Date: 24/9/2021

Q1. Name the longest cell present in the human body

Q2. What is the structural and functional unit of nervous system?

Q3. Apart from nervous system which other system is involved in control and coordination?

Q4. What is synapse?

Q5. Name the two components of central nervous system in humans.

Q6. What are meninges?

Q7. Where do we find cerebrospinal fluid? Give its function.

Q8. What is cranium?

Q9. Which part of brain gives rise to spinal cord?

Q10. How many pairs of spinal nerves are present in uman body?

Q11. Name the sensory receptors found in the nose and on the tongue.

Q12. Which part of the brain controls posture and balance of the body

Q13. State one function each of cerebellum and pons.

Q14. Which group of multicelluar animals does not possess neurons?

Q15. List two primary functions of testosterone.

Q16. Give the expanded form of ABA.

Q17. Define phototropism.

Q18. Give one example of nastic movement.

Q19. What do we call the movement of shoot towards light?

Q20. List two important functions of abscisic acid in plants.

Q21. Name a plant hormone which is gaseous in nature.

Q22. Which plant hormone causes elongation of cells?

Q23. Name the two hormones secreted by pancreas.

Q24. Which hormone regulates the metabolism of carbohydrate, fat and protein?

Q25. Name three glands which are endocrine as well as exocrine in nature.

Q26. Name the organ which secretes adrenaline and also mention its target organ.

Q27. What will happen if the intake of iodine in our diet is low?

Q28. Which hormone is injected to a diabetic patient and why?

Q29. What are hormones?

Q30. State the role played by ovaries in a human female.

Q31. Deficiency of which hormone leads to dwarfism?

Q32. Differentiate between receptors and effectors with refernece to nervous system.

Q33. Draw a well labelled diagram of a neuron.

Q34. List the functions regulated by forebrain.

Q35. What is cranium and tell about its function?

Q36. Briefly state the events in sequence that takes place when electrical impulse travels from a dendrite tip of a nerve cell to an another neuron.

Q37. Differentiate between sensory and motor neuron.

Q38. How do muscle cells respond to electrical impulses?

Q39. What is the significance of peripheral nervous system? Name the components of this nervous system.

Q40. Brain and spinal cord are two vital organs of our body. How is our body designed to protect them?

Q41. What causes tendril to encircle or coil around the object in contact with it? Explain the process involved.

Q42. How does feedback mechanism regulate the hormone secretion? Explain with the help of an example.

Q43. Which organ secretes a hormone when blood sugar rises in our body? Name the hormone and the enzyme released by this organ.

Q44. Explain how the human body responds when adrenaline is secreted into the blood.

Q45. Name the hormone which is responsible for the changes noticed in males at puberty. Also list the changes that occurs in adult boys.

Q46. If you happen to touch a hot object what would be your response? With the help of well labelled diagram explain how this response happen.

Q47. Ram has met with an accident and after that he lost the capacity to

(a) walk in a straight line (b) smell anything (c) feel full after eating.

Which part of brain is damaged in each case?

Q48. Draw a well lebelled diagram of uman brain and label

(a) Cerebrum (b) Cerebellum (c) Medulla (d) Hypothalamus (e) Cranium (f) Mid-brain

Q49. If you keep the potted plant horizontally for 2-3 days, what type of movement would be exhibited by the shoot and root after two or three days?

Q50. Name the plant growth hormone which is synthesized at shoot tip. Explain with the help of a diagram why does a plant bend towards light during growth.

Q51. (a) What is tropism?

(b) Mention the differences between tropism and nastic movement in tabulated form.

Q52. Give one example each of a plant hormone that:

(a) Promotes cell division
(b) Promotes cell elongation
(c) Promotes fruit ripening
(d) Delay ageing
(e) Causes wilting of leaves
(f) Causes stem elongation.

Q53. (a) Name the disease by which a person is likely to suffer due to the deficiency of iodine. Also mention its symptoms.

