Chapter: 17

Coordination and Control

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MCQs

1 Etiolated plants grow without:
Ⓐ Water Ⓑ O_2 **Ⓒ Light** Ⓓ CO_2

2 The chlorosis condition in plants due to insufficient formation of:
Ⓐ CO_2 Ⓑ Water Ⓒ O_2 **Ⓓ Chloropyll**

3 Galls are growth on a plant that is introduced by:
Ⓐ Ticks **Ⓑ Parasites** Ⓒ Protozoans Ⓓ Fungi

4 A plant hormone that promote cell enlargement behind the apical region of stem is:
Ⓐ Gibberllins Ⓑ Cytokinin **Ⓒ Auxin** Ⓓ Abscisic acid

5 Which one of the following hormones promotes stomatal opening?
Ⓐ Auxin Ⓑ Gibberellin Ⓒ Ethene **Ⓓ Cytokinin**

6 It is applied to rubber plant to stimulate flow of latex:
Ⓐ Abscisic acid Ⓑ Gibberellin **Ⓒ Ethene** Ⓓ Auxin

7 Abscisic acid can be sprayed on tree crops to regulate:
Ⓐ Leaf drop Ⓑ Shoot drop **Ⓒ Fruit drop** Ⓓ Cone drop

8 It delays ripening and improve storage life of fruits.
Ⓐ Cytokinins **Ⓑ Gibberellins** Ⓒ Ethane Ⓓ Abscisic acid

9 Abscisic acid promotes closing of stomata under conditions of stress:
Ⓐ Light Ⓑ Temperature Ⓒ Wind **Ⓓ Water**

10 ……. are indole acetic acid or its relevants.
Ⓐ Gibberellins **Ⓑ Auxins** Ⓒ Cytokinins Ⓓ Ethene

11 The plant hormone that inhibit the growth of lateral shoots:
Ⓐ Cytokinin Ⓑ Gibberellin **Ⓒ Auxin** Ⓓ Etherne

12 Gibberellins are produced commercially from:
Ⓐ Plants Ⓑ Made chemically Ⓒ Bacteria **Ⓓ Fungi**

13 Plant growth hormone that promote bolting of some rosette plants is the:
Ⓐ Ethene Ⓑ Cytokinins Ⓒ Auxins **Ⓓ Gibberellins**

14 Which of the following promote fruit ripening?
Ⓐ Auxin Ⓑ Cytokinin **Ⓒ Ethene** Ⓓ Gibberellins

15 The structure which responds by the impulse coming from the motor neurons are called:
Ⓐ Receptors **Ⓑ Effectors** Ⓒ Sensory neurons Ⓓ Motor neurons

16 Which neurons have long axon:
Ⓐ Sensory Ⓑ Motor Ⓒ Associative Ⓓ Cell body

17 The structure which respond are called:
(A) Effectors (B) Nerves (C) Receptors (D) Sense organs

18 The processes conducting impulses away from the cell body are called:
(A) Dendrites (B) Axon (C) Dendron (D) Nissl's granules

19 Nissl's granules are groups of:
(A) Mesosomes (B) Lysosomes (C) Ribosomes (D) Chromosomes

20 Neuroglial cells provide the neuron with:
(A) Protection (B) Support (C) Nutrition (D) Locomotion

21 The cytoplasmic process / fibres which carry impulse towards cell body is called:
(A) Neurofibrils (B) Nissl's granules (C) Axon (D) Dendron

22 Which of the following receptors produce the sensation of pain:
(A) Pacinian corpuscles (B) Chmoreceptors
(C) Mechanoreceptors (D) Nociceptors

23 Flow of impulse through the nervous system , involving receptors , neurons and effectors is called:
(A) Reflex action (B) Nerve impuse
(C) Reflex arc (D) Simple reflex action

