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 issues 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 uretres 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 teaches 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 erect 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, exvept 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 connected the central Nervous system with all parts of the body. They are two types.

A) Cranial Nervers – Nerves originating form the brain are called cranial nerves. They are associated with various parts in the head, thorax and abdomen. These 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 your 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 of in a particular season. Why does do not have any excretory organs.
Ans.- Thus, in plants waste substances are stoned 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 execration 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 is 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 – These 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 flood into the respiratory system.

While eating hurry, due to lack of co – ordination the epiglottis opens to take in are 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 coding 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 ar 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 form 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 rein fused 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 sub cannot effect on plant.
3) Main waste material like urea, uric acid, ammonia etc.	3) Main waste material like 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.

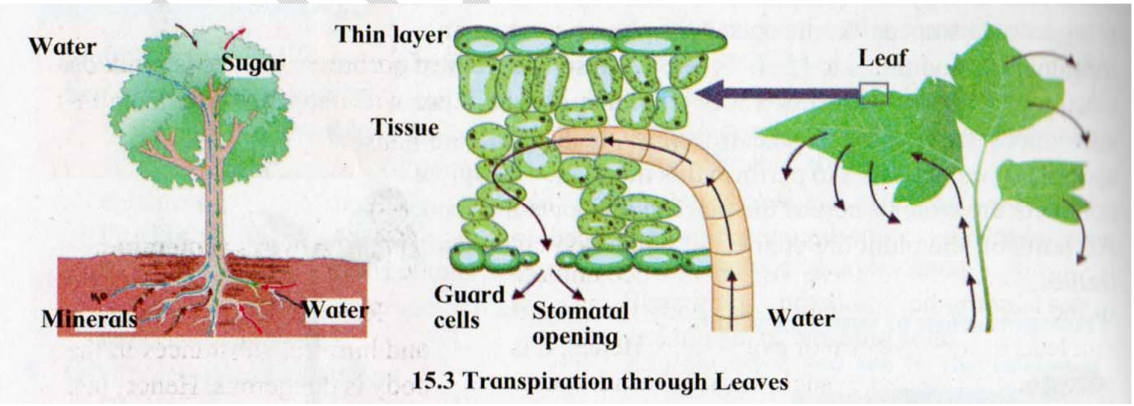
29) An excess of alcohol in the body causes one to lose control over it. Why does this happen? Explain with example.

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.

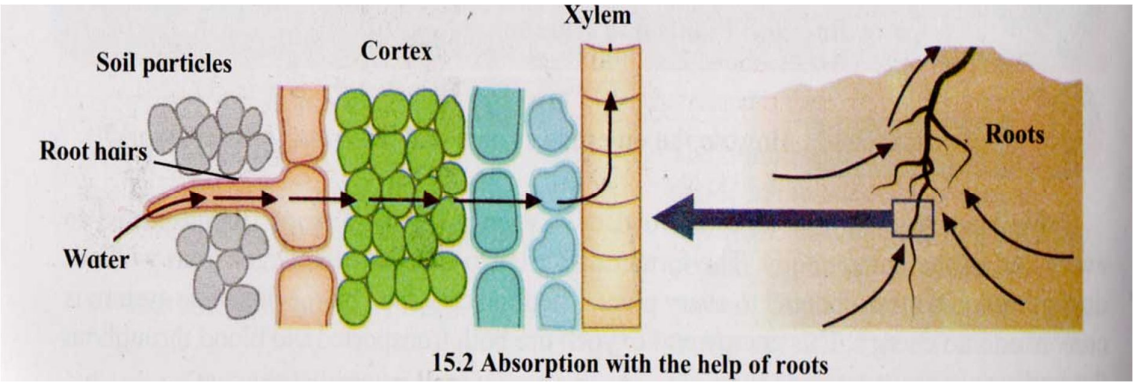
30) Write types of nerve cells according to their function.
Ans – According to their function, Nerve cells are classified into three types
1) Sensory Neurons – Sensory Neurons conduct impulses form sensory organs to brain and the spinal cord.
2) Motor Neurons – Motor neurons conduct impulses from the 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 –



