

15. Life Process in Living Organisms

EXTRA QUESTIONS

1) Write the names of some waste materials of plants which are useful to humans.

Ans– Resin, latex, rubber, gum are waste material of plants but that are useful for humans.

2) Now many types of Nerve cells or Neurons, write their names.

Ans– 1) Sensory Neurons

2) Motor Neurons

3) Association Neurons.

3) With which type of tissues all parts of plants are connected?

Ans – All parts of the plants are connected with conducting tissues.

4) By which process water enters into the cells of plant?

Ans – The water enters the cell by the process of diffusion.

5) Write the organ names of human excretory system?

Ans – Kidney, Urethra, Urinary bladder, pair of ureters are organs of human excretory system.

6) What is meant by Homeostasis?

Ans – Proper co – ordination between various system of an organism help to maintain a state of equilibrium called homeostasis.

7) What is meant by 'growth irrelevant movement'.

Ans – Some specific movements of the plants do not lead to the plants growth. Such movements are called growth irrelevant movements.

8) What is meant by transportation?

Ans – The process by which substance either synthesized or absorbed in one part of the body reaches another. that process is called transportation.

9) What is meant by Transpiration?

Ans – Plant give out water in the form of vapour through the stomata on their leaves this process is known as Transpiration.

10) What is meant by dialysis?

Ans – when the efficiency of kidneys can be affected by any injury, that time the nitrogenous waste form blood are separated by using man – made machine, this process is called dialysis.

11) Define Tropism or Tropic movement.

Ans – Movement or growth of any part of the plant in response to an external stimulus is called tropism or Tropic movement.

12) Which types of plant tissues are xylem and phloem?

Ans- Xylem and phloem are vascular conducting tissues.

13) What is meant by 'root pressure'.

Ans– Root cells are in contract with water and minerals in the soil. Water and minerals enter the cells on the root surface due to differences in concentration. As a result, these cells become

turgid. These turgid cells exert pressure on the adjacent cells. This is called 'root pressure'.

14) Define Translocation in plant.

Ans – The food produced in leaves is transported to each cell in the plant body. Excess food, except amino acids, is stored in roots, fruits and seeds. This process is called Translocation.

15) Write the types of peripheral nervous system and exact location of peripheral nervous system.

Ans – The peripheral nervous system consists of the nerves originating from the central nervous system. These nerves connect the central Nervous system with all parts of the body. They are two types.

A) Cranial Nerves – Nerves originating from the brain are called cranial nerves. They are associated with various parts in the head, thorax and abdomen. There are 12 pairs of cranial nerves.

B) Spinal Nerves – Nerves originating from the spinal cord are called spinal Nerves. These are associated with arms, legs, skin and some other parts of the body. There are 31 pairs of spinal nerves.

16) Define Reflex action.

Ans – An immediate and involuntary response given to a stimulus from the environment is called a reflex action.

Sometimes we react to an incident without any thinking on our part or control over the reaction. This is a response over the reaction. This is a response given to a certain Stimulus from the surroundings. In such situations, proper

control and co – ordination is achieved even without intervention of the brain

17) Your hands may also begin to itch if you try to cut those leaves. Why does this happen?

Ans – While cutting arum leaves, hands begin to itch because it contains waste materials in the form of crystals of calcium oxalate known as raphides. Raphides are needle shaped, thus they prickle and cause irritation of the skin

18) Leaves of plants fall off in a particular season. Why do they not have any excretory organs.

Ans.- Thus, in plants waste substances are stored in the leaves which are then shed along with the leaves in a specific season.

19) Which waste materials are produced in our body through metabolic activities?

Ans – In humans along with kidneys, the skin and lungs also help in the process of excretion. Thus, waste materials produced by them are as follows.

Kidney - Urea

Skin - Urea

Lungs - Urea, Salts, Lactic acid

Lungs - CO_2

20) An injury to the medulla oblongata can lead to death why?

Ans – Medulla oblongata controls all the involuntary activities like beating of heart, blood circulation, breathing of heart, blood circulation, breathing sneezing coughing and salivation. In this region if injured it may cause death.

21) In adult the process of urination is under their control but not in infants? Why is it so?

Ans – Urine is stored in urinary bladder. This is the control of nerves. Hence in adult nervous system is well developed as compared to infants. Therefore infants cannot control their urination.