24 During non - conducting state the neuron membrane is permeable to efflux of:
(A) K^+ (B) Na^+ (C) Cl^- (D) Ca^{++}

25 The normal speed of nerve impulse in human is:
(A) 120 m/sec (B) 110 m/sec (C) 100 m/sec (D) 130 m/sec

26 Resting membrane potential of a neuron is:
(A) - 50 mV (B) - 60 mV (C) - 80 mV (D) - 70 mV

27 Cell membrane of neuron is slightly permeable to:
(A) Fe^{++} (B) Ca^{++} (C) Na^+ (D) K^+

28 The main transmitter for synapses that lie outside the central nervous system is:
(A) Adrenaline (B) Serotonin (C) Dopamine (D) Acetylcholine

29 Microscopic gap between the two neurons is called as:
(A) Synapsis (B) Presynapse (C) Collapse (D) Synapse

30 How many pairs of cranial nerves are in human being?
(A) 8 pairs (B) 10 pairs (C) 12 pairs (D) 14 pairs

31 A nerve is:
(A) Collection of neurons (B) Bundle of axons or dendrites
(C) Connection of dendrites and axons (D) Bundle of axons and dendrites bounded by connective tissue

32 Which one is not related to others?
(A) Cretinism (B) Exophthalmic goiter
(C) Oedema (D) Diabetes mellitus

33 Glucagon causes an increase in level of blood:
(A) Glucose (B) Sucrose (C) Lactose **(D) Urea**

34 Lack of insulin causes:
(A) Diabetes inspidus (B) Diabetes mellitus
(C) Addison diseases (D) Ovulation

35 Alpha cells of pancreas secrete:
(A) Insulin **(B) Glucagon** (C) Pancratic juice (D) Secretin

36 Gastrin is a hormone produced by:
(A) Adrenals **(B) Gut** (C) Pancreas (D) Liver

37 The hormone secreted by mucose of the pyloric region of the stomach is:
(A) Secretin **(B) Gastrin** (C) Oestrogen (D) Progesterone

38 Gastrin stimulate the secretion of:
(A) Saliva **(B) Gastric juice**
(C) Intestinal juice (D) Pancreatic juice

39 Testosterone is secreted by:
(A) Sertoli cells (B) Germinal epithelium
(C) Interstitial cells (D) Prostrate gland

40 The number of spinal nerves in man:
(A) 24 **(B) 63** (C) 12 (D) 31

41 Structure of human brain that controls hunger is:
(A) Amygdala (B) Thalamus
(C) Hypo-thalamus **(D) Hippocampus**

42 Nociceptors produce the sensation of:
(A) Light **(B) Pain** (C) Taste (D) Hearing

43 Flowering is induced in pineapple by growth hormone called:
(A) Gibberellins **(B) Ethene** (C) Abscisic acid (D) Cytokinins

44 Part of brain which controls breathing , heart rate and swallowing is:
(A) Cerebellum **(B) Medulla** (C) Mid brain (D) Cerebrum

45 Which one is not a part of limbic system?
(A) Amygdala (B) Hypothalamus **(C) Thalamus** (D) Hippocampus

46 During pregnancy , luterotropic hormone LTH and placental lactogen stimulate Mammary development in preparation for:
(A) Gestation (B) Miscarriage (C) After birth **(D) Lactation**

47 Some times parthenocarpy is artificially induced for commercial purpose as in tomato , peppers by adding:
(A) Ethene (B) Cytokinins (C) Gibberellins **(D) Auxins**

48 The neuron net of Hydra lacks:
(A) Direction of impulse flow (B) Neurons

(C) Connections (D) Dendrites

49 Diffused nervous system is found in:

(A) Poriferans **(B) Cnidarians** (C) Annelids (D) Platyhelminthes

50 Thyoid glands produce:

(A) T3, T4 and calcitonin (B) Tri-iodothyronine

(C) Tetraiodothyronine (D) Calcitonin

51 What is the number of cranial and spinal nerves in man:

(A) None of these **(B) 24 and 62** (C) Both D & B (D) 12 and 31

52 The one which is not related to other is:

(A) Cretinism (B) Exophthalmic goitre

(C) Myxocedema **(D) Diabetes mellitus**

Fill in the blanks.

