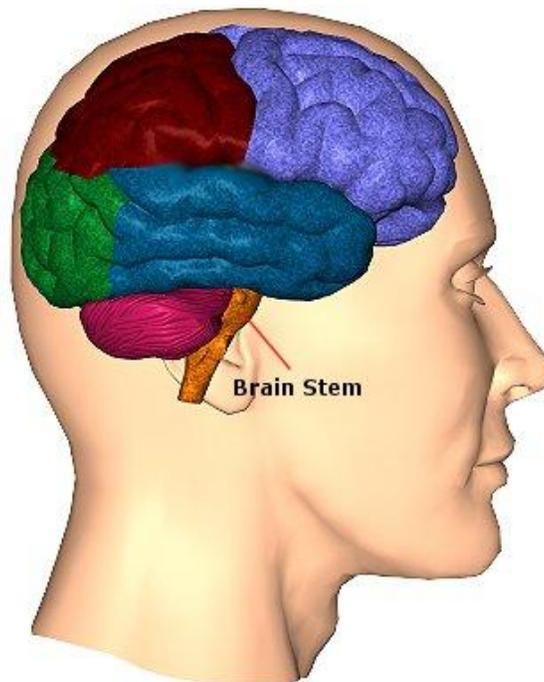


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COORDINATION & CONTROL



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THIS INCLUDE

*QUICK REVIEW
PRACTICE SHEETS
ANSWER KEYS*

PHYTOHORMONES

Hormones secreted by plants are called Phytohormones. They are responsible for chemical control of life activities

TROPISM

Movement of part of plant towards direction of stimuli is called tropism. It is of 2 types (phototropism and geo tropism)

BIOLOGICAL CLOCK

A set point developed by organisms to perform their activities in relation with time is called biological clock. Human beings, plants and animals have a biological clock and it tells each plant, human and animal when to eat, sleep and when to wake up. In addition to this, we are able to reset this clock to fit in more usefully with our everyday life.

PHOTOPERIODISM

Effect of light duration on flowering and fruiting is called photoperiodism. Plants have a wide variety of flowering strategies involving what time of year they will flower and, consequently, reproduce. In many plants, flowering is dependent on the duration of day and night; this is called photoperiodism.

HEAT SHOCK PROTEINS

Proteins produced by plants to save their natural body proteins from denaturing due to high temperature are called heat shock proteins. Since high temperature is dangerous and may denature the bio-chemicals (particularly enzymes). Plants handle this problem mainly through transpiration. In certain conditions, when temperature increases over 40 C, they produce Heat Shock Proteins which will maintain the natural status of plant proteins.

HERBIVORY

Grazing of plants (particularly grasses) by herbivorous animals is called herbivory. In green pastures, plants are exposed to open grazing. Animals may eat whole plants which may be terrible situation. In order to avoid herbivory, plants use many strategies, such as they develop thorns, and make them dis-tasteful so that animals may avoid grazing them

PHYTOALEXINS

An antibiotic (in plants) which destroys or inhibits the growth of micro-organism

AUXANOMETER

An instrument used to measure the growth of plant

GROWTH HORMONES

Hormones which stimulate the growth in plants

AUXIN

A growth hormone of plants which stimulates the elongation of stem. These hormones also kill weeds (unwanted plants. Scientifically this hormone is called Indole Acetic Acid

FRITWENT 1926

Scientist who first used word auxins

WENT 1928

Scientist who performed test to see the effect of auxins hormone on the growth of oat plant

GIBBERELLINS

An other growth hormone which was isolated from a fungus in 1938. This hormone not only promotes growth but prevents genetic and physiological dwarfism

YABUTA AND HAYASHI

Two Japanese scientists who isolated the gibberellins hormone from *Gibberellins fujikuroi* (fungi)

CYTOKININS

Type of growth hormone which helps in cell Division. It always works together with auxins hormone and delays old age (senescence)

MILLER-1954

Scientist who isolated cytokines from sperm and named it as cytokines

ZEATIN

The cytokines in maize plant is called zeatin

ABSCISSION

Formation of layer of thin walled cells at the base of leaves and fruits. It causes fall of fruits and leaves with minor jerk

PARTHINOCARPY

A condition in which plants produce seedless fruits. Banana is a parthinocarpic fruit.

BAKANAE

A fungal disease of rice seedlings (foolish seedlings) in which un-necessary elongation of plant occur without production of grains.

ABISCIS ACID

It is an acid nature hormone, which, in addition to restraining growth, causes the guard cells, of the stomata to close when the plant is losing too much water.

Ethylene

Ethylene is best known for controlling the ripening of fruits. It also contributes to the senescence (aging) of plants by promoting leaf loss (termed leaf abscission) and other changes.