22) Sometimes we choked while eating in a hurry.

Ans – There is an elastic flap at the starting of the wind – pipe called epiglottis. Which opens whenever we breathing in air and close to prevent the entry of food into the respiratory system.

While eating hurry, due to lack of co – ordination the epiglottis opens to take in air but food too taken in causing us to choke.

23) As compare to the monsoon and winter a very small quantity of urine is produced in the summer season. Why is it so?

Ans – During summer season, we sweat a lot, sweating also is a part of excretory system in which the excess water along with waste materials are thrown out. Sweating also helps in regulating the body temperatures as sweating gives the cooling effect to the body.

So during summer we urinate in small quantity. In monsoon season temperature is low so we do not sweat so we urinate a lot during monsoon season.

24) Hormones when produced are directly released into blood circulation.

Ans – Hormones are secreted by endocrine glands, which are ductless glands.

These glands do not have any arrangement of their own either to store or carry their secretions.

Therefore, as soon as hormones are produced they are directly released into the blood circulation.

25) What is meant by dialysis? Why it is necessary?

Ans – 1) When the efficiency of kidneys is adversely affected by an injury, infection or decreased blood supply, excess of toxic substances accumulate or certain in body.

2) Accumulation of toxic substances in the body can lead to death.

3) In case of kidney failure, the blood is purified by dialysis.

4) Dialysis is the process of separating the nitrogenous waste from blood with the help of machine.

5) During this process 500 ml blood is sent at one time through the machine and purified blood is then reinfused into the body of the patient.

26) Explain the difference between the excretory system of humans and plants.

| Excretory system of Humans | Excretory system of plants |
|---|---|
| 1) In humans, excretory system is present separately | 1) In plants separate excretory system is not present. |
| 2) Accumulation of waste substances in the body for long can lead to death. | 2) Accumulation of waste substances cannot affect on plant. |
| 3) Main waste material like | 3) Main waste material like |

| | |
|-------------------------------|------------------------|
| urea, uric acid, ammonia etc. | gum, resin, latex etc. |
|-------------------------------|------------------------|

27) Distinguish between Neural control and chemical control.

| Neural control | Chemical control |
|--|--|
| 1) Neural control and co – ordination is brought about by special types of cells called neurons. | 1) Chemical control and co – ordination is brought about by chemical substances. |
| 2) Neural control includes Brain, spinal cord, Nerves | 2) It includes endo – crine glands. |
| 3) Conduction of nerve impulses is fast. | 3) Effect of hormones is long lasting. |

28) Explain Respiratory system and digestive system in human being.

Ans – Mouth, small intestine and large intestine, stomach, different glands make our digestive system. Different food particles get absorbed into blood because of digestive system. In digestion involves the breakdown of food into smaller and smaller components, will they can be absorbed and assimilated into the body. In Respiratory system it consisting of specific organs like Nose, esophagi, Lungs Alveoli etc. Exchange of oxygen and carbon dioxide is possible from atmosphere is taking in and expelling carbon dioxide. This oxygen then get mixed into blood and reaches towards each cell.

29) An excess of alcohol in the body causes one to lose control over it. Why does this happen? Explain with example.

Ans – 1) Cerebellum co- ordinates voluntary movements and maintains balance of the body.

2) An excess of alcohol causes dysfunctioning of the cerebellum

3) It results in primary loss of co – ordinate movements and loss of balance.

eg. a drunken person struggles to maintain his body balance.

30) Write types of nerve cells according to their function.