1. Neurotransmitter molecules bind to the receptors on the ……. membrane at synapse.
2. Excess of ……. hormone is secreted in Addison's disease.
3. Operent learning has been demonstrated and studied by ……. And ……. .
4. ……. are plant hormones which delay the life of fresh leaf crops.
5. All membranes of neurons have very active ……. And ……. pumps.

Answers

1. **Postsynaptic** 2. **Melanophore stimulating**
3. **Thorndike , B.F. Skinner** 4. **Auxins**
5. **Sodium , Potassium**

Chapter : 17	Coordination and Control

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1. **Define coordination?**

Ans: All the aspects such as organization, regulation, integration and control in the constitution and work of the complex multicellular animals come under the fold of the term coordination.

2. **Why Chlorosis arises?**

Ans: Chlorosis usually arises from short supplies of mineral nutrients in the soil.

3. **In higher animals how coordination is brought about?**

Ans: It is brought about in higher animals by nervous coordination and chemical coordination.

4. **What are photoreceptors?**

Ans: Photoreceptors are electromagnetic receptors. These respond to stimuli of light for example in eyes, rods and cones.

5. **What is Neuroglia?**

Ans: The chief structural and functional unit of the nervous system is neurons, but there are other cells, in higher animals, and in humans **called** Neuroglia, which make up as much as half of the nervous system.

6. **What are cranial nerves?**

Ans: In human, there are 12 pairs of nerves, which arises from the brain, or lead to the brain these are **called** cerebral or cranial nerves.

7. **What is the effect of nicotine on coordination?**

Ans: Nicotine affects postsynaptic membrane in CNS and PNS. It minimizes the action of acetylcholine on nicotine receptors, so it is stimulant of nerve impulse. It increases the heart beat rate, blood pressure and digestive tract mobility, Nicotine may induce vomiting and diarrhea and even may cause water retention relation by kidneys.

8. **What ethologists think about animal's response?**

Ans: The early ethologists (Uexkull 1935, Lorenz 1935) thought that animals sometimes respond instinctively to specific though often complex stimuli such stimuli came to be called "sign stimuli".

9. **Define learning behavior?**

Ans: Thrope defined learning as that process which manifests itself by adaptive changes in individual behavior as a result of experience.

10. **Who has demonstrated and studied operant conditioning or conditioned reflex type II?**

Ans: This type of learning has been demonstrated and studied by Thorndike and B.F Skinner a Harvard psychologist.

11. **How neuron fibres and cell bodies can be exited?**

Ans: The neuron fibres and cell bodies can be excited by small electric shocks, mechanical, **chemical**, light and temperature stimuli.

12. **How plants respond to the stimuli?**

Ans: Plants respond by.

- ❖ Regulating their growth and development in appropriate ways.
- ❖ Controlling their body functions through plant hormones or growth hormones.

13. **Which type of plants are said to etiolated?**

Ans: If plants are grown without light, they become extremely long and they fail to form chlorophyll. They are said to be etiolated.

14. **What is Chlorosis?**

Ans: Many plants take on a yellowish hue when they fails to form chlorophyll in sufficient amounts. This condition is **known** as Chlorosis.

15. **What are Calluses?**

Ans: If plants are wounded, they often develop masses of amorphous (formless or shapeless) material with very poor differentiation **known** as calluses.

16. **What are galls?**

Ans: Galls are growths on a plant that are induced by parasites and usually, highly organized growth galls are tumors induced by the bacteria. They are usually less differentiated the other types of galls.

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17. **Define biorhythms or biological rhythms?**

Ans: In living things the behavioral activities occur at regulars' intervals which are **called** biorhythms or biological rhythms.

