Control and Co-ordination

EXERCISE

Multiple Choice Questions

1. Name the hormone which is commonly termed 'birth hormone' and 'milk ejecting hormone'.
(a) oxytocin
(b) vasopressin
(c) thyroxine
(d) luteinizing hormone.

2. The directional movement or orientation of a plant part in response to light is termed
(a) chemotropism (b) phototropism
(c) thigmotaxis (d) photoperiodism.

3. Name the plant hormone which is termed growth inhibitor.
(a) auxin (b) gibberellin
(c) abscisic acid (d) ethylene.

4. Seismonastic movements are shown by which plant?
(a) Indian telegraph plant
(b) 'touch-me-not' plant
(c) cucumber plant
(d) rose plant.

5. Which plant hormone plays a role in apical dominance in plants?
(a) auxin (b) abscisic acid
(c) ethylene (d) gibberellin.

6. Bolting in some plants is induced by artificial treatment of which plant hormone?
(a) auxin (b) ethylene
(c) gibberellin (d) abscisic acid.

7. Name the organism which lacks nervous system.
(a) grasshopper (b) Hydra
(c) human being (d) plant.

8. Name the part of nervous system which is generally involved in reflex actions.
(a) brain (b) ganglion
(c) pons (d) spinal cord.

9. In plants, growth occurs by
(a) permanent tissue
(b) meristematic tissue
(c) ground substance
(d) bark.

10. Cerebral hemispheres are the centres of
(a) posture and equilibrium
(b) reflex actions
(c) thinking and memory
(d) all of these.

11. Phytochrome pigment is present in
(a) stems (b) leaves
(c) fruits (d) flowers.

12. Which of the following is not a reflex action?
(a) coughing (b) blinking of eyes
(c) knee-jerk (d) weeping.

13. Medulla oblongata of hind brain controls
(a) rate of heat beat (b) equilibrium
(c) thinking (d) vision.

14. Name the gland having both exocrine and endocrine regions.
(a) thyroid (b) pancreas
(c) adrenal gland (d) pituitary.

15. Auxins inhibit the growth of
(a) apical buds
(b) lateral axillary buds
(c) parthenocarpic development of fruits
(d) roots of cuttings.

16. Gibberellins were first isolated from
(a) algae
(b) bacteria
(c) roots of higher plants
(d) fungus.

17. Cut leaves remain green for longer time when dipped in
(a) cytokinins (b) ethylene
(c) gibberellin (d) auxins.

18. Ethylene is a
(a) gaseous hormone (b) gaseous enzyme
(c) liquid hormone (d) solid hormone.

19. Production of seedless fruits is referred to as
(a) parthenocarpy (b) parthenogenesis
(c) endocarpy (d) exocarpy.

20. Phytohormone which is a growth inhibitor is
(a) abscisic acid (b) gibberellin
(c) auxin (d) IAA.

21. Which statement is not true about thyroxine?
(a) Iron is essential for the synthesis of thyroxine.
(b) It regulates carbohydrates, protein and fat metabolism in the body.
(c) Thyroid gland requires iodine to synthesize thyroxine.
(d) Thyroxine is also called thyroid hormone.

22. _____is a naturally occurring cytokinin.
(a) zeatin (b) kinin
(c) kinetic (d) ribotin.

23. Cell elongation in plants is caused by
(a) abscisic acid (b) gibberellins
(c) florigens (d) ethylene.

24. Apical dominance in higher plants is due to
(a) balance between auxins and cytokinins
(b) enzyme activity
(c) supply of carbohydrates
(d) photoperiodism.

25. Which of the following is not a ductless gland?
(a) adrenal (b) thyroid
(c) pituitary (d) liver.

26. Which of the following effects of auxins on plants is the basis for commercial application?
(a) Callus formation, (b) Curvature of stem.
(c) Induction of root formation in stem cuttings.
(d) All of these.

27. Apical dominance means
(a) suppression of growth of apical buds due to presence of axillary buds
(b) suppression of growth of axillary buds due to presence of apical bud
(c) stimulation of apical bud growth by removal of axillary buds
(d) inhibition of growth of axillary buds by removal of apical bud.