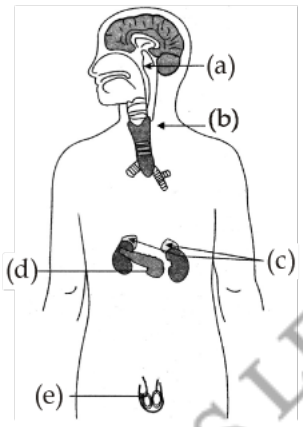
(b) Name the hormone secreted by thyroid gland and state its function.

Q54. Draw a diagram of cross-sectional view of human brain as given below on your answer sheet and label:

(a) The part aht helpsin performing voluntary actions.
(b) The part that controls salivation and vomiting.
(c) The largest part of forebrain.
(d) A fluid that protects the brain.
(e) Meninges.

Q55. (i) Identify the endocrine glands a, b, c, d in the given diagram.

(ii) List the functions of parts 'd' and 'e'.



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S1. Neuron is the longest cell present in human body.

S2. Neuron is the structural and functional unit of nervous system.

S3. In addition to nervous system endocrine system also plays a vital role in control and coordinations.

S4. Inter neuron juction where nerve endings of one neuron is in contact with the dendrites of other neuron. At this junction certain neurotransmitters are released.

S5. (i) Brain (ii) spinal cord are the two components of central nervous system in humans.

S6. The three membranes that cover brain are known as meninges.

S7. Cerebrospinal fluid is found between the meninges (membranes that surround the brain and spinal cord). This fluid protects the brain and spinal cord from mechanical and electrical shocks.

S8. The bony box or skull in which brain is located is known as cranium.

S9. Medulla oblongata gives rise to spinal cord.

S10. 31 pairs of spinal nerves are present in human body.

S11. Sensory receptors found in nose and on tongue are olfactory and gustatory receptors.

S12. Cerebellum controls posture and balance of the body.

S13. Cerebellum coordinates the muscular activity of the body. It also maintains the equilibrium of the body as during walking, jumping, lifting, cathcing, bending and so on.

S14. Phylum Porifera is a group of multicellular organism that does not posses neurons.

S15. Testosteroneis a male hormone that

(a) stimulates the development of male secondary sex organs at puberty.

(b) also helps in development of male secondary sexual characters like beard, moustache, deep voice and growth of bones.

S16. Abscisic Acid is the expanded form of ABA.

S17. Directional growth movement in plants in response to unidirectional exposure to light is referred as phototropism.

S18. Drooping of leaves on being touched in ***Mimosa pudica***.

S19. Movement of shoot towards light is referred as 'Phototropism'.

S20. Abscisic acid is a growth inhibitor. It

(a) causes wilting of leaves.

(b) checks excessive transpiration by causing closure of stomata.

S21. Ethylene is a plant hormone which is gaseous in nature.

S22. Auxin causes elongation of cells.

S23. Insulin and glucagon are the two hormones secreted by pancreas.

S24. Thyroxine regulates the metabolism of carbohydrate, fats and protein.

S25. Pancreas, testis and ovary exhibit both endocrine and exocrine part.

S26. Adrenaline is secreted by an endocrine gland named as adrenal gland. The main target organ is heart, skeletal muscles and lungs.

S27. If intake of iodine is low in our diet then the hormone thyroxine will not be produced. Deficiency of thyroxine disturbs physical and metabolic activities besides causing goiter.

S28. Diabetic patient is injected with an hormone named "insulin". This hormone regulates blood sugar level.

S29. Hormones are secretions of endocrine glands that are directly poured into the blood stream. They are required in small quantities which are translocated to a specific target region for inducting a physiological response.

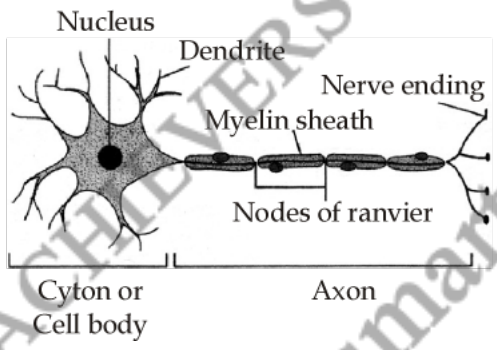
S30. Ovaries produce mature ova which in turn produces a female sex hormone called estrogen. Estrogen is essential for development of secondary sex organs in female as well as secondary sexual characters like high pitch voice, development of mammary glands.