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18. **What are diurnal rhythms?**

Ans: Biorhythms may occur showing periodicity of about 24-hours. These are called circadian which means about one day, so they are also called diurnal rhythms.

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19. **What is Circaannual?**

Ans: If the biorhythms are less than or about 365 days, these rhythms in activity are **called** Circaannual.

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20. **What are plant hormones?**

Ans: The special substances produced by the plants which influence the growth and plants responses to various stimuli are called plant hormones.

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21. **Name different plant hormones?**

Ans: Auxins, giberrellins, cytokinins, abscisic acid and ethane.

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22. **Give two functions of giberrellins?**

Ans: Functions of giberrellins.

- ❖ Promote cell enlargement in presence of Auxins.
- ❖ Promote leaf growth and fruit growth.

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23. **What is use of GA3?**

Ans: GA3 is used in the brewing industry to stimulate amylase production in barely and this promotes malting.

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24. **Give two functions of Cytokinins?**

Ans: **Functions of cytokinins:**

- ❖ Promote stern growth by cell division in apical meristerm and cambium.
- ❖ Promote bud initiation.

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25. **What is commercial application?**

Ans: Cytokinins delay the aging of fresh leaf crops, such as cabbage and lettuce (delay of senescence) as well as keeping flowers fresh. They can also be used to break dormancy of some seeds.

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26. **Give two functions of Abscisic acid?**

Ans: **Functions of Abscisic acid:**

- ❖ Inhibits stern growth notably during physiological stress, e.g., drought, water logging.
- ❖ Promotes bud dormancy.

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27. **What is commercial application of abscisic acid?**

Ans: Abscisic acid can be sprayed on tree crops to regulate fruit drops the end of the season. This removes the need for picking over a large time-span.

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28. **What is commercial application of ethane?**

Ans: Ethane induces flowering in pineapple. It stimulates ripening of tomatoes and citrus fruit. It stimulates flow of latex in rubber plants.

29. **What is nervous coordination?**

Ans: This type of coordination involves specialized cells or neurons linked together directly or via the central nervous system, to form network that connect the cell or organs which receive stimuli (receptors) and those which carry out actions or responses (effectors).

30. **What are elements of nervous system?**

Ans: The elements of nervous system which help in co-ordination are:

- ❖ Receptors.
- ❖ Neurons.
- ❖ Effectors.

31. **What are Receptors?**

Ans: Receptors detect changes in the external and internal environment of the animal. The receptor may be a cell, or neuron ending or a receptor organ.

32. **What are chemoreceptors?**

Ans: The receptors which are stimulated by the chemicals are **called** chemoreceptors. These are for smell, taste and for blood CO_2 oxygen, blood glucose, amino acids and fatty acids.

33. **What are Mechanoreceptors?**

Ans: The receptors which detect stimuli of touch, pressure and hearing and equilibrium are **called** mechanoreceptors.

34. **What are thermo-receptors?**

Ans: The receptors which respond to cold and warmth are **called** thermo-receptors.

35. **What are nociceptors?**

Ans: These are undifferentiated nerve endings which produce the sensation of pain.

36. **What is modality of sensation?**

Ans: Each type of principle type of sensation that we can experience e.g., pain, touch, sight, sound and so forth is **called** a modality of sensation.

37. **What are Meissner's corpuscles?**

Ans: These are encapsulated nerve endings which is lie in papillae which extend into the ridges of the fingertips. The corpuscle consists of spiral and much twisted endings, each of which ends in a knob. These are touch receptors.

38. **What are Pacinian corpuscles?**

Ans: Pacinian corpuscles are situated quite deep in the body. These are encapsulated neuron endings and receive deep pressure stimulus. Those located in the limbs probably form a basis for vibration sense.

39. **What is Dendron or are dendrites?**

Ans: The cytoplasmic process which carries impulse towards cell body is **called Dendron**, if it is a single fibre but if smaller fibres they are **called** dendrites.

