Biology Grade 10 unit three practice questions

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Practice questions on Unit 3 – Human biology and health

1. Which of the following accurately describes the nervous system?

A) It involves the movement of chemical messages around the body.

B) It is slower than the endocrine system.

C) It provides rapid, coordinated responses to stimuli.

D) It consists of glands that produce hormones.

2. What are the main parts of the central nervous system (CNS)?

A) Brain and spinal cord

B) Neurons and sensory receptors

C) Muscles and glands

D) Effector and afferent neurons

3. Which type of neuron carries information from sensory receptors to the central nervous system?

A) Effector neuron

B) Afferent neuron

C) Motor neuron

D) Mixed neuron

4. What is the function of neurotransmitters in the nervous system?

A) They transmit electrical impulses across synapses.

B) They store sensory information in the brain.

C) They regulate hormonal balance in the body.

D) They control voluntary muscle movements.

5. The part of the brain responsible for processing higher-level cognitive functions is the:

A) Cerebellum

B) Medulla

C) Cerebrum

D) Hypothalamus

6. What is the purpose of the myelin sheath surrounding the axon of a neuron?

A) To provide insulation and speed up the transmission of nerve impulses

B) To regulate neurotransmitter release at synapses

C) To maintain the balance of ions within the neuron

D) To protect the neuron from pathogens

7. Which statement accurately describes the role of the spinal cord in the nervous system?

A) It contains only grey matter.

B) It serves as the primary processing center for sensory information.

C) It is responsible for coordinating voluntary muscle movements.

D) It serves as a pathway for nerve impulses between the brain and the rest of the body.

8. What distinguishes an endocrine gland from an exocrine gland?

A) Endocrine glands produce hormones, while exocrine glands produce enzymes.

B) Endocrine glands have ducts, while exocrine glands do not.

C) Endocrine glands release secretions into the bloodstream, while exocrine glands release secretions onto body surfaces or into ducts.

D) Endocrine glands are found only in the central nervous system, while exocrine glands are found in the peripheral nervous system.

9. In the nervous system, a synapse is:

A) The junction between two neurons where electrical impulses can jump directly.

B) A gap between two neurons where neurotransmitters are released.

C) The site of sensory receptor activation.

D) The location of nerve cell bodies within the CNS.

10. How does the nervous system differ from the endocrine system in terms of signaling?

A) The nervous system uses electrical impulses, while the endocrine system uses chemical messengers.

B) The nervous system responds more slowly than the endocrine system.

C) The nervous system only affects internal body functions, while the endocrine system only affects external body functions.

D) The nervous system does not involve signaling between cells.

11. Which of the following is a function of the central nervous system?

A) Regulation of hormone production

B) Coordinating voluntary muscle movements

C) Filtering sensory information from the environment

D) Synthesizing neurotransmitters

12. What is the primary function of effector neurons in the nervous system?

A) Transmitting sensory information to the brain

B) Initiating muscle contractions or glandular secretions in response to nerve impulses

C) Integrating sensory information in the spinal cord

D) Modulating neurotransmitter release at synapses

13. What is the function of the cerebellum in the brain?

A) Regulation of body temperature

B) Coordination of balance and muscle activity

C) Regulation of thirst and hunger

D) Processing visual information

14. Which statement accurately describes the role of neurotransmitters in synaptic transmission?

A) They inhibit the release of electrical impulses from the neuron.

B) They serve as structural components of neurons.

C) They transmit nerve impulses across synapses by chemical means.

D) They regulate the production of hormones in the endocrine system.

15. The primary function of the hypothalamus in the brain is to:

A) Control voluntary movements.

B) Regulate body temperature and hunger.

C) Process sensory information from the environment.

D) Coordinate reflex actions.

16. What is the significance of the myelin sheath surrounding axons in the nervous system?

A) It accelerates the transmission of nerve impulses.

B) It regulates the release of neurotransmitters.

C) It provides structural support to neurons.

D) It serves as a barrier against pathogens.

17. Which of the following is an example of a mixed nerve?

A) Cranial nerves

B) Affector nerves

C) Spinal nerves

D) Effector nerves

18. How do neurons communicate across synapses?

A) Through direct electrical connections

B) By releasing neurotransmitters that bind to receptors on neighboring neurons

C) By transmitting hormonal signals through the bloodstream

D) Through physical contact between dendrites and axons

19. The part of the brain responsible for regulating basic life functions such as heartbeat and breathing is the:

A) Cerebrum

B) Hypothalamus

C) Medulla

D) Cerebellum

20. Which statement accurately describes the structure of neurons?

A) They consist primarily of white matter.

B) They lack axons but have multiple dendrites.

C) They contain organelles such as chloroplasts for energy production.

D) They have a cell body, dendrites, and an axon for transmitting electrical impulses.

21. What distinguishes a reflex arc from other types of neural pathways?

A) Reflex arcs involve conscious decision-making.