S31. Deficiency of growth hormone leads to dwarfism.

S32.

Receptors	*Effectors*
1. Receptors are cells, tissues and organs which are capable of receiving stimuli.	1. Effectors are organs or cells which acts in response to a stimuli received from the nerbous system.
2. Phonoreceptors, photoreceptors, gustatoreceptors, olfactoreceptors are a few examples of recceptors which are located in our sense organs.	2. Muscles, glands and tissues are examples of effectors.

S33.



S34. Forebrain is the main thinking part of the human brain.

(a) It has association centres for hearing, smell, sight, hunger, thirst, touch, pain, sleep, emotions.

(b) It also aids in movement of voluntary muscles.

(c) Forebrain also stores the informatiion. Different sensory informations are integrated and interpeted on the basis of all inputs and information stored in the brain.

S35. Brain is housed inside a bony box or skull. It is also referred as cranium. Cranium protected the brain from any external or internal injuries.

S36. The information acquired at the dendritic tip of a nerve cell sets off a chemiccal reaction that creates an electrical impulse. This impulse travels from dendrite to cell body and then to axon. At the nerve ending this electric impulse is converted into some chemical signals. These chemical signals cross the fluid field synaptic space between the two neurons. It functions as a stimulus and produces an impluse in the dendritic part of the second neuron.

S37.

Sensory neuron	*Motor neuron*
1. A neuron that picks up sensation from the receptors and transmits the same to other parts like central nervous syster.	1. A neuron that carries message to the muscle, gland or an organ to perform its function.
2. It conducts impulses towards central nervous.	2. It carries impulses away from central rervous system.

S38. Muscle cells have special proteins that change their shape and arrangement in the cell in response to electrical impulse. This leads to the excitation of the muscle cells which then spreads over the whole muscle fibre thereby causing it to shorten or contract.

S39. Peripheral nervous system comprises of nerves that directly arise from central nervous system connecting different parts of the body for voluntary control of the brain. It consists of cranial nerves and spinal nerves.

S40. Brain and spinal cord are two vital organs of our body which are protected from mechanical injury and shock by bony cases around them. Brain is covered by ***cranium*** or ***brain box***. Spinal cord is protected by ***vertebral column***. Additional protective covering called menings lines ***cerebrospinal fluid*** which protects them from electrical and mechanical shocks.

S41. The tendrils are spiral, wiry structures that are sensitive to touch. As these tendrils come in contact with support, the auxin present at the tip diffuses towards the other side away from the suport. So this part grows more rapidly than the region which is towards the suport. This is the reason why tendrils circle around the support and climb upwards.

S42. Feedback system is a regulatory mechanism in which presence of certain level of hormone promotes or inhibits its further formation.

Regulation of thyroxine production by its concentration in blood is an example of hormonal feedback system. If the level of thyroxine is more in the blood, this is detected by hypothalamus, which stops producing thyroid stimulating hormone (TSH). Non-availability of TSH results in failure of thyroid to produce thyroxine. This automatically results in reduction of thyroxine in blood.

But if concentration of thyroxine is low in the blood, hypothalamus produces TSH which then passes into circulatory system and reaches thyroid gland. Thyroid now begins to secrete more thyroxine.

S43. When blood sugar level rises in blood, a hormone named 'insulin' is produced by β-cells of islet of Langerhans in the organ Pancreas. Pancreas also produces pancreatic juice which contains pancreatic enzymes such as trypsin, pancreatic amylase and pancreatic lipase.