40. **What are Axons?**

Ans: The processes conducting impulses away from cell body are termed axons. These may be more than a meter long in some neurons.

41. **What are Nissl's granules?**

Ans: Nissl's granules are groups of ribosomes associated with rough endoplasmic reticulum and protein synthesis and Golgi apparatus and are present in the cell body.

42. **What is Cell body or soma?**

Ans: The cell body or soma is the main nutritional part of the nerve cell and is conserved with the biosynthesis of materials necessary for the growth and maintenance of the neuron.

43. **Name different types of neurons?**

Ans: There are three functional types of neurons in mammals i.e., the sensory, associative (intermediate / relay) and motor neurons.

44. **What are Sensory Neurons?**

Ans: These are the neurons which carry nerve impulses from receptors to brain or spinal cord. They have a single, elongated Dendron and shorter axon.

45. **What are Motor Neurons?**

Ans: These are the neurons which carry nerve impulses from brain and spinal cord to the effectors in all parts of the body. They have a long axon and number of small dendrites.

46. **What are Associative Neurons?**

Ans: These are the neurons which occur exclusively in the spinal cord and brain. They serve as intermediate links between numerous sensory and motor neurons.

47. **What are Effectors?**

Ans: These are the structures which respond when they are stimulated by impulse coming via motor neuron. The principal effectors are glands, which respond by secreting; and muscles which respond by contracting.

48. **What is reflex arc?**

Ans: Reflex arc is the path way of passage of impulse during a reflex action. Reflex action is a type of involuntary action. The direction of stimulus is form receptors to sensory neurons to associative neuron and then through motor neuron to the effectors.

49. **Define nerve impulse.**

Ans: Nerve impulse is a wave of electrochemical changes, which travel along the length of the neuron involving chemical reactions and movement of ions across the cell-membrane.

50. **Define electrical potential and membrane potential?**

Ans: Electrical potential is a measure of the capacity to do electrical work. The electrical potential that exists, across a cell membrane is **known** as membrane potential.

51. **What is resting membrane potential?**

Ans: A typical neuron at rest is more positive electrically outside than inside the cell membrane. This net difference in characteristics between the inner and outer surface of a non-conducing neuron is **called** the resting membrane potential.

52. **What is active membrane potential?**

Ans: After initiation of nerve impulse the resting membrane potential disappears for a brief instant and is replaced by a new potential called active membrane potential which is in the form of impulse.

53. **What is salutatory impulse?**

Ans: It may be added that in myelinated neurons the impulse jumps from node to node (node or Ranvier). This is **called** salutatory impulse.

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54. **What is synapse?**

Ans: There is no cytoplasmic connection between the two neurons and microscopic gaps are left between them .Each of these contact points is known as synapse.

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55. **How does nerve impulse pass from one neuron to other through the synapse?**

Ans: A nerve impulse is passed from one neuron to the other through the synapse with the help of chemical messenger, called neurotransmitters.

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56. **What are neurotransmitters? Give their various types?**

Ans: Neurotransmitters are chemicals which are released at the axon ending of the neurons, at synapse. Acetylcholine, adrenaline, nor epinephrine, serotonin and dopamine are some neurotransmitters.

Both bones and cartilage are types of rigid connective tissue. Both consist of living cells embedded in the matrix of protein called collagen.

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57. **What is Acetylcholine?**

Ans: Acetylcholine is the main neurotransmitter for synapses that lie outside the central nervous system.

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58. **What are different designs of nervous systems in the animal kingdom?**

Ans: **Designs of nervous system in animal kingdom:**

- **Diffused nervous system.** It is found in Cnidarians (Hydra, jelly fish and their relatives).
- **Centralized nervous system.** It is found to varying degrees in more complex organisms, from Platyhelminthes to choradates including humans.