28. Bending of stem towards the sunlight in plants is due to
(a) unequal distribution of auxins
(b) uniform occurrence of gibberellins
(c) inhibition of cytokinin synthesis
(d) unequal distribution of cytokinins and gibberellins.

29. Leaf fall can be induced by
(a) florigens (b) auxins
(c) cytokinins (d) abscisic acid.

30. Which of the following is a cytokinin?
(a) leucine (b) phytochrome
(c) ethylene (d) zeatin.

31. Cytokinins are known to
(a) help in retention of chlorophyll
(b) promote formation of abscission layer
(c) inhibit cytoplasmic movement
(d) influence water transport.

32. The effect of duration of light period on flowering is called
(a) phototropism (b) photoperiodism
(c) photorespiration (d) photo oxidation.

33. Growth of the plant or plant part towards the earth is called
(a) hydrotropism (b) geotropism
(c) phototropism (d) thigmotropism.

34. Opening and closing of flowers represent a kind of
(a) nastic movement
(b) geotropism movement
(c) nutation
(d) autonomic movement.

35. The layer which separates leaves and fruits from plants is called as
(a) abscission (b) germinal
(c) hypogeal (d) epigeal.

36. Cretinism in young children is due to lack of
(a) vitamin D (b) growth hormone
(c) thyroid hormones (d) insulin.

37. The main function of parathyroid in body is to
(a) built teeth
(b) form calcium compounds
(c) maintain proper amount of calcium and phosphorus in the blood
(d) build bones.

38. The fight or flight response is developed by hormones of the
(a) hypothalamus (b) adrenal medulla
(c) adrenal cortex (d) pancreas.

39. Which part of human brain is more developed in comparison of others?
(a) cerebrum (b) cerebellum
(c) optic lobes (d) medulla oblongata.

40. Pons varolii found on the ventral side of medulla oblongata connects two
(a) cerebral hemispheres
(b) lateral lobes of cerebellum
(c) optic lobes (d) olfactory lobes,

41. Two systems which exert opposite influence on the same organs or set of organs are
(a) endocrine and exocrine gland systems
(b) muscular and nervous systems
(c) endocrine and nervous systems
(d) sympathetic and parasympathetic systems.

42. The chemical transmitter of nerve impulses is
(a) cholinesterase (b) hexokinase
(c) acetylcholine (d) acetyl co-A.

43. Parasympathedc nervous system helps in
(a) dilation of pupils
(b) increase in blood pressure
(c) increase in the rate of heart beat
(d) contraction of smooth muscles of alimentary canal.

44. Due to stimulation of sympathetic nervous system
(a) tear secretion increases
(b) saliva secretion decreases
(c) sweat secretion increases
(d) all of these.

45. Cakitonin is secreted by _____ gland.
(a) parathyroid (b) thyroid
(c) adrenal (d) pancreas.

46. Pregnancy hormone is
(a) oxytocin (b) vasopressin
(c) progesterone (d) testosterone.

47. Islets of Langerhans secrete insulin and
(a) glucagon (b) epinephrine
(c) lipase (d) none of these.

48. Which of the following is not an involuntary action?
(a) vomiting (b) salivation
(c) heart beat (d) chewing.

49. The β – cells of pancreas secrete
(a) insulin (b) thyroxine
(c) glucagon (d) none of these.

50. The longest cell in human body is
(a) nerve cell (b) liver cell
(c) reproductive cell (d) muscle fibre.

51. FSH is secreted by
(a) posterior lobe of pituitary gland
(b) middle lobe of pituitary gland
(c) anterior lobe of pituitary gland
(d) none of the above.

52. Excess secretion of parathormone results in
(a) osteoporosis (b) acromegaly
(c) goitre (d) none.

53. The hormone that helps in the reabsorption of sodium and water in the body is
(a) testosterone (b) progesterone
(c) aldosterone (d) all of these.

54. Master gland in the body is
(a) thyroid (b) adrenal
(c) islets of Langerhans (d) pituitary.

55. The hormone that helps in the implantation of zygote is
(a) testosterone (b) insulin
(c) prolactin (d) progesterone.

56. Cortisol is secreted by
(a) medulla of pituitary (b) medulla of adrenal
(c) cortex of adrenal (d) cortex of thyroid.

57. Over secretion of growth hormone leads to
(a) gigantism (b) dwarfism
(c) acromegaly (d) both (a) & (c).

58. Which of the following protects the brain from shocks?
(a) pons
(b) cerebrospinal fluid
(c) duramater
(d) arachnoid membrane.