Ans – According to their function, Nerve cells are classified into three types -

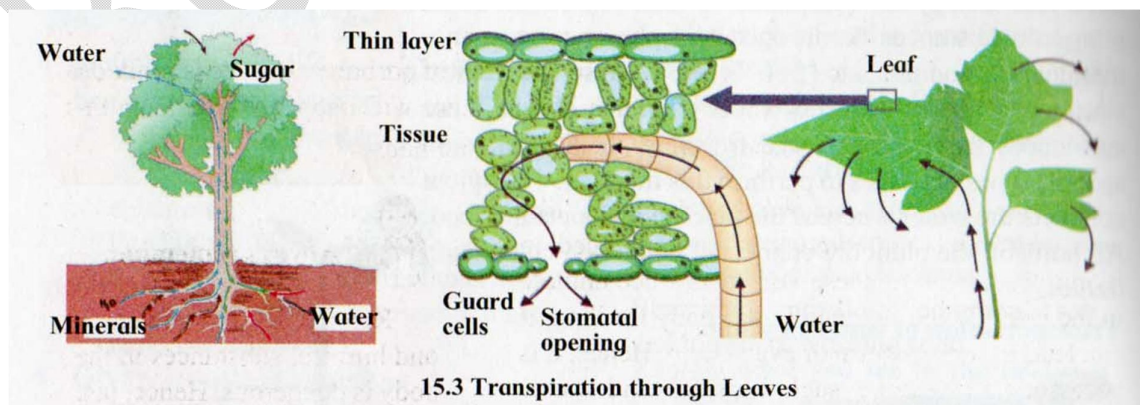
1) Sensory Neurons – Sensory Neurons conduct impulses from sensory organs to brain and the spinal cord.

2) Motor Neurons – Motor neurons conduct impulses from the brain or spinal cord to effector organs like muscles or glands.

3) Association Neurons – Association neurons of integration in the nervous system.

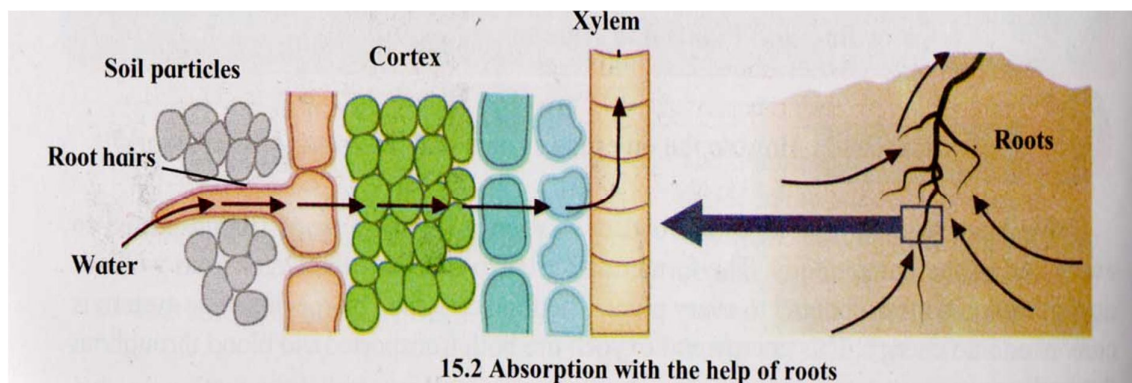
31) Draw neat and labeled diagram of Transport through leaves.

Ans –



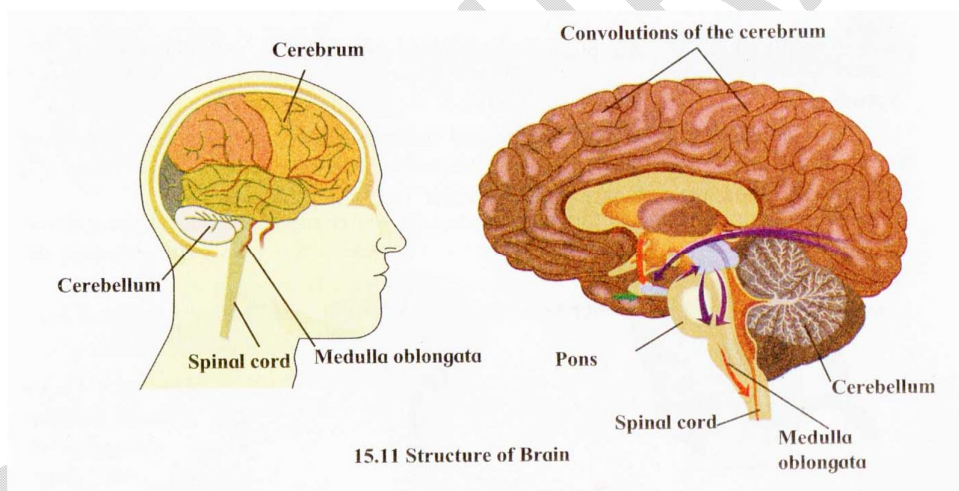
32) Absorption with help of roots.