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59. **What are the main parts of nervous system of man?**

Ans: **Main parts of nervous system of man:**

- Central Nervous System.
- Peripheral Nervous System.

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60. **Name the two parts of central nervous system?**

Ans: **Parts of Central Nervous System:**

- Brain.
- Spinal Cord.

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61 **What is Cranium?**

Ans: Cranium is part of skull which protects the brain and neural arches of vertebrae.

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62. **What are Meninges?**

Ans: Beneath the cranium, the brain and spinal cord are protected by triple layer of Meninges.

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63. **What is Cerebrospinal fluid (CSF)?**

Ans: Between the layers of Meninges, the cerebrospinal fluid (CSF), is present which bathes the neurons of brain and spinal cord and cushions against the bumps and jolts.

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64. **Name different parts of brain?**

Ans: The brain can be divided into forebrain, mid brain and hind brain.

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65. **Name various parts of forebrain?**

Ans: **Forebrain is divided into three functional parts:**

- ❖ The thalamus.
- ❖ The limbic system.
- ❖ The cerebrum.

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66. **What is the function of Thalamus?**

Ans: Thalamus carries sensory information to the limbic system and cerebrum. The information includes sensory input from auditory and visual pathways from the skin and from within the body.

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67. **How does limbic system work?**

Ans: Limbic system work together to produce our most basic and primitive emotions, drives, the behaviors, including fear, rage, tranquility (calmness, peace of mind), hunger, thirst, pleasure and sexual responses.

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68. **What are various parts of limbic system?**

Ans: The limbic system consists of hypothalamus, the amygdala, and hippocampus, as well as nearby regions of cerebrum.

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69. **What is role of Hypothalamus?**

Ans: The hypothalamus acts as a major co-ordinating centre controlling body temperature, hunger, the menstrual cycle, water balance and the sleep-wake cycle

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70. **What is role of Amygdala?**

Ans: In the amygdala, the cluster of neurons produces sensation of pleasure, punishment or sexual arousal when stimulated. It is also involved in the feelings of fear and rage.

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71. **What is the function of Hippocampus?**

Ans: Hippocampus plays an important role in the formation of long term memory, and thus is required for learning.

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72. **What are cerebral hemispheres?**

Ans: Cerebrum is the largest part of the brain and is divided into two halves, called cerebral hemispheres. The left cerebral hemisphere controls the right side of the body, and right cerebral hemisphere controls the left side of the body.

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73. **What is corpus callosum?**

Ans: The two cerebral hemispheres communicated with each other by means of a large band of axons, **called** corpus callosum.

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74. **What is cerebral cortex?**

Ans: It is the outer region of the cerebrum. It forms folds **called** convolutions, which greatly increase its surface area.

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75. **What is reticular formation?**

Ans: Midbrain contains reticular formation, which is a relay centre connecting hindbrain with the forebrain. It is very important in screening the input information, before they reach higher brain centers.

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76. **Name different parts of Hindbrain?**

Ans: Hindbrain includes the medulla, pons and cerebellum.

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77. **What is the function of Medulla?**

Ans: Medulla controls several automatic functions, such as breathing, heart rate, blood pressure and swallowing.

78. **What is the role of Pons?**

Ans: Certain neurons in pons, located above the medulla, appear to influence transitions between sleep and wakefulness, and the rate and pattern of breathing.

79. **What is the role of cerebellum?**

Ans: The cerebellum is important in co-ordinating movements of the body. The cerebellum guides, smooth and accurate motions and body position. The cerebellum is also involved in the learning and memory storage of behaviors.

80. **What is spinal cord?**

Ans: Medulla oblongata narrows down into an oval shaped hollow cylinder, the spinal cord, running through the vertebral column. It is made up of a very large number of neurons, the cell-fibres and bodies of which are arranged in a definite pattern.

81. **What is grey matter?**

Ans: In cross section, the spinal cord shows an inner butterfly shaped grey matter, containing a central canal. It consists of cell bodies and non-myelinated nerve fibres or tracts.

