverted to skeletal muscles.
  - The breathing rate increases due to contraction of diaphragm and rib muscles.
  - All these changes/responses together enable the body to be ready to deal with the situation.

## [5 MARKS QUESTIONS]

**Q.1.** Describe the general scheme of how nerve impulses travel in the body to muscles or glands.

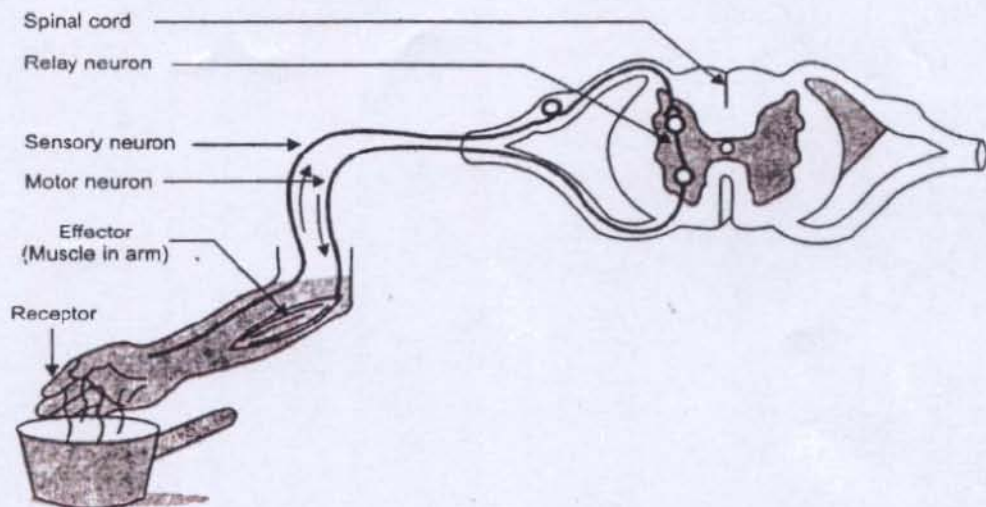
- Ans.**
- All information from our internal and external environment is detected by the specialised tips of dendrites of certain nerve cells; they are called 'receptors'.
  - This information, acquired at the end of dendrite tip, sets off a chemical reaction that creates an electrical impulse.
  - The impulse travels from the dendrite to the cell body and then along the axon, to its tip, which gives off branches, called axon terminals.
  - At the tip of axon terminals, the electrical impulse sets off the release of some chemicals.
  - These chemicals diffuse across the synapse and start a similar electrical impulse in the dendrite of the next neuron.
  - This impulse crosses a neuromuscular junction and stimulates the muscles or glands for their action.

**Q.2.** What is a reflex action? Give its two examples. Illustrate the pathway followed by a message from the receptors in a reflex arc. [Delhi 2006 C]

**Ans.** A reflex action is a sudden or spontaneous and unconscious response of effector(s) to a stimulus, that occurs at the level of spinal cord.

*e.g.*, (i) Pulling the hand back on touching a hot object.

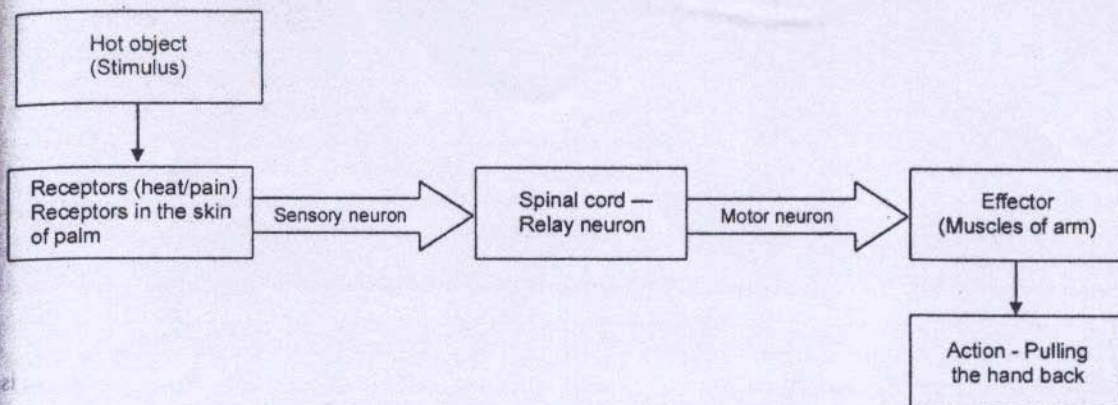
(ii) Closing the eyes when bright light is focussed.



**Fig.** Reflex arc



A reflex arc has the following components :



**Q.3. Define a reflex arc. Name the components of a reflex arc and mention the function of each of them, with an example.**

**Ans.** Reflex arc is defined as the pathway along which the nerve impulses travel to bring about a reflex action. For example, pulling the hand back on touching a hot pan.

Components of the reflex arc :

- (i) **Receptor** : It receives the stimulus; the heat and pain receptors in the skin of hand receive the stimulus and convert it into an electrical impulse.
- (ii) **Sensory neuron** : It conducts the impulse to the central nervous system, *i.e.*, spinal cord in a reflex action.
- (iii) **Relay neuron** : In the spinal cord, the sensory neuron relays the impulse to the relay neuron, which transmits it to the motor neuron.
- (iv) **Motor neuron** : It conducts the impulse to the effector organ.
- (v) **Effector** : It is the organ which functions according to the message/impulse brought by the motor neuron; the muscles of the forearm contract to pull the hand back.