Ans –



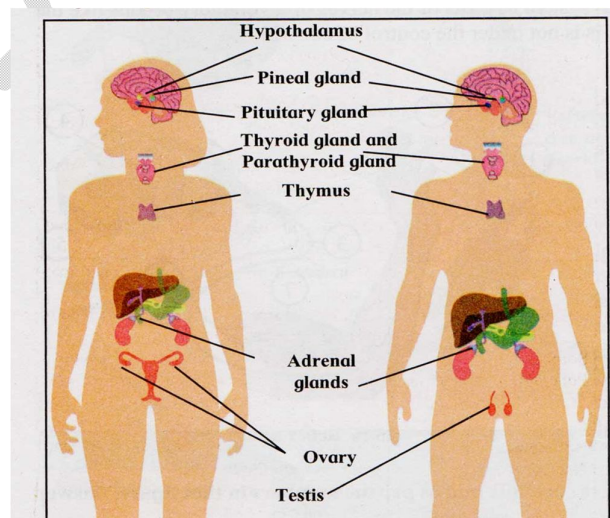
33) Human Brain.

Ans –



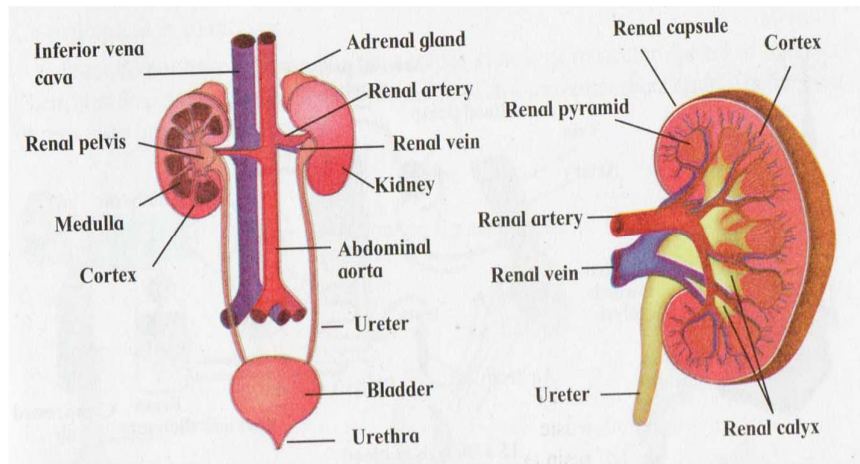
34) Human Endocrine glands

Ans –



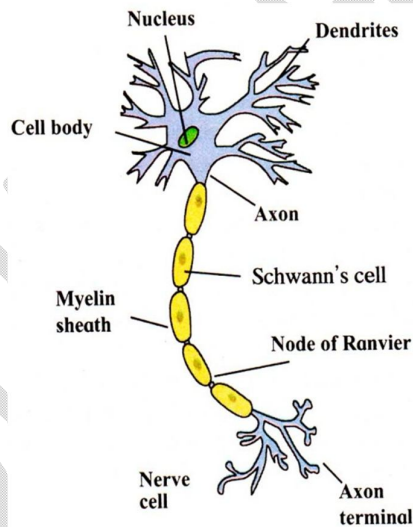
35) Vertical section of kidney

Ans –



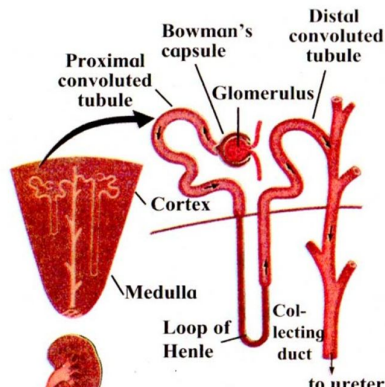
36) Nerve cell

Ans –



37) Nephron

Ans –

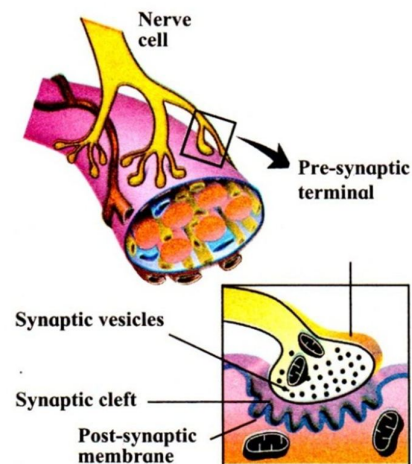


39) Neat and

labeled diagram of

Neuro – muscular junction

Ans.-



15.11 Nerve cell and neuro-muscular junction

40) Observe the picture carefully and think about them and write.