82. **What is white matter?**

Ans: The outer portion of spinal cord is composed of white matter. It's made up of myelinated nerve fibres or tracts.

83. **What is the composition of peripheral nervous system (PNS)?**

Ans: It comprises sensory neurons and motor neurons, which may form ganglia and the nerves.

84. **Ganglia are the concentrations of cell bodies of neurons?**

Ans: Ganglia are the concentrations of cell bodies of neurons.

85. **What are Nerves?**

Ans: The nerves are the bundles of axons or dendrites, bounded by connective tissue. They may be sensory, mixed or motor nerves depending upon the direction of impulse they conduct.

86. **What is chemical coordination?**

Ans: The coordination brought about by the chemicals is **called** Chemical coordination.

87. **What are spinal nerves?**

Ans: From the spinal cord 31 pairs of spinal nerves arise or lead to spinal cord. All these nerves are mixed i.e., having fibres sensory and motor neurons.

88. **What is Somatic nervous system?**

Ans: Motor neurons form somatic nervous system, which controls voluntary movements, which are under the conscious control of the boyd, involving skeletal muscles.

89. **Name different parts of autonomic nervous system?**

Ans: The autonomic nervous system is further divided into sympathetic nervous system and parasympathetic nervous system.

90. **What is the role of Sympathetic nervous system?**

Ans: This system is important during emergency situations and is associated with **"fight or flight".** This system accelerates the heart beat and dilates and inhabits the digestive tract.

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91. **What is Parasympathetic nervous system?**

Ans: A few cranial nerves including the vagus nerve together with fibres from the bottom portion of spinal cord form the parasympathetic nervous system. It promotes all the internal responses **i.e.**, contracts of the pupils, promotes digestion of food, retards heartbeat.

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92. **Name a few nervous disorders.**

Ans: Parkinson's disease, Addison's disease, Epilepsy and Alzheimer's disease.

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93. **What is Parkinson's disease (paralysis agitans)?**

Ans: It is a nervous disorder, characterized by involuntary tremors, diminishing motor power and rigidity. The mental faculties are not affected. The disease is believed to be caused by cell death in a brain area that produces dopamine.

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94. **What is Epilepsy?**

Ans: It is one of the convulsive disorders of nerves which are characterized by abrupt transient symptoms of motor, sensory psychic or autonomic nature, frequently associated with changes in consciousness. The onset of epilepsy is usually before age 30.

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95. **What is Alzheimer's disease?**

Ans: Alzheimer's disease was first described by Alois Alzheimer in 1907. It characterized by the decline in brain function. It tends to run in families. There is also evidence that high levels of aluminum may contribute to the onset of disease.

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96. **What are hormones?**

Ans: The endocrine or ductless glands are with a few exceptions, discrete groups of cells, which make specific chemicals compounds called hormones Endocrine system consists of some 20 endocrine glands / tissues lying in different parts of the body.

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97. **Give two characteristics of Hormones?**

Ans: **Characteristics of Hormones:**

- ❖ They are poured directly into the blood stream.
- ❖ They are transported to respective target tissues by the blood.

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98. **What is Hypothalamus?**

Ans: It is parts of the fore brain. It is here that many of the sensory stimuli of nervous system are converted into hormonal responses.

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99. **What is Pituitary Gland?**

Ans: In man the pituitary gland or hypophysis cerebri is an ovoid structure about 0.5 gm in the adult and is connected to brain through a short stalk (the infundibulum). It has three lobes viz, anterior, median and posterior.

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100. **Why pituitary gland is called Master gland?**

Ans: The anterior lobe of pituitary is often referred toas the master gland, because in addition to producing primary hormones it produces the trophic hormones which control the secretion of hormones in many of the other endocrine glands.