15.3 Transpiration through Leaves

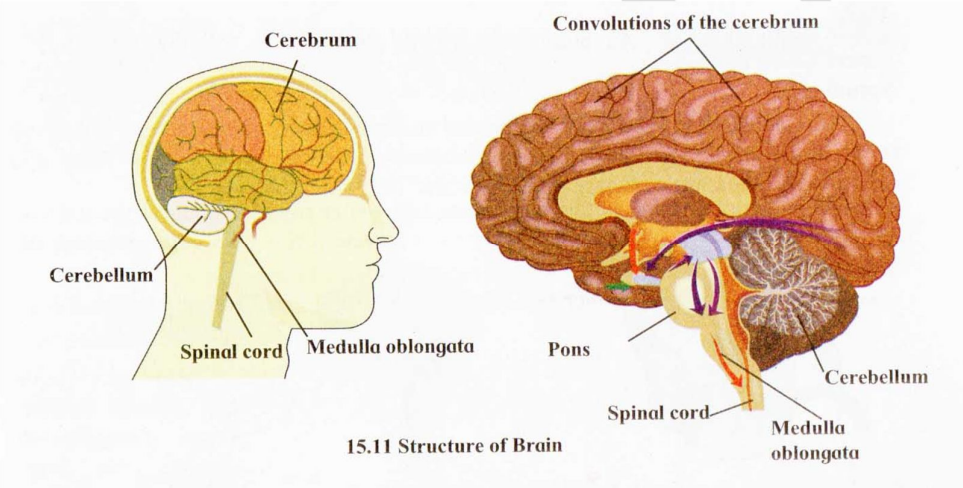
32) Absorption with help of roots.
Ans –



15.2 Absorption with the help of roots

33) Human Brain.