Neurons

They are structural and functional cells of nervous system. Neurons, or nerve cells, carry out the functions of the nervous system by conducting nerve impulses.

NEUROGLIA:

Neuroglia refers to glial cells or glia cells of the nervous system that support the neurons (nerve cells). They form insulating sheets of tissue around the neurons (called myelin), preventing impulses from traveling between adjacent neurons. Other functions include providing nutrition and controlling the fluids surrounding the neurons.

Types of Neuron

(a) **Sensory Neuron**

It is a kind of neuron which carries messages of body to the neurons which are present in brain.

(b) Motor Neuron

It is a kind of neuron which is responsible to carry the messages of the CNS to the body.

(c) Inter Neuron

It is a type of neuron which receives the messages from sensory neuron and gives the orders to motor neuron.

Synapses

The synapse is a small gap separating neurons. Information from one neuron flows to another neuron across a **synapse**. The synapse consists of:

- a **presynaptic ending** that contains neurotransmitters, mitochondria and other cell organelles,
- a **postsynaptic ending** that contains receptor sites for neurotransmitters and,
- a **synaptic cleft** or space between the presynaptic and postsynaptic endings. It is about 20nm wide.

COORDINATION

Relationship between nervous system and different body systems

ENDOCRINE SYSTEM

A system, which consists of ductless glands. These glands produce hormones, which are released into blood. There are a great variety of hormones, which control various functions of body, such as sexual maturation of man and woman

HORMONES

Chemical substances produced by ductless glands. Different hormones perform different functions

NEURONS

Specialized cells, which make nervous system. These cells transmit messages or stimuli from one place to another

UNIPOLAR NEURON

A neuron in which the axon and dendrites arise from one pole

BIPOLAR NEURON

A neuron in which axon and dendrites arise from opposite poles

MULTIPOLAR NEURON

A neuron in which the dendrites arise from different sides of cell body

SYNAPSES

A point where two-neuron cell meet each other.

PRE-SYNAPTIC NEURON

A neuron in front of synapses

POST SYNEPTIC NEURON

A neuron at the back of the synapses

MYELINATED NEURON

A neuron in which the axon is covered with myelin sheath. Myelin sheath increases the speed of messages that pass through neuron

SENSORAY NEURON

A type of neuron which receive messages from sensitive cell receptors and send it to **CNS**

CNS

Central nervous system i.e. spinal cord and brain

INTERNEURON

A type of neuron, which makes connection between sensory, and motor neuron. These neuron cells are found in brain and spinal cord only

MOTOR NEURON

A type of neuron that receives messages from CNS and carry them to the effectors

RESTING MEMBRANE POTENTIAL

The amount of current (40-90 volts) is called resting membrane potential

REFLEX ACTION

An action of body, which is performed at once without response to stimulus **e.g.** winking of eyes.

ACITICOLINE

An enzyme, which is called neuro-transmitter. It is responsible to carry the messages of body to brain and vice versa.

DIFFUSED NERVOUS SYSTEM

A kind of nervous system which consists of nerve net of neurons. E.g. Hydra

CENTRALIZED NERVOUS YSSTEM

A kind of nervous system in bilaterally symmetrical organisms where system has anterior and posterior ends

The Central Nervous System

The brain and spinal cord are the organs of the central nervous system. Because they are so vitally important, the brain and spinal cord, located in the dorsal body cavity, are encased in bone for protection.

The Peripheral Nervous System

The organs of the peripheral nervous system are the **nerves** and **ganglia**. Nerves are bundles of nerve fibers. Ganglia are collections, or small knots, of nerve cell bodies outside the CNS.

HUMAN BRAIN AND ITS FUNCTIONS

TYPE OF BRAIN	PART OF BRAIN	FUNCTIONS
FORE BRAIN	Cerebrum	1. Centre of intelligence, 2.collects memories
	Frontal lobe	Memory, intelligence, consciousness and movement of body
	Parietal lobe	Temperature, sense of touch
	Temporal lobe	Speaking, hearing, smell
	Occipital lobe	Vision
	Thalamus	Receive messages from spinal cord and sent to upper region
	Hypothalamus	Temperature, amount of water, sleep, and appetite
MID BRAIN		Auditory and visual reflexes
HIND BRAIN	Pons viroli	Acts as bridge for relying messages between cerebellum, medulla and cerebrums
	Cerebellum	Maintains equilibrium, coordination of muscles
	Medulla oblongata	Heart beat, respiration, contraction and relaxation of blood vessels, movement of alimentary canal, secretion of glands
	Reticular formation	Advises the bran for reaction or ignorance

Spinal cord

The spinal cord (extension of brain) lies in the vertebral canal and in adults, begins at the top of the first cervical vertebra and stops at the bottom of the first lumbar vertebra (a distance of between 42 and 45 cm). The spinal cord is divided into cervical, thoracic, lumbar, sacral and coccygeal regions.