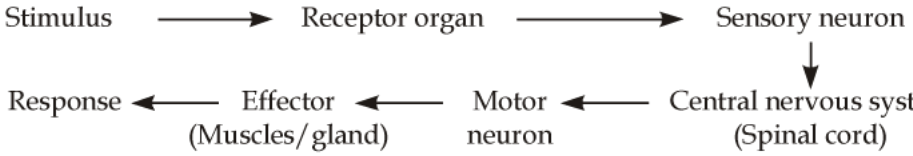
S44. Adrenaline is also called as emergency hormone. It is produced in response to cold, joy, anger, fear and emotional stress. The hormone increas blood supply to heart and skeletal muscles.

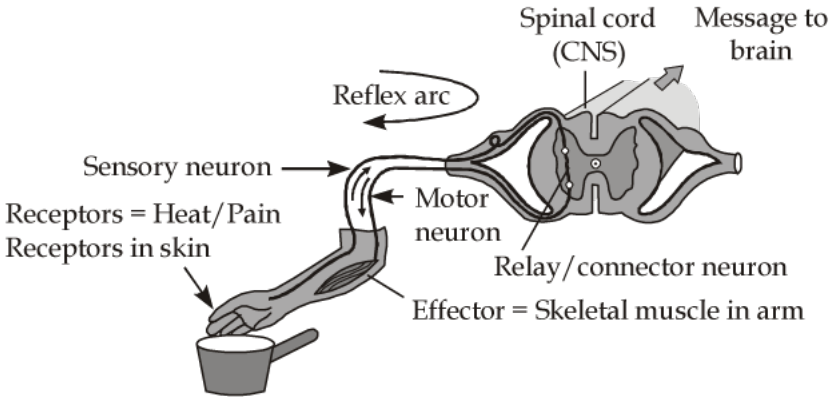
It constricts arterioles and blood supply to skin and gastrointestinal tract, is highly reduced.

Bronchioles dilate resulting in the increased rate of breathing, oxygenation and heart beat to meet any emergency.

S45. Testosterone is the male hormone that induces changes in males at the time of puberty. It stimulates the development of external genital organs, beard, moustache, deep voice, growth of bones and muscles.

S46. If we happen to touch a hot object unknowingly, then our hand will be retraced back away from it. This happens as it is a nerve mediated, atomatic, invlountary and spontaneous response acting without consulting the will. Such a response is referred as a reflex action. The pathway taken by a stimulus to travel from receptor organ to effector organ is known as reflex arc. Its components are



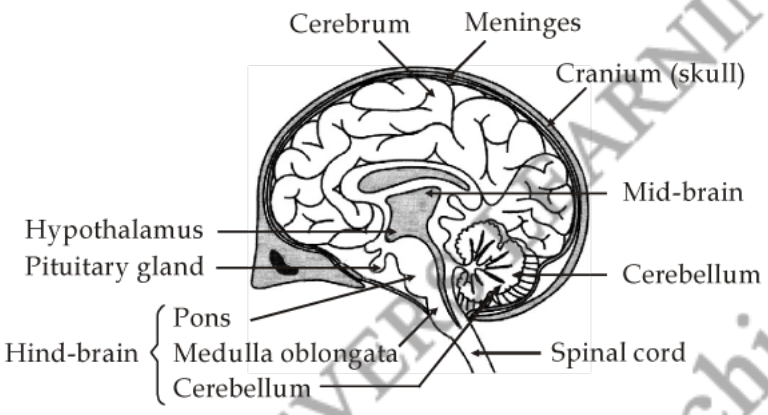


S47. (a) Ram has met with an accident and if he loses the capacity of walk in striaght line then this indicates that cerebellum – a part of hind-brain has got damaged.

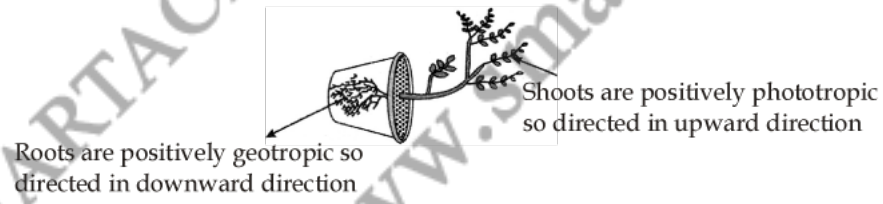
(b) If Ram loses the capacity of smell anything then his forebrain has got damaged.