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101. **Name different hormones released by anterior lobe of pituitary gland?**

Ans: **Anterior lobe of pituitary secretes the following hormones:**

- ❖ Somtotrophin.
- ❖ Thyroid stimulating hormone.
- ❖ Adenocorticotrophic hormone.
- ❖ Gonadotrophic hormones.

Gonadotrophic hormones.

- ❖ FSH and LH/ICSH.
- ❖ Prolactin.

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102. **Name the hormones released by median lobe of pituitary gland?**

Ans: **Median lobe secretes the following hormones:**

- ❖ Melanophore stimulating hormone.

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103. **Name the hormones released by posterior lobe of pituitary gland?**

Ans: **Hormones released by Posterior lobe of pituitary gland:**

- ❖ Anti-diuretic hormone (ADH: also called vasorpressin).
- ❖ Oxytocin.

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104. **Give one function of thyroxine and tri-iodothyronine?**

Ans: Thyroxine and tri-iodothyronine act on the basal metabolic rate by stimulating the breakdown of glucose and release of heat and generation of ATP.

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105. **What is the effect of over-secretion of thyroxine?**

Ans: Excess thyroxine produced a condition **called** Graves' disease, with exophthalmic goiter and increase in the basla metabolic rate. This can lead to cardiac failure if prolonged.

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106. **What is cretinism?**

Ans: In infants, the deficiency of thyroxine causes a dwarfed condition **called** cretinism. The individual are small, have coarse scanty hair, thick yellowish scaly skin and mentally retarded.

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107. **What is myxedema?**

Ans: Deficiency of thyroxine in adults, perhaps due to iodine shortage in diet, produces a swelling of the neck (goiter) and may lead to lying down of excess fat and weight is increased. The condition is known as myxedema.

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108. **What is calcitonin?**

Ans: It is hormone released by thyroid gland in response to high Ca^{2+} concentration in the blood. Excess or deficiency leads to a disturbance of calcium metabolism with its associated effects on nerve, skeleton, muscle, blood etc.

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109. **What is action of glucagon?**

Ans: Glucagon causes an increase in blood glucose levels. It does this mainly by promoting breakdown of glycogen to glucose in the liver and muscles. It also increases the rate of breakdown of fats.

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110. **Name the hormones released by adrenal gland?.**

Ans: The medulla produces the hormones adrenaline and nor-adrenaline. The adrenal cortex secretes aldosterone and androgenic hormones.

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111. **What is the function of aldosterone?**

Ans: Aldosterone is a mineralcortioid which conserves the level of Na+ ions in the body by

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preventing their loss from the kidney tubules.

112. **What is the function of Cortisol?**

Ans: Cortisol brings about an increase in blood glucose level mainly by its production from protein and by antagonizing the action of insulin.

113. **What is the function of Corticosterone?**

Ans: Corticosterone is both a glucorticoid and mineralocorticioid, it increases blood glucose levels and regulates mineral ion balance.

114. **What is Cushing's disease?**

Ans: In chushing's disease too much cortical hormone is produced. Symptoms are an excessive protein breakdown resulting muscular and bone weakness. The high blood sugar disturbs the metabolism as in diabetes.

115. **What are Androgens?**

Ans: Androgens cause development of the secondary male characters. Very small amounts of androgens are secreted in both male and female adrenal glands.

116. **What is gastrin?**

Ans: Gastrin is the hormones produced by mucosa of the pyloric region of the stomach. It stimulates the secretin of gastric juice; It is produced under the influence of protein food in the stomach after it is partially digested.

117. **What is Secretin?**

Ans: It is produced from the duodenum when acid food touches its lining. It affects the pancreas to produce and release pancreatic juice and also affects the rate of bile production, in the liver.

118. **Where oestrognes and progesterone are produced?**

Ans: Oestrognes are secreted by ripening follicles whose development has been initiated by FSH from the pituitary.

Progesterone:

Progesterone is produced by the ruptured follicle in response to LH from the pituitary.