59. Gustatory receptors detects
(a) sound (b) smell
(c) taste (d) sight.

60. Which one of the following does not secrete any hormone?
(a) thyroid (b) ovary
(c) testes (d) spleen.

61. Roots are
(a) positively geotropic
(b) negatively geotropie
(c) positively phototropic
(d) none of these.

62. Stem is
(a) positively geotropic
(b) negatively phototropic
(c) negatively geotropic
(d) none of these.

63. Response of plant roots towards water is called
(a) chemotropism (b) phototropism
(c) hydrotropism (d) geotropism.

64. Plants cannot think because they do not have
(a) nervous system
(b) digestive system
(c) circulatory system
(d) excretory system.

65. Any change in the environment to which an organism responds is called
(a) response (b) stimulus
(c) tropism (d) tonocity.

66. Cavities of brain are called
(a) auricles (b) ventricles
(c) coelom (d) lumen.

67. Breathing is controlled by which part of the brain?
(a) medulla oblongata
(b) hypothalamus
(c) lungs
(d) cerebrum.

68. Which of the following are associated with protein synthesis?
(a) axon (b) neurofibrils
(c) dendrons (d) Nissl's granules.

69. Which part of the brain regulates the body temperature?
(a) hypothalamus (b) thalami
(c) pituitary (d) medulla oblongata.

70. Broca's area is concerned with
(a) smell
(b) learning and reasoning
(c) vision
(d) speech.

71. Primary visual area lies in
(a) frontal lobe (b) parietal lobe
(c) occipital lobe (d) temporal lobe.

72. Outermost meningeal membrane is
(a) dura mater (b) pia mater
(c) arachnoid membrane
(d) myelin sheath.

73. Which of the following is a stress hormone?
(a) auxin (b) gibberellin
(c) cytokinin (d) ABA.

74. Which of the following increases the intermodal length in genetically dwarf plants?
(a) auxin (b) gibberellin
(c) cytokinin (d) ABA.

75. The term hormone was coined by
(a) Starling (b) Went
(c) Yabuta (d) Wilson.

76. Diabetes mellitus occurs due to deficiency of which hormone?
(a) ADH (b) glucagon
(c) insulin (d) thyroxine.

77. Ductless glands are known as
(a) exocrine glands (b) endocrine glands
(c) heterocrine glands (d) alveolar glands.

78. By which gland the somatostatin is secreted?
(a) pineal (b) hypothalamus
(c) thyroid (d) pituitary.

79. The gland which degenerates with advancement of age and disappears by middle age is
(a) thyroid (b) pituitary
(c) thymus (d) prostate.

80. Which of the following statements is correct about receptors?
(a) Gustatory receptors detect taste while olfactory receptors detect smell.
(b) Both gustatory and olfactory receptors detect smell.
(c) Gustatory receptors detect smell and olfactory receptors detect taste.
(d) Olfactory receptors detect taste and gustatory receptors smell.

81. Electrical impulse travels in a neuron from
(a) dendrite $\rightarrow$ axon $\rightarrow$ axonal end $\rightarrow$ all body
(b) cell body $\rightarrow$ dendrite $\rightarrow$ axon $\rightarrow$ axonal end
(c) dendrite $\rightarrow$ cell body $\rightarrow$ axon $\rightarrow$ axonal end
(d) axonal end $\rightarrow$ axon $\rightarrow$ cell body $\rightarrow$ dendrite.

82. In a synapse, chemical signal is transmitted from
(a) dendrite end of one neuron to axonal end of another neuron.
(b) axon to all body of the same neuron.
(c) cell body to axonal end of the same neuron.
(d) axonal end of one neuron to dendritic end of another neuron.

83. In a neuron conversion of electrical signal to a chemical signal occurs at in
(a) cell body (b) axonal end
(c) dendritic end (d) axon.