(c) If Ram loses the capacity to feel full after eating then this indicates that his forebrain has got damaged.

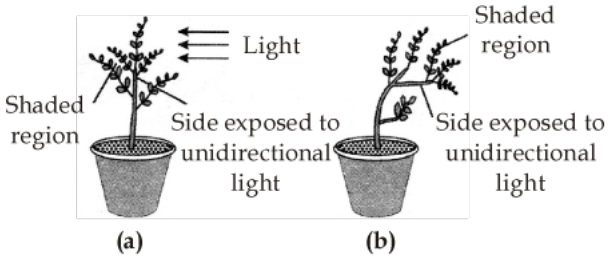
S48.



S49. If we keep the potted plant horizontally for 2-3 days, shoots grow upwards and away from the earth while growth of roots is directed in downward direction. This occurs as shoots are positively phototropic and negatively geotropic while roots are positively geotropic in nature.



S50. (a) Auxin is a phytohormone which is synthesized at shoot tip.



(b) When a plant is exposed to light coming from one side of the plant then auxin located at the shoot tip diffuses towards the shaded side of the shoot. High concentration of auxin in the shaded region stimulates the cells to grow longer in comparison to the region exposed to light. So the shoot tends to bend towards the light.

S51. (a) Tropism or tropic movements are directional gwowth movements in which the direction of movement is determined by the direction of stimulus. Geotropism, phototropism, hydrotropism, chemotropism are different types of tropic movements.

(b)

Tropism	*Nastic movement*
(i) It is a growth dependent process that is determined by the firection of stimulus.	(i) It is a growth independent process.
(ii) It is directional in nature.	(ii) It is non-directional in nature.
(iii) Such movements exhibit a slow response towards any stimulus.	(iii) Such movements exhibit an immediate response towards a stimulus.

S52. (a) Cytokinin (b) Auxin (c) Ethylene (d) Cytokinin (e) Abscisic acid (f) Gibberellin

S53. (a) Deficiency of iodine causes goitre. This disorder is commonly prevalent in northern hilly areas. It causes enlargement of thyroid gland which results in swelling of neck region.

(b) Thyroid gland secretes iodine containing hormone called thyroxine. Thyroxine controls basal metabolic rate. It regulates carbohydrates, protein and fat metabolism in the body. The hormone also controls physical development, mental development, muscular activity, nervous activity and sexual activity.

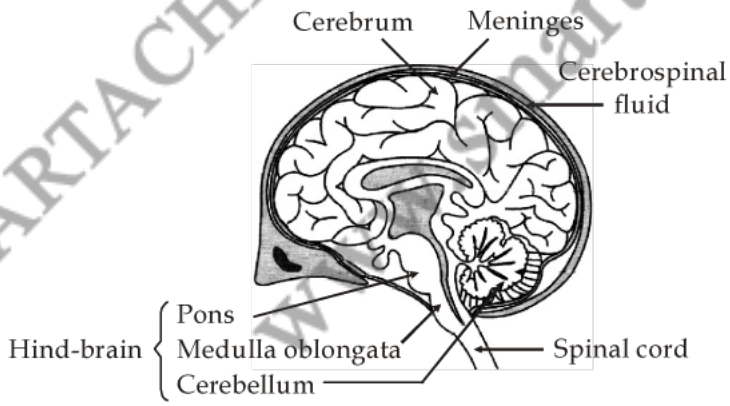
S54. (a) Cerebrum

(b) Medulla

(c) Cerebrum

(d) Cerebrospinal fluid

(e) Meninges or three membrane covering the brain.



S55. (i) (a) Pituitary (b) Thyroid (c) Adrenal (d) Pancreas (e) Testis

(ii) Pancreas – secretes insulin which regulates blood glucose leve.

Testis – secretes testosterone which stimulates development of external genitilia, secondary sexual characters in males as well as production of sperms.