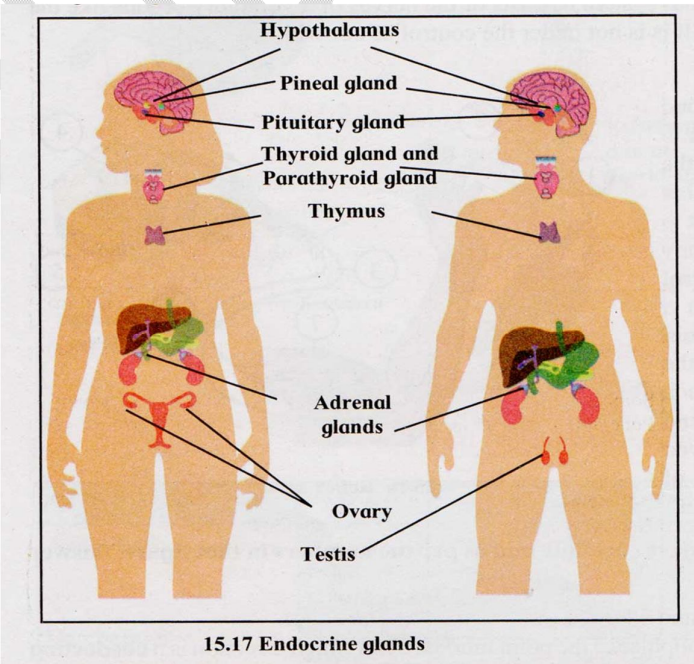
Ans –



15.11 Structure of Brain

34) Human Endocrine glands

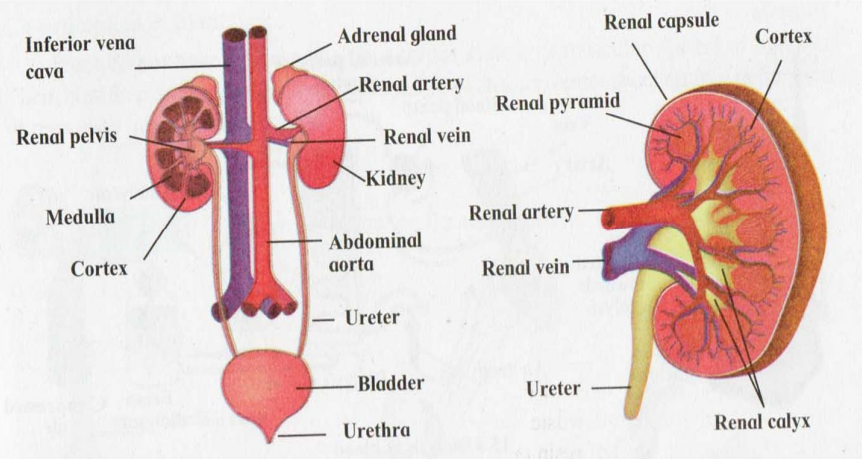
Ans –



15.17 Endocrine glands

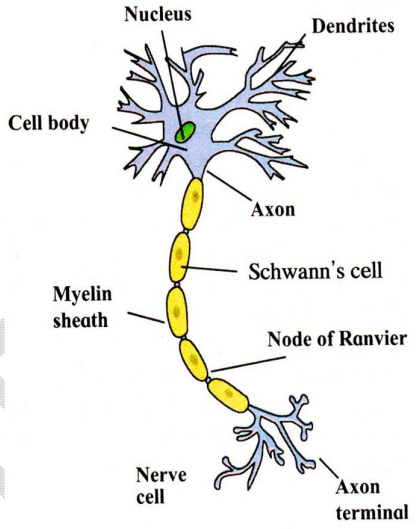
35) Vertical section of kidney

Ans –



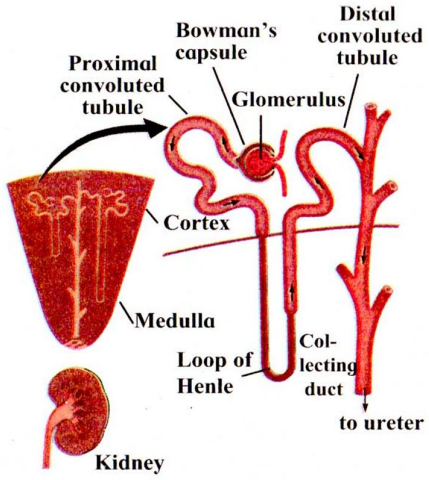
36) Nerve cell

Ans –



37) Nephron

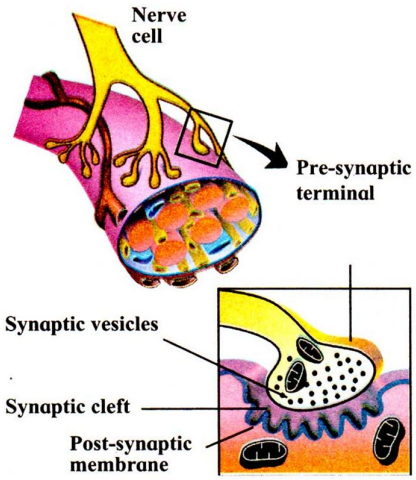
Ans –



15.7 Nephron

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 –

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.

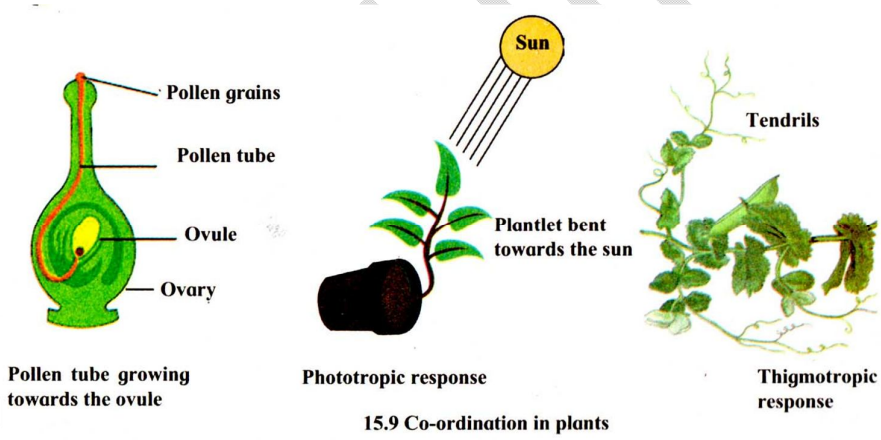
Fig. C – Shows jotus plant. The lotus plant, the lotus flower opens during day – time

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 ednometrium and stimulates growth of secondary sexsual characteristics in women.

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

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

Hormones – 1) Thyroxin = contains 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 heat and its conducting tissue and metabolic possess.

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) Adrenocorticotropic – Stimulates adrenal gland.

3) Thyroid stimulating hormones – Stimulates thyroid gland.

4) Prolactiin – Stimulates milk production

5) Follicile 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 – stiulated in thracic 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) Explain co – ordination in plants with the help of suitable example.

Ans – co – ordination is bringing about the different unlike animals, plants do not have a nervous system or muscular system to bring about co- ordination.

co – ordination in plants is exhibited during various kinds of movements that are mainly in the form of response given to stimuli.

These movements are of mainly two types.

1) Tropism or Tropic movement.

2) Growth irrelevant movement.

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

a) Phototropic movement – The shoot system of any plant responds to the stimulus of light. i.e it grows towards the source of light.
b) Gravitropic movement – The root system of plants respond to stimuli like gravitation. This response is called gravitropic movement.
c) Hydrotropic movement – When the root system of plants response to stimuli like water and grows towards source of water, this type of movement is called Hydrotropic movement.
d) Chemotropic movement – The movement shown by plans in response to specific chemicals.
e.g. The growth of the pollen tube towards the ovule.
2) Growth irrelevant movement – certain movements do not lead to the plants growth
e.g. 1) Touch – me – not (mimosa) = It closes its leaves when we touch
2) Venus fly trap = It trapped insect when any insect. visits that trap.