84. Which is the correct sequence of the components of a reflex arc?
(a) receptors $\rightarrow$ muscles $\rightarrow$ sensory neuron $\rightarrow$ motor neuron $\rightarrow$ spinal cord
(b) receptors $\rightarrow$ motor neuron $\rightarrow$ spinal cord $\rightarrow$ sensory neuron $\rightarrow$ muscles
(c) receptors $\rightarrow$ spinal cord $\rightarrow$ sensory neuron $\rightarrow$ motor neuron $\rightarrow$ muscles

(d) receptors $\rightarrow$ sensory neuron $\rightarrow$ spinal cord $\rightarrow$ motor neuron $\rightarrow$ muscles.

85. Which of the following statements are true?
(i) Sudden reaction in response to stimulus is called reflex action.
(ii) Sensory neurons carry signals from spinal cord to muscles.
(iii) Motor neurons carry signals from receptors to spinal cord.
(iv) The path through which signals are transmitted from a receptor to a muscle or a gland is called reflex arc.
(a) (i) and (ii) (b) (i) and (iii)
(c) (i) and (iv) (d) (i), (ii) and (iii).

86. Which of the following statements are true about the brain?
(i) The main thinking part of brain is hind brain.
(ii) Centers of hearing, smell, memory, sight, etc. are located in for brain.
(iii) Involuntary actions like salivation, vomiting, blood pressure are controlled by the medulla in the hind brain.
(iv) Cerebellum does not control posture and balance of the body.
(a) (i) and (ii)
(b) (i), (ii) and (iii)
(c) (ii) and (iii)
(d) (iii) and (iv).

87. Posture and balance of the body is controlled by
(a) cerebrum (b) cerebellum
(c) medulla (d) pons,

88. Spinal cord originates from
(a) cerebrum (b) medulla
(c) pons (d) cerebellum.

89. Select the incorrect statement about insulin.
(a) It is produced from pancreas.
(b) It regulates growth and development of the body.
(c) It regulates blood sugar level.
(d) Insufficient secretion of insulin will cause diabetes.

90. Select the mis-matched pair.
(a) adrenaline - pituitary gland
(b) testosterone - testes
(c) estrogen - ovary
(d) thyroxine - thyroid gland.

91. The growth of tendril in pea plants is due to
(a) effect of light (b) effect of gravity
(c) rapid cell divisions in tendrillar cells that are away from the support
(d) rapid cell divisions in tendrillar cells in contact with the support

92. The substance that triggers the fall of mature leaves and fruits from plants is due to
(a) auxin (b) gibberellin
(c) abscisic acid (d) cytokinin.

93. Involuntary actions in the body are controlled by
(a) medulla in fore brain
(b) medulla in mid brain
(c) medulla in hind brain
(d) medulla in spinal cord.

94. When a person is suffering from severe cold, he or she cannot differentiate
(a) taste of an apple from that of an ice cream
(b) smell of a perfume from that of an agarbatti
(c) red light from green light
(d) a hot object from a cold object.

95. Dramatic changes of body features associated with puberty are mainly because of secretion of
(a) oestrogen from testes and testosterone from ovary
(b) estrogen from adrenal gland and testosterone from pituitary gland
(c) testosterone from testes and estrogen from ovary
(d) testosterone from thyroid gland and estrogen from pituitary gland.

96. A doctor advised a person to take an injection of insulin because
(a) his blood pressure was low
(b) his heart was beating slowly
(c) he was suffering from goitre
(d) his sugar level in blood was high.

97. The hormone which increases the fertility in males is called
(a) oestrogen (b) testosterone
(c) insulin (d) growth hormone.

98. Which of the following endocrine glands is unpaired?
(a) adrenal (b) testes
(c) pituitary (d) ovary.

99. Deficiency of vasopressin causes
(a) diabetes mellitus (b) goitre
(c) diabetes insipidus (d) myxoedema.

100. If the pituitary gland of an adult is surgically removed, which of the following endocrine glands will be less affected?
(a) adrenal cortex (b) adrenal medulla
(c) thyroid (d) gonads.