CHEMORECEPTORS

They detect chemicals dissolved in fluid medium surrounding them

THERMORECEPTORS

Kind of receptors which detect change in temperature

MECHANORECEPTORS

Kind of receptors which detect sound, motion, positioning relation to gravity touch and pressure

PHOTORECEPTORS

Kind of receptor which detect visible and ultra violet light

Nicotine

It is an oily liquid substance found in tobacco leaves that acts as a stimulant and also contributes to smoking addiction. When extracted from the leaves, nicotine is colorless, but quickly turns brown when exposed to air. It has an acrid, burning taste. Nicotine is a very powerful poison, and it forms the base of many insecticides.

Parkinson's disease

Parkinson Disease, disorder of the nervous system that affects muscle control. Parkinson disease most notably affects motor control (muscle activity). The disease progresses differently for each individual—symptom develop swiftly in some people and slowly in others. Some Parkinson patients may develop problems that affect their intellect or ability to reason, or they may suffer from depression or anxiety

Alzheimer's disease

It is a progressive brain disorder that causes a gradual and irreversible decline in memory, language skills, perception of time and space, and, eventually, the ability to care for oneself. This disorder was First described by German psychiatrist Alois Alzheimer in 1906,

Epilepsy

It is a chronic brain disorder that briefly interrupts the normal electrical activity of the brain to cause seizures. It is characterized by a variety of symptoms including uncontrolled movements of the body, disorientation or confusion, sudden fear, or loss of consciousness.

Pituitary Gland

The pituitary gland is a small gland about 1 centimeter in diameter or the size of a pea. The gland is connected to the hypothalamus of the brain by a slender stalk called the infundibulum. There are two distinct regions in the gland: the anterior lobe (adenohypophysis) and the posterior lobe (neurohypophysis). The activity of the adenohypophysis is controlled by releasing hormones from the hypothalamus. The neurohypophysis is controlled by nerve stimulation.

TSH HORMONE

Thyroid-stimulating hormone, or thyrotropin, causes the glandular cells of the thyroid to secrete thyroid hormone. When there is a hyper-secretion of thyroid-stimulating hormone, the thyroid gland enlarges and secretes too much thyroid hormone.

Adrenocorticotrophic hormone reacts with receptor sites in the cortex of the adrenal gland to stimulate the secretion of cortical hormones, particularly cortisol.

Gonadotropic hormones react with receptor sites in the gonads, or ovaries and testes, to regulate the development, growth, and function of these organs.

Prolactin hormone

It promotes the development of glandular tissue in the female breast during pregnancy and stimulates milk production after the birth of the infant.

Antidiuretic hormone

It promotes the reabsorption of water by the kidney tubules, with the result that less water is lost as urine. This mechanism conserves water for the body. Insufficient amounts of antidiuretic hormone cause excessive water loss in the urine.

Oxytocin HORMONE

It causes contraction of the smooth muscle in the wall of the uterus. It also stimulates the ejection of milk from the lactating breast.

Pineal Gland

The pineal gland, also called pineal body is a small cone-shaped structure that extends posteriorly from the third ventricle of the brain. The gland synthesizes the hormone **melatonin** which affects reproductive development and daily physiologic cycles.

Thyroid Gland

The thyroid gland is located in the neck. It consists of two lobes, one on each side of the trachea. This gland produces **thyroxin** and **triiodothyronine** hormones. These hormones contain iodine.

GOITER

Enlargement of thyroid gland due to deficiency of iodine. If there is an iodine deficiency, the thyroid cannot make sufficient hormone. This stimulates the anterior pituitary to secrete thyroid-stimulating hormone, which causes the thyroid gland to increase in size.

Calcitonin

A hormone secreted by thyroid gland. This hormone opposes the action of the parathyroid glands by reducing the calcium level in the blood. If blood calcium becomes too high, calcitonin is secreted until calcium ion levels decrease to normal.

Parathyroid Gland

It is a gland located on the posterior surface of the thyroid glands. It secretes a hormone called **Parathormone**. Parathyroid hormone is the most important regulator of blood calcium levels. The hormone is secreted in response to low blood calcium levels, and its effect is to increase those levels.

Hypoparathyroidism,

It refers to insufficient secretion of parathyroid hormone, and leads to increased nerve excitability. The low blood calcium levels trigger spontaneous and continuous nerve impulses, which then stimulate muscle contraction.

ADRENAL GLANDS

The adrenal gland is paired with one gland located near the upper portion of each kidney. Each gland is divided into an outer cortex and an inner medulla.

Hormones of the Adrenal Cortex

Aldosterone

A hormone of adrenal cortex which acts to conserve sodium ions and water in the body.

CORTISOL

Another hormone of cortical region, which increases blood glucose levels.