44) Explain chemical co-ordination in humans and give the names and functions of some hormones.
Ans– 1) The chemical co-ordination in human body is brought about with the help of certain chemical substances called as hormones.
2) Hormones are secreted by endocrine glands.
3) These glands are ductless and hence the hormones are directly released into blood circulation. They can each all parts of the body via blood.

Endocrine glands along with nervous system are responsible for the control and co-ordination in human body.

These two systems help each other in controlling and integrating the various activities of the body.

e.g – 1) Thyroid – Hormones – Thyroxin = controls growth of body and metabolic activates

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

2) Parathyroid – parathormone – controls metabolism of calcium and phosphorus.

3) Pancreas = Insulin – Stimulates liver to convert excess blood glucose into glycogen

4) Ovary – oestrogen – stimulates growth of endometrium

progesterone – prepares the endometrium for conception and maintains the pregnancy.

5) pituitary – prolactin – stimulates milk production

oxytocin – contracts uterus during parturition.

45) Describe the transportation system in plants

Ans – Transpiration helps in absorption of water and minerals and distribution to all parts of the plant whereas root pressure performs the important role of pushing the water up at night time.

Plant excrete in the form of vapoues through leaves, so plant needs much water to fulfill need of plant xylem brought up water to leaves.

The food produced by leaves is transported to each cell the plant through phloem.

When the food material like sucrose is transported towards a part of a plant via the phloem with the help of ATP, the water concentration in that part decreases.

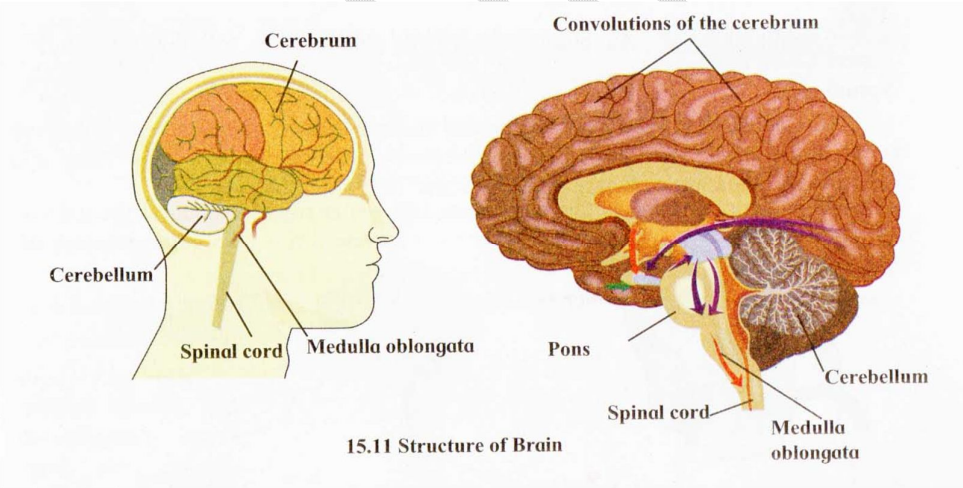
As a result, water enters the cell by diffusion. The pressure on the cell wall increases due to increase in the cellular contents.

Due to increased pressure, food is pushed into the neighboring cells where the pressure is low.

This process helps the phloem to transport the materials as per the need of the plant.

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

Ans –



15.11 Structure of Brain

The brain of an adult human weight about 1300 – 1400 grams and consists of approximately 100 bellion 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 convultion. 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 convulutions. 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 phyramids 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 tabular 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 uretes 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) Dentrites of neuron collect all the information about our surroundings.
iii) The chemical process beings at dentrites (nerve ends) and electrical impulses are generated which are conducted from the dentrites 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 dentrites 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 glans.

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.

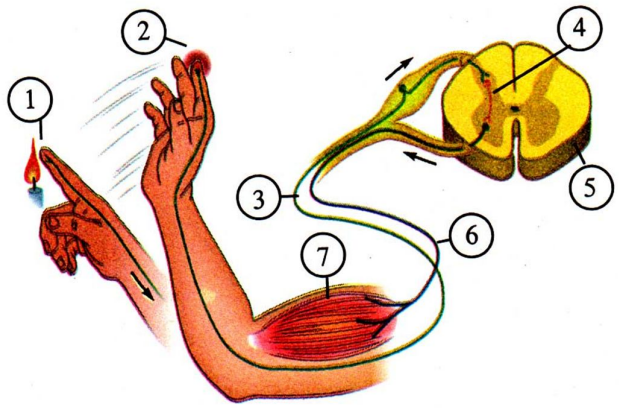
3) In case of kidney failure, the blood is purified by dialysis.

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

5) During dialysis, around 500ml of bloodis sent at one time through the machine.

6) The purified blood is then reinfuses into the body of the patient.

50) Observe the given figure carefully and as paer 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 form 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.