Ans –



Touch-me-not



Venus fly trap



Lotus



Balsam

15.10 Various plants

| | | | |
|------------------|----------------|--------|--------|
| Touch – me – not | Venus fly trap | Lotus | Balsam |
| Fig A | Fig. B | Fig .C | Fig. d |

Fig A – This is touch – me – not plant leaflets close in response to stimulus of touch

Fig B- Show Venus fly trap. These is trap that appears and smells like a flowers and deceives the insects. When an insect visits that flower – like trap, the trap closes up and trapped insect is digested by the plant.

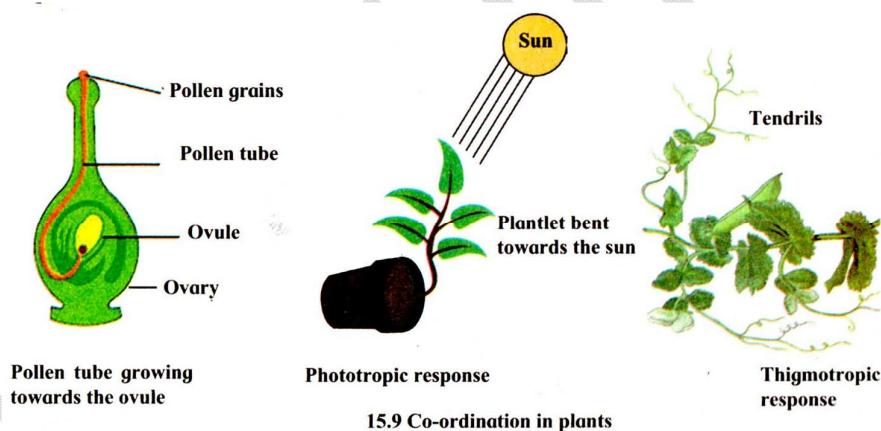
Fig. C – Shows jotus plant. The lotus plant, the lotus flower opens during day – time

Fig D – shows Balsam plant. In this plant, the ripened fruit dehisces (bursts open) at the right time to disperse the seeds.

These all movements are known as growth irrelevant movements are known these movements of the plant do not lead to the plants growth.

41) Observe given picture carefully, and think about it.

Fig –



Ans – Fig A – shows chemotropic movement. Pollen response to specific chemicals released by the ovule.

Fig B – Shows phototropic movement. shoot grows towards the sun in response to stimulus of light.

Fig C – Shows thig motropic movement. Tendrils of climbers are sensitive to touch. When they come in contact with an object, they entwine around the object and cling to it.

All the above movements are related to growth. Hence, they are called growth relevant movement.

42) Write the hormones and function of the given glands.

- i) Ovary ii) Thyroid iii) Adrenal gland iv) Pituitary
v) Thymus vi) Testis

Ans – i) Ovary – It is situated on either side of uterus in women

Hormones – 1) Oestrogen = stimulates growth of endometrium and stimulates growth of secondary sexual characteristics in women.

2) Progesterone = Prepares the endometrium for conception and maintains the pregnancy.

ii) Thyroid – Situated both sides of trachea in neck region,

Hormones – 1) Thyroxin = controls growth of body and metabolic activities.

2) Calcitonin – controls calcium metabolism and calcium level in blood.

iii) Adrenal Gland – situated Anterior end of each kidney.

Hormones – 1) Adrenaline & Nor – adrenaline controls behavior during crisis and emotional situation.

stimulates heart and its conducting tissue and metabolic process.

2) Corticosteroid – Maintains balance of Na^+ and K^+ and stimulates metabolism

iv) Pituitary – It is situated at the base of brain.

Hormones – 1) Growth Hormones – Stimulates growth of bones.

2) Adrenocorticotrophic – Stimulates adrenal gland.

3) Thyroid stimulating hormones – Stimulates thyroid gland.