ANDROGENS

Group of sex hormones produced by the inner region of male and female adrenal glands. In males and females, the hormones are responsible for development of secondary sexual characters.

MASCULINATION

A condition in female in which females develop bear on face due to over production of androgens

ADRENALINE OR EPINEPHARINE

Hormone secreted by adrenal medulla. It helps in fight and flight and is called emergency hormone. Epinephrine increase heart beat, blood pressure breathing rate etc

NOREPINEPHARINE

A hormone of adrenal medulla which maintains blood pressure

PANCREAS

The pancreas is a long organ that lies posterior to the stomach, and extends from the region of the duodenum to the spleen. This gland has an exocrine portion that secretes digestive enzymes which are carried through a duct to the duodenum. The endocrine portion consists of the pancreatic islets, which secrete **glucagons** and **insulin**.

INSULIN

A hormone produced by beta cells of islets of langerhans. This hormone converts excessive amount of glucose into glycogen

GLUCAGON

A hormone produced by alpha cells of islets of langerhans. This hormone converts glycogen back to glucose

GONADS

The gonads, the primary reproductive organs, are the testes in the male and the ovaries in the female. These organs are responsible for producing the sperm and ova, but they also secrete hormones and are considered to be endocrine glands.

TESTES

Testes secrete male sex hormones, as a group, are called androgens. The principal androgen is testosterone, which is secreted by the testes. This steroid hormone is responsible for:

- The growth and development of the male reproductive structures
- Increased skeletal and muscular growth
- Enlargement of the larynx accompanied by voice changes
- Growth and distribution of body hair
- Increased male sexual drive

OVARIES

Female reproductive gonads which produce two groups of female sex hormones the **estrogens** and **progesterone**. These hormones contribute to the development and function of the female reproductive organs and sex characteristics. At the onset of puberty, an estrogen promotes following:

- The development of the breasts
- Distribution of fat evidenced in the hips, legs, and breast
- Maturation of reproductive organs such as the uterus and vagina

PROGESTERONE

A hormone secreted by ovaries. It makes the wall of uterus thick and prepares the uterus for pregnancy.

ETHOLOGY

Scientific study of nature of behavior is called Ethology

INNATE BEHAVIOR

A kind of behavior which animals inherit as part of heredity. E.g. Suckling of milk after birth

KINESIS

A kind of behavior in which animal moves towards the direction of stimuli. Here intensity of stimulus is important not the direction

HABITUATION

A kind of learned behavior in which animals ignore to respond to regular stimulus. E.g. ignorance of traffic by birds

IMPRINTING

A kind of learned behavior in which animals learn an activity in child hood and make it as part of innate behavior. E.g. Swimming

CLASSICAL CONDITIONING

A kind of learned behavior in which animals responds to an irrelevant stimuli for getting reward or to save himself from punishment

LATENT BEHAVIOR

A kind of behavior in which target is achieved by repeated errors. Finally animal become expert

INSIGHT BEHAVIOR

It is a kind of learned behavior in which problem is solved without trial and error

PRACTICE SHEET 01

1. Most animals have a nervous system to control life activities, but some life functions may be controlled by hormones also
(a) True
(b) False
2. When any plant part turns towards direction of stimuli, it is called
(a) Tropism
(b) Thigmotropism
(c) Both a&b
(d) None
3. Generally leaves of plants open when light is available and close when there is no light, but plant leaves may open even light is not available. This mechanism is example of
(a) Biological clock
(b) Circadian cycle
(c) Both a&b
(d) None
4. Circadian rhythmic may not take place if an organism is taken away from its environmental factors
(a) True
(b) False
5. Phenomenon in which the influence of day length on plant is studied in
(a) Geotropism
(b) Phototropism
(c) Thigmotropism
(d) Photoperiodism
6. Under drought conditions, xerophytes produce abscisic acid which helps in---
(a) Absorption of water
(b) Keeping stomata closed
(c) Both a&b
(d) None
7. Development of air tubes in plants is meant to provide oxygen to submerged roots
(a) True
(b) False
8. One of the following protein saves the plant from heating effect
(a) Shock wave proteins
(b) Heat shock proteins
(c) Heat resistant proteins
(d) All of above
9. In cool season, plants produce polymers of fructose which allow to super cool -----
(a) Cytoplasm
(b) Cell wall
(c) Cell membrane
(d) None