**Q.4. Name the main thinking part of the brain. Describe the various regions present in it.**

*Or*

**Describe in detail the forebrain of human being.**

- Ans.**
- Forebrain is the main thinking part of the brain; it includes cerebrum and hypothalamus.
  - It has separate sensory areas, motor areas and association areas.
    - (i) **Sensory areas** : There are separate specialised regions to receive sensory impulses from various receptors; these areas are for hearing, smell, sight, pain, etc.
    - (ii) **Association areas** : These are the areas where the sensory information is interpreted by putting together the information from other receptors and the information that is already stored in the brain. Based on all these, a decision is made as to how to respond and the information is conducted to the motor areas.
    - (iii) **Motor areas** : These are the areas which control the movement of voluntary muscles; they send the impulse to the effector tissues and organs.
  - Hypothalamus has centres associated with hunger, thirst, body temperature, etc.

**Q.5. (i) What is the function of midbrain ?**

**(ii) Name the different parts in the hindbrain and mention one function of each.**



Ans. (i) Midbrain controls many of the involuntary actions.

(ii) Hind brain : It has three parts : (a) Pons (b) Medulla and (c) Cerebellum

(a) Pons has centre for regulating the breathing rhythm.

(b) Medulla controls involuntary functions like blood pressure, salivation, vomiting, etc.

(c) Cerebellum is responsible for

- precision or coordination of voluntary actions.
- maintaining the posture and balance of the body.

**Q.6. Describe how the drooping movement of leaves is brought about in sensitive plant.**

Ans. • The drooping of leaves occurs in response to touch.

• It is independent of growth.

• The movement is effected at a site different from the point of touch.

• The plant uses electrical-chemical means to convey this information from cell to cell, as there is no specialised tissue for conduction of the information.

• The cells change shape in order to bring about the movement; it is carried out by changing the amount of water in them, which leads to shrinking or swelling.

• In this case, the cells at the base of its petiole lose water, leading to the drooping movement.

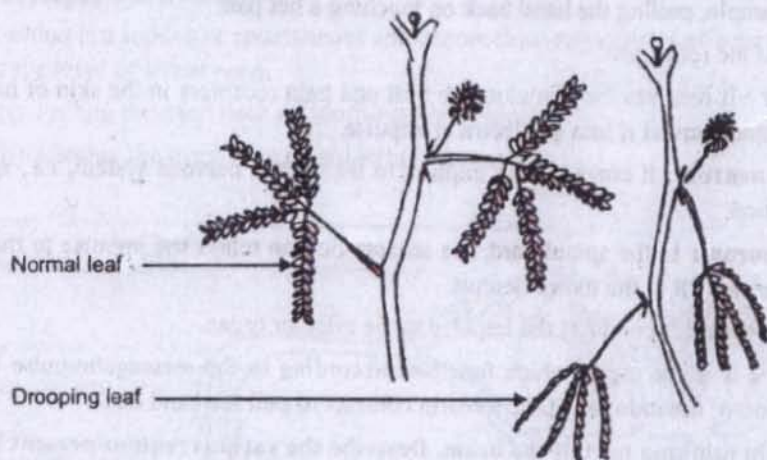


Fig. Leaves of Mimosa

**Q.7. Describe an experiment to demonstrate phototropism.**

Ans. • Fill a conical flask with water.

• Cover the mouth 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 a few days, it will be noticed that the shoots bend towards light and the roots grow away from light.

• Now turn the flask in such a way that shoots are away from light and roots are towards light.

• After a few days, again it will be seen that the shoots and roots have changed their directions, i.e., the shoots grow towards light and roots grow away from the light.



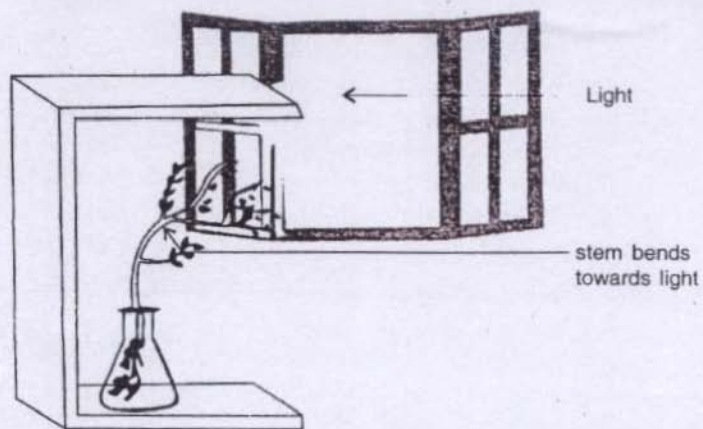


Fig. Plant showing phototropism

8. Name five endocrine glands in the body of a human female and name the hormone secreted by each of them.

- is. (i) Pituitary gland --- Growth hormone  
(ii) Thyroid gland --- Thyroxine  
(iii) Pancreas gland --- Insulin  
(iv) Adrenal gland --- Adrenaline  
(v) Ovary --- Oestrogen.