- 4) Prolactin – Stimulates milk production
- 5) Follicle stimulating hormones – controls growth of gonads.
- 6) Luteinizing hormones – control menstrual cycle and ovulation.
- 7) Oxytocin – contracts uterus during parturition.
- 8) Antidiuretic hormone – Regulates water level in body.
- v) thymus – situated in thoracic cage, near the heart.
Hormone – 1) Thymosin – controls the cells which give rise to immunity.
- vi) Testis – It is situated in scrotum.
Hormone – 1) Testosterone – stimulates growth of secondary, sexual characteristics like beard, mustache, hoarse voice etc. in men.

43) How are nerve impulses conducted in the body?

- Ans.- i) Special types of cells which conduct impulses from one place to another in the body are called neurons. Nerve cells have the ability to generate and conduct electro chemical impulses.
- ii) The cells that support the nerve cells and help in their functioning are called neuroglia.
 - iii) All the information about our surroundings is collected by the ends or dendrites of the neuron.
 - iv) The chemical process begins at those ends and electric impulses are generated which are conducted from the dendrites to the cell body, from the cell body to the axon and from the axon to its terminal.

44) How is excretion in plants useful to human beings?

Ans.– i) plants give out oxygen during photosynthesis by diffusion which is useful to human beings for respiration.

ii) Some waste materials of plants for example, gum, resin, latex of rubber, etc. are useful to humans.

45) Explain co – ordination in plants with the help of suitable examples.

Ans.- i) Plants do not have systems like the nervous system or muscular system.

ii) In plants, movements are mainly in the form of responses given to the stimuli.

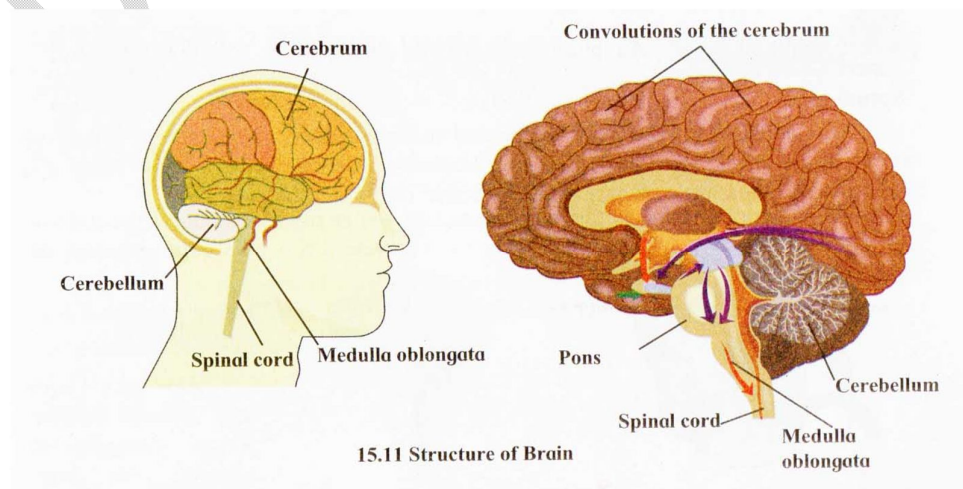
iii) Plants show two types of movements – growth relevant movements and growth irrelevant movements.

iv) Movement or growth of any part of the plant in response to an external stimulus is called tropism or tropic movement.

v) Examples of growth relevant movements are – the shoot system of any plant responds to the light stimulus i.e., it grows towards the source of light. This is called phototropic movement.

46) Sketch and labeled diagram of human brain and describe it.

Ans –



The brain of an adult human weight about 1300 – 1400 grams and consists of approximately 100 billion neurons.

The left side of our brain controls the right side of our body and right side of our brain controls left side of our body. In addition, the left side of the brain controls our speech and conversation, logical thinking etc.

Human brain has 3 main parts

A) Cerebrum

b) Cerebellum

C) Medulla oblongata

A) Cerebrum – This is largest part of our brain and consists of two cerebral hemispheres. Its surface has deep, irregular ridges and grooves which are called convulsion. Cerebrum controls voluntary movements.