10. In order to overcome problem of herbivory, plants adapt following except one
- (a) Produce thorns
 - (b) Produce distasteful flavor
 - (c) Toxic compound
 - (d) All**
11. If a plants is attacked by pathogen it produces -----antibiotic to kill them
- (a) Aflatoxin
 - (b) Chemo toxin
 - (c) Phytoalexins**
 - (d) None
12. Formation of thin walled cells at the base of petiole and stalk of fruit is called
- (a) Abscises acid
 - (b) Abscission**
 - (c) Both a&b
 - (d) None
13. Abscission causes fall of leaves and fruits with slight jerk
- (a) True**
 - (b) False
14. Parthincarpy refers to seed less fruits. It is induced by -----hormone
- (a) Cytokinins
 - (b) Gibberellins
 - (c) Auxins**
 - (d) None
15. Dichlorophenoxy acetic acid is used as -----
- (a) Weedicide**
 - (b) Growth hormone
 - (c) Growth inhibitor
 - (d) None
16. Bakanae is a fungal disease of rice seedlings. This disease is caused due to cell elongation induced due to -----
- (a) Cytokinins
 - (b) Gibberellins
 - (c) Auxins**
 - (d) None
17. One of the following hormone is responsible for delayed senescence
- (a) Cytokinins**
 - (b) Gibberellins
 - (c) Auxins
 - (d) None
18. Plants generally produce hormones to promote growth, but under certain conditions, -----
-hormone is produced to inhibit the growth
- (a) Abscisic acid**
 - (b) Auxin
 - (c) Both a&b
 - (d) None
19. Ripening of fruits is triggered by
- (a) Cytokinins

- (b) Ethane
(c) Auxins
(d) None
20. Association of different neurons in CNS is termed as-----
(a) Soma
(b) Nissel substance
(c) Synapsis
(d) Neuroglia
21. Unstimulated neurolemma in squids maintains a charge of
(a) -40 to -65 mv
(b) +40 to +65 mv
(c) Both a&b
(d) None
22. When neurolemma changes to +65mv and than restores to -65mv again ,it explain
(a) Resting potential
(b) Action potential
(c) RMP
(e) None
23. Spread of action potential along the entire neurolemma is called
(a) Resting potential
(b) Action potential
(c) None
24. Hydra has -----type of nervous system
(a) Diffused nervous system
(b) Centralized Nervous system
(c) It has no nervous system
(d) Both a&b
24. Bilaterally symmetrical animals mostly have----- type of nervous system
(a) Diffused Nervous system
(b) Centralized Nervous system
(c) Both a& b
(d) None
25. Planaria has-----type of Nervous system
(a) Diffused Nervous system
(b) Centralized Nervous system
(c) Both a& b
(d) None
26. Sound, motion, position in relation to gravity, touch and pressure is detected by
(a) Mechanoreceptors
(b) Pain receptors
(c) Photoreceptors
(d) Chemoreceptor
27. Increase in heart beat, narrowing of blood vessels, and stimulation of nervous system, reduced fatigue, increasing alertness are caused due to -----
(a) Nicotine
(b) Alzheimer's disease

© Both a&b

(d) None

28. Damage to nerve tissue within basal ganglion of brain causes

(a) **Parkinson's disease**

(b) Alzheimer's disease

© Epilepsy

(d) None

29. Slow and hesitant speech is symptom of

(a) **Parkinson's disease**

(b) Alzheimer's disease

© Epilepsy

(d) None

30. Leopoda is the drug of choice against

(a) **Parkinson's disease**

(b) Alzheimer's disease

© Epilepsy

(d) None

31. Progressive degeneration of neurons of cerebral cortex and hippocampus are causes of

(a) Parkinson's disease

(b) **Alzheimer's disease**

© Epilepsy

(d) None

32. Forgetfulness, sever loss of recent memory are the symptoms of

(a) Parkinson's disease

(b) **Alzheimer's disease**

© Epilepsy

(d) None

33. Hearing voices or seeing faces when no one is there refers to

(a) Epilepsy

(b) **Hallucinations**

© Both a&b

(d) None

34. Complete unconsciousness, stiff body with twitch or jerks is the symptoms of

(a) **Epilepsy**

(b) Hallucinations

© Both a&b

(d) None

35. Estrogen and progesterone are -----

(a) Peptide hormones

Amino acid hormones

© **Steroid hormone**

(e) None

36. One of the following hormone of hypothalamus increases reabsorption of water

(a) FSH

(b) LH

© LTH

(d) **ADH**

37. One of the following hormones stimulates contraction of uterus during labor and release of milk

(a) FSH

(b) **Oxytocin**

© LTH

(d) None

38. Excessive secretion of STH in childhood or adolescence causes

(a) Acromegaly

(b) Microcephaly

© **Gigantism**

(d) None

39. Abnormal thickness of hands, feet and jaws are causes of over production of STH in adult hood. This disease is called

(a) Goiter

(b) Dwarfism

© **Acromegaly**

(d) None

40. Pituitary gland is still considered as master gland

(a) **True**

(b) False

41. When height of a person remains very short due to insufficient production of STH during childhood, it is called

(a) Gigantism

(b) Acromegaly

© Microcephaly

(d) **Dwarfism**

42. T3 and T4 are hormonal secretions of thyroid gland and play major role in

(a) **Metabolism**

(b) Growth

© Reproduction

(d) None

43. Low level of T3 and T4 results in over weight, sluggish ness, dry skin, hair loss, intolerant of food confusion and depression. There are symptoms of

(a) Goiter

(b) Cretinism

© **Myxedema**

(d) None

44. When thyroid is enlarged due to low intake of iodine in diet, this condition is called

(a) **Goiter**

(b) Cretinism

© Myxedema

(d) None

45. If hypothyroidism occurs in early age, it causes -----which is characterized by stunted growth, mental retardation and coarse facial features.