FILL IN THE BLANKS

1. Neurons that carry information to an effector are called ____ neurons.
2. The chemicals stored in synaptic vesicles are called ____.
3. The _____ of the neuron secretes the neuro-transmitter substance.
4. Touch me not shows _____ movement.
5. Temporal lobe of cerebrum is region for _____reception.
6. The functional junction between two neurons is called _____.
7. Sneezing is a _____.
8. The nervous system uses _____ to transmit messages.
9. A feedback mechanism regulates the action of the_____.
10. Central nervous system includes _____ and _____.
11. The control and coordination in plants is performed by certain chemicals called_____.
12. The movement of plant or plant part due to gravity is called _____.
13. _____ are chemical messengers secreted by endocrine glands.
14. _____ stimulates the rate of cellular oxidation and metabolism of carbohydrates, proteins and fats.
15. Animals receive external information through specialized sense organs called _____.
16. Human brain is covered by _____ part of skull.
17. Spinal cord is the extension of _____.
18. _____ nerves carry impulses from receptors to brain.
19. Spinal cord encloses a cavity the _____ that contains _____.
20. Photoperiodism is controlled by _____.

TRUE OR FALSE

1. From a functional perspective, the nervous system provides slow, long-term coordination.
2. Only the vertebrates have a nervous system.
3. The propagation of a nerve impulse is due to changes in the permeability of the nerve cell membrane that allow for a voltage difference across the membrane.
4. The central nervous system consists of the brain and spinal cord.
5. Functioning of various organs in uniformity is called coordination.
6. Thyroxine regulates the blood-sugar.
7. Brain is the structural and functional unit of nervous system.
8. Feeling hunger is a reflex action.
9. All animals have complex nervous system.
10. One-celled organisms can respond to stimuli.
11. The human brain is the largest of all animals.
12. The growth of pollen tube towards ovary shows chemotropism.
13. The nervous system is closely associated with every system in your body.
14. Klinostat is an apparatus by which effect of gravity can be studied.
15. There is only one type of neuron found in the human nervous system.
16. The plant hormone named after the bakane disease caused by fungus is gibberellin.
17. Seismonastic movements involve diurnal variation in the position of flowers and leaves in day and night.
18. The growth of pollen tube shows hydrotropism.
19. Auxin hormone is synthesized by the meristematic tissue at the tip of the stem.
20. The roots of a plant are positively geotropic while stem is negatively geotropic.

ASSERTION & REASON QUESTIONS

Directions: In each of the following questions, a statement of assertion is given and a corresponding statement of reason is given just below it. Of the four statements, given below, mark one as the correct answer
(a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion
(b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion

(c) If Assertion is true but Reason is false
(d) If both Assertion and Reason are false.

1. **Assertion:** Nerve impulses are carried from gustatory cells of taste buds to the brain.
   Reason: Taste center in brain is responsible for perceiving the taste sensation.
2. **Assertion:** Taste buds are called the sense organs for olfaction.
   Reason: Taste buds bear olfactory receptor cells which get stimulated by certain chemical substances.
3. **Assertion:** The chemicals stored in the synaptic vesicles are termed as neurotransmitters.
   Reason: Synaptic vesicles release these chemicals in the synaptic cleft.
4. **Assertion:** Brain and spinal cord has a common covering.
   Reason: Both the brain and spinal cord possess meanings.
5. **Assertion:** Cerebrospinal fluid (CSF) is present throughout the central nervous system.
   Reason: CSF has no such function.
6. **Assertion:** A person has lost most of its intelligence, memory and judgment.
   Reason: He has been operated for a tumor located in the cerebrum.
7. **Assertion:** Nerve conduction is the one way conduction.
   Reason: Nerve impulse is transmitted from dendrite terminals to axon terminals.
8. **Assertion:** Auxins are found in the growing tips of the plant.
   Reason: The concentration of auxin is highest at the tip of the root.
9. **Assertion:** Phototropism in plants is caused by auxin.
   Reason: The plant showing bending has more elongated cells on the illuminated side.
10. **Assertion:** Gibberellins, when applied to dwarf plant, increase the length of the plant.
    Reason: Gibberellins induce intermodal growth in some genetically dwarf varieties.
11. **Assertion:** Ethylene is a gaseous hormone.
    Reason: Ethylene is formed in almost all plant parts.