B) Cerebellum - This is the smaller part of the brain situate below the cerebrum at the back of the cranial cavity. Its surface shows shallow groves instead of deep convulsions. It co –ordinates in voluntary movements, also maintaining the body's balance

C) Medulla oblongata – This is the hind –most part of brain. There are two triangular swollen structures called pyramids on the upper side of medulla oblongata.

It controls involuntary activities like beating of the heart, blood circulation, breathing, sneezing, coughing, salivation etc.

47) Describe human excretory system

Ans – 1) The process of elimination toxic and nitrogenous waste products from the body is called excretion.

2) Human excretory system consists of pair of kidneys, a pair of ureters, the urinary bladder and the urethra.

3) Kidneys separate the waste and unwanted excess substances from the blood and form urine.

4) Nephron, the functional unit of kidney performs the basic function of filtration.

5) Urea containing blood enters the glomerulus where it is filtered through capillaries.

6) Water and some other small molecules have the ability to cross semi permeable membrane of Bowman's capsule.

7) The solution stimulated in the cavity of Bowman's capsule passes into the tubular part of nephron where water and some other useful substances are reabsorbed into the blood.

8) Urine formed from remaining solution of waste materials is carried by ureters and stored in the urinary bladder.

9) This urine is then given out through urethra

10) Human beings are able to keep a control on urination as the urinary bladder is under the control of nerves.

11) Through kidneys are the main organs of excretion, skin and lungs also help in excretion in human.

48) Write in details the conduction of nerve impulses through nerve cells.

Ans – i) Nerve cells have the ability to generate and conduct electro – chemical impulses.

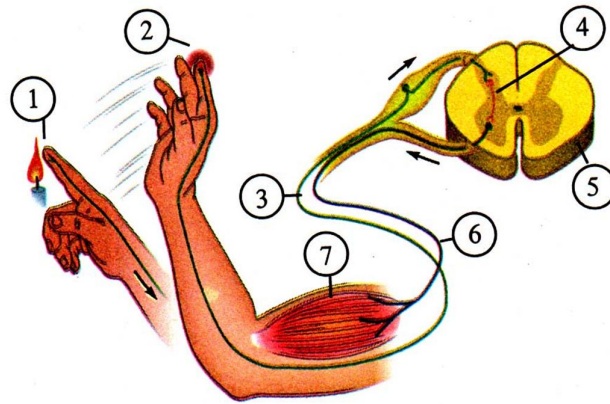
ii) Dendrites of neuron collect all the information about our surroundings.

- iii) The chemical process begins at dendrites (nerve ends) and electrical impulses are generated which are conducted from the dendrites to the cell body.
- iv) The cell body conducts the impulses to the axon and the axon to its terminal.
- v) These impulses are then transferred from one nerve cell to the next nerve cell terminal stimulates the nerve cell to secrete certain chemicals.
- vii) These chemicals pass through synapse (space between two adjacent neurons) and generate the impulse in the dendrites of next nerve cell.
- viii) As a result, impulses are conducted in the body and these impulses are finally conveyed by nerve cell to muscle cells and glands.

49) Explains dialysis process in details.

- Ans – 1) When the efficiency of kidneys is adversely affected by an injury, infection or decreased blood supply excess of toxic substances accumulate or retain in body.
- 2) Accumulation of toxic substances in the body can lead to death.
 - 3) In case of kidney failure, the blood is purified by dialysis.
 - 4) Dialysis is the process of separating the nitrogenous waste from blood with the help of a machine.
 - 5) During dialysis, around 500ml of blood is sent at one time through the machine.
 - 6) The purified blood is then reinfused into the body of the patient.

50) Observe the given figure carefully and as per the numbers in the figure answer the following questions.



15.16 Reflex action

Q. i What is happening at 1 and 2?

Ans – Stimulus of heat is received by thermo-receptors in skin, thus hand is withdrawn instantly.

Q. ii) Which nerve carried the impulse to the point 3?

Ans – Sensory neuron carried the impulse to the point marked 3.

Q. iii) In which direction point 3 carried or conducting the impulse?

Ans – Sensory neuron, conducts the impulse from sensory organ i.e skin to the spinal cord.

Q. iv) Which is the nerve shown by 4?

Ans – The nerve shown 4 is association neuron.

Q. v) Which is the organ marked as 5?

Ans - No. 5 marked organ is spinal cord.