(a) Goiter

(b) **Cretinism**

© Myxedema

(d) None

46. Raised blood calcium stimulates -----secretion

(a) **Calcitonin**

(b) Auxins

© LH

(d) LTH

47. Secretion of calcitonin causes excess deposition of calcium to be deposited in

(a) Blood

(b) **Bones**

© Both a&b

(d) None

48. One of the following hormones is responsible for reabsorption of calcium in kidneys

(a) Insulin

(b) **Parathromone**

© Thyroxin

(d) None

49. Islets of langerhorns, which are endocrine glands, are of two types i.e. Alpha cells and beta cells.

(a) **True**

(b) False

50. Alpha cells produce-----hormone

(a) **Glucagons**

(b) Insulin

© Both a&b

(d) None

51. Beta cells produce -----hormone

(a) Glucagons

(b) **Insulin**

© Both a&b

(d) None

52. Glucagons hormone -----sugar level

(a) **Decreases**

(b) Increases

© Can does both jobs

(d) None

53. The set point of glucose level in blood is -----mg/100ml

(a) 97

(b) 98

© 96

(d) **90**

54. Insulin hormone is secreted in response to the ----level of glucose

(a) Low

(b) **High**

© Both a&b

(d) None

55. Deficiency of insulin may lead to a fairly common disease called-----

(a) Hyperthyroidism

(b) **Diabetes mellitus**

© Goiter

(d) All

56. Collection of hormones secrete by adrenal glands is called -----

(a) **Corticosteroid hormone**

(b) Cortisone

© Both a&b

(d) None

57. One of the following promotes the hydrolysis of muscle proteins to amino acids which are ultimately broken down by liver into glucose

(a) Pinal gland

(b) Glucagons

© **Cortisol**

(d) None

58. Cushing's syndrome is characterized by obesity, muscle wasting, hypertension and diabetes. All these conditions are due to over production of -----

(a) Pinal gland

(b) Glucagons

© **Cortisol**

(d) None

59. Weakness, weight loss, low blood sugar and reduced blood pressure are symptoms due to deficient production of adrenal hormones. These symptoms appear in -----disease

(a) Cushing's syndrome

(b) **Addison's disease**

© Both a&b

(d) None

60. One of the following hormone increases reabsorption of Na and Cl ions by kidney and maintains the blood volume and blood pressure

(a) **Aldosterone**

(b) Testosterone

© Both a&b

(d) All

61. One of the following hormones cause development of secondary male sexual characters, such as facial hairs, deep voice and increase in muscle bulk

(a) **Androgen**

(b) Corticosteroid

© Testosterone

(d) None

62. Masculinization is a condition in which bear may appear in ladies. This is mainly due to over production of

(a) **Androgen**

(b) Corticosteroid

© Testosterone

(d) None

63. -----hormones are called emergency hormones and they bring about fight and flight

(a) Adrenaline

(b) Epinephrine

© **Both a&b**

(d) None

64. To sustain the blood pressure is the primary function of -----hormone

(a) Adrenaline

(b) Epinephrine

© Both a&b

(d) **Nor epinephrine**

65. One of the following gland is situated in the upper part of chest, behind the breast-bone and secretes thymosin hormone

(a) Pinal gland

(b) **Thymus gland**

© Parathyroid gland

(d) None

66. T lymphocytes are responsible to work against virus and bacteria and are production of -----
--gland

(a) Testes

(b) Ovaries

© Pineal gland

(d) **Thymus gland**

67. A tiny cone shaped gland within brain which responses to external conditions of light and darkness is called

(a) Testes

(b) Ovaries

© **Pineal gland**

(d) Thymus gland

68. The secretion of -----hormone influence the growth and development of gonads

(a) Testes

(b) Ovaries

© **Pineal gland**

(d) Thymus gland

69. One of the following hormones is responsible for muscle growth and development of secondary sexual characters such as beard and moustaches

(a) **Testes**

(b) Ovaries

© Pineal gland

(d) Thymus

70. In females, one of the following hormones maintains secondary sexual characters

(a) **Estrogen**

(b) Progesterone

(c) Both a&b

(d) None

71. One of the following hormones is involved in preparation and maintenance of uterus

- (a) Estrogen
- (b) **Progesterone**
- (c) Both a&b
- (d) None

72. Nature of behavior and its ecological and evolutionary significance in its natural setting is called-----

- (a) Behavior
- (b) **Ethology**
- © Gerontology
- (d) None

73. One of the following scientists found the genetic basis of behavior by feeding snakes

- (a) Slitter
- (b) Hay flick
- © **Steven Arnold**
- (d) None

74. A pre-programmed, genetically determined behaviors which does not involve learning is called

- (a) Innate
- (b) Instinctive
- © **Both a&b**
- (d) None

75. Random movement of animals to a particular stimulus in relation to intensity (not direction) is called

- (a) **Kinases**
- (b) Innate
- © Both a&b
- (d) None

76. Movement of body parts, such as knee jerk, blinking of eye or withdrawal of hand from a hot object are examples of

- (a) Kinases
- (b) Innate
- © Both a&b
- (d) **Reflexes**

77. A kind of behavior in which animals stop responding to stimulus is called-----

- (a) **Habituation**
- (b) Imprinting
- © Classical conditioning
- (d) None

78. A kind of leaned behavior which animals learn at early life and incorporate it into innate behavior is called

- (a) Habituation
- (b) **Imprinting**
- © Classical conditioning
- (d) None

79. Behavior of ducklings in which they follow the moving object even it there is no true mother is there is example of

- (a) Habituation

(b) Imprinting

© Classical conditioning

(d) None

80. Knord Lorenz in 1930 studies -----type of learned behavior

(a) Habituation

(b) Imprinting

© Classical conditioning

(d) None

81. Response of an animal to an irrelevant stimulus associated with reward or punishment is example of -----

(a) Habituation

(b) Imprinting

© Classical conditioning

(d) None

82. Classical conditioning was studied on dogs in 1902

(a) Ivan Pavlov

(b) Pavlov

© Knord

(d) Darwin

83. Ability of rats to find their way in underground tunnels is example of

(a) Imprinting

(b) Classical conditioning

© Latent behavior

(d) None

84. Solving a problem without trial and learning is example of

(a) Imprinting

(b) Classical conditioning

© Latent behavior

(d) Insight behavior

85. The classical experiments on insight behavior was performed on

(a) Monkeys

(a) Chimpanzees

© Guerrilla

(d) None

CORRECT OPTION

QUESTION	ANSWER KEY	QUESTION	ANSWER KEY
1.	A	44.	A
2.	A	45.	B
3.	C	46.	A
4.	A	47.	B
5.	D	48.	B
6.	B	49.	A
7.	A	50.	A
8.	B	51.	B
9.	A	52.	A
10.	D	53.	D

11.	C	54.	B
12.	B	55.	B
13.	A	56.	A
14.	C	57.	C
15.	A	58.	C
16.	C	59.	B
17.	A	60.	A
18.	A	61.	A
19.	B	62.	A
20.	D	63.	C
21.	A	64.	D
22.	B	65.	B
23.		66.	D
24.	A	67.	C
25.	B	68.	C
26.	B	69.	A
27.	A	70.	A
28.	A	71.	B
29.	A	72.	B
30.	A	73.	C
31.	B	74.	C
32.	B	75.	A
33.	B	76.	D
34.	A	77.	A
35.	C	78.	B
36.	D	79.	B
37.	B	80.	B
38.	C	81.	C
39.	C	82.	A
40.	A	83.	C
41.	D	84.	D
42.	A	85.	B
43.	C	86.	

PRACTICE SHEET 02**Endocrine System**

1. Many vertebrate hormones are proteins.
true
false
2. Steroid hormones lead to protein synthesis.
true
false
3. ADH inhibits the reabsorption of H₂O from the collecting duct of the nephron.
true
false
4. FSH and LH are gonadotrophic hormones.
true
false
5. The thyroid gland is attached to the esophagus.
true
false
6. Calcitonin raises the level of calcium in the blood.
true
false
7. Thyroxin helps regulate growth and development in immature animals.
true
false
8. Parathyroid hormone influences the calcium level and phosphate level in the blood.
true
false
9. The adrenal cortex secretes epinephrine.
true
false
10. Epinephrine is secreted under conditions of stress
true
false
11. The adrenal medulla secretes sex hormones.
true
false

12. Which glands have a duct?
a. **endocrine**
b. exocrine
c. both a and b
13. Oxytocin stimulates

- a. **the release of milk from mammary glands.**
 - b. the uterus to contract.
 - c. both a and b.
14. Hormones from the hypothalamus
- a. **stimulate the release of anterior pituitary hormones.**
 - b. inhibit the release of anterior pituitary hormones.
 - c. both a and b.
15. Growth hormone promotes
- a. **cell division.**
 - b. protein synthesis.
 - c. bone growth.
 - d. all of the above.
16. Which anterior pituitary hormones affect other glands?
- a. **TSH**
 - b. ACTH
 - c. both a and b
17. The hormones produced by the thyroid gland contain
- a. calcium.
 - b. **iodine.**
 - c. fluorine.
 - d. chlorine.
18. The adrenal cortex secretes
- a. glucocorticoids.
 - b. mineralocorticoids.
 - c. sex hormones.
 - d. **all of the above.**
20. Cortisol is a
- a. mineralocorticoid.
 - b. **glucocorticoid.**
 - c. sex hormone.
21. Cortisol
- a. raises blood glucose.
 - b. counteracts the inflammatory response.
 - c. **both a and b.**
23. Aldosterone regulates the level of _____ in the blood.
- a. **sodium**
 - b. potassium
 - c. both a and b
24. The pancreas secretes
- a. insulin.
 - b. glucagon.
 - c. **both a and b.**
25. Insulin
- a. stimulates muscle cells to metabolize glucose.
 - b. **stimulates the liver to store glucose as glycogen.**

- c. inhibits the use of fats and sugars as an energy source.
 d. all of the above.
26. In type II diabetes
 a. the pancreas does not produce insulin.
 b. **the cells do not respond to insulin.**
 c. both a and b.
27. The testes are controlled by the
 a. hypothalamus.
 b. anterior pituitary.
 c. **both a and b.**
28. Which is an androgen?
 a. progesterone
 b. testosterone
 c. estrogen
 d. **both a and c**
29. The thymus is most active in
 a. children.
 b. adults.
 c. **both the same in children and adults.**

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PRACTICE SHEET 03

Nervous System

1. Cnidarians have what is termed a nerve net for their nervous system.
true
false
2. The nervous system integrates and controls the other systems of the body.
true
false
3. A central nervous system contains a brain and a spinal cord.
true
false
4. The somatic system contains nerves that control smooth muscle.
true
false
5. Dendrites conduct impulses away from the cell body.
true
false
6. Sensory neurons take messages from sense organs to the central nervous system.
true
false
7. The interneuron is only found within the central nervous system.
true
false
8. The work of the sodium-potassium pump maintains an equal distribution of sodium and potassium ions across the membrane.
true
false
9. A nerve impulse is an electrochemical charge.
true
false
10. Neurons transmit different impulses depending on the animal.
true
false
11. Chromosome 21 is associated with Alzheimer disease.

- true
false
12. Cephalization refers to a
a. nerve cord.
b. **brain.**
c. peripheral nerve.
13. Arthropods have a
a. ventral nerve cord.
b. **dorsal nerve cord.**
c. nerve ladder.
14. The peripheral nervous system contains
a. spinal nerves.
b. cranial nerves.
c. **both a and b.**
15. The autonomic nervous system contains nerves controlling
a. glands.
b. smooth muscles.
c. **both a and b.**
16. Which contains the nucleus?
a. axons
b. dendrites
c. **cell body**
17. Neuroglial cells have
a. supportive functions.
b. nutritive functions.
c. **both a and b.**
18. A nerve impulse involves
a. ions.
b. electrons.
c. **both a and b.**
19. Which is a neurotransmitter?
a. norepinephrine
b. **acetylcholine**
c. both a and b
20. Ganglia are collections of
a. **dendrites.**
b. cell bodies.
c. axons.
21. Cranial nerves are
a. **sensory nerves.**
b. motor nerves.
c. both a and b.
22. Spinal nerves are
a. motor nerves.
b. sensory nerves.

- c. mixed nerves.
 d. **all of the above.**
23. The somatic nerves serve the
 a. musculoskeletal system.
 b. exterior sense organs.
 c. **both a and b.**
24. A reflex arc involves
 a. **the spinal cord.**
 b. a spinal nerve.
 c. both a and b.
25. The autonomic nervous system is made up of
 a. motor neurons.
 b. sensory neurons.
 c. **both a and b.**
26. Which is associated with "fight or flight"?
 a. **the sympathetic system**
 b. the parasympathetic system
 c. both a and b
27. Which is a function of the spinal cord?
 a. center for reflex activity
 b. means of communication between the brain and the spinal nerves
 c. **both a and b**
28. The brain stem consists of the
 a. medulla oblongata.
 b. pons.
 c. midbrain.
 d. **all of the above.**
29. Which maintains homeostasis?
 a. the thalamus
 b. the **hypothalamus**
 c. the pons
30. Which is the largest part of the brain?
 a. the cerebellum
 b. **the cerebrum**
 c. the pons
31. Which is responsible for muscle coordination?
 a. the cerebellum
 b. the **cerebrum**
 c. the medulla
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