B) Reflex arcs bypass the brain and involve only the spinal cord.

C) Reflex arcs are slower than voluntary neural pathways.

D) Reflex arcs exclusively involve motor neurons.

22. Which of the following best describes the function of the spinal cord in the nervous system?

A) It serves as the primary processing center for sensory information.

B) It coordinates voluntary muscle movements.

C) It relays sensory information to the brain and motor commands to the body.

D) It regulates hormonal balance in the body.

23. How do neuromuscular junctions differ from typical synapses in the nervous system?

A) Neuromuscular junctions transmit impulses between sensory neurons.

B) Neuromuscular junctions involve the transmission of signals to muscle fibers.

C) Neuromuscular junctions use hormones instead of neurotransmitters.

D) Neuromuscular junctions occur only within the brain and spinal cord.

24. Which statement accurately describes the role of the medulla in the brain?

A) It controls voluntary movements.

B) It regulates body temperature and hunger.

C) It coordinates balance and muscle activity.

D) It controls basic life functions such as heartbeat and breathing.

25. In the nervous system, what role do sensory receptors play?

A) They transmit electrical impulses between neurons.

B) They integrate sensory information in the spinal cord.

C) They detect changes in the internal or external environment.

D) They release neurotransmitters at synapses.

26. How does the endocrine system differ from the nervous system in terms of signaling?

A) The endocrine system uses electrical impulses for communication.

B) The endocrine system responds more rapidly than the nervous system.

C) The endocrine system uses hormones for long-distance signaling.

D) The endocrine system primarily regulates voluntary muscle movements.

27. Which of the following structures is responsible for synthesizing hormones in the endocrine system?

A) Synapses

B) Neurons

C) Glands

D) Spinal cord

28. What is the main function of the cerebrum in the brain?

A) Regulation of balance and coordination

B) Processing sensory information and controlling voluntary movements

C) Regulation of basic life functions such as breathing and heartbeat

D) Integration of hormonal signals from the endocrine system

29. How does the nervous system coordinate voluntary actions?

A) By transmitting sensory information only to the brain

B) By initiating muscle contractions in response to sensory input

C) By bypassing the spinal cord and directly activating muscles

D) By regulating hormonal balance in the body

30. What is the significance of reaction time in the nervous system?

A) It measures the speed of nerve impulses along axons.

B) It reflects the efficiency of synapses in transmitting signals.

C) It indicates the time taken to respond to sensory stimuli.

D) It measures the duration of voluntary muscle contractions

31. What are reflex actions primarily designed for?

A) Conscious decision-making

B) Long-term planning

C) Avoiding danger or damage

D) Complex cognitive processing

32. Which of the following is NOT an example of a reflex action?

A) Blinking when an object approaches the face

B) Breathing

C) Solving a math problem

D) Withdrawing hand from a hot object

33. In a reflex arc, which neuron connects the affector and effector neurons directly in the CNS?

A) Sensory neuron

B) Relay neuron

C) Motor neuron

D) Interneuron

34. What initiates a reflex arc in response to a stimulus?

A) Motor neuron

B) Sensory receptor

C) Relay neuron

D) Effector neuron

35. Which part of the nervous system is involved in coordinating reflex actions?

A) Central Nervous System

B) Peripheral Nervous System

C) Autonomic Nervous System

D) Enteric Nervous System

36. What is the main difference between a reflex action and a voluntary action?

A) Speed of response

B) Involvement of the brain

C) Conscious awareness

D) Complexity of the movement

37. Which scientist is credited with investigating conditioned reflex action using a dog?

A) Charles Darwin

B) Ivan Pavlov

C) Sigmund Freud

D) Albert Einstein

38. What distinguishes a conditioned reflex action from an innate reflex action?

A) Involvement of conscious thought

B) Speed of response

C) Learning through experience

D) Involvement of the spinal cord

39. What is the primary purpose of a conditioned reflex action?

A) Avoiding danger or damage

B) Learning new behaviors

C) Coordinating bodily functions

D) Protecting sensory receptors

40. Which of the following is NOT a characteristic of drug abuse?

A) Excessive consumption

B) Legal drug use

C) Dependence

D) Serious side effects

41. What is the main difference between legal and illegal drugs?

A) Their effect on the body

B) Social acceptance

C) Mode of consumption

D) Availability in the market

42. Which of the following substances is NOT commonly used as a recreational drug in Ethiopia?

A) Khat

B) Alcohol

C) LSD

D) Tobacco

43. What distinguishes drug dependence from drug abuse?

A) Legal status of the drug

B) Frequency of consumption

C) Physical or psychological addiction

D) Side effects of the drug

44. Which aspect of health is NOT adversely affected by drug abuse?

A) Productivity

B) Social relationships

C) Physical fitness

D) Emotional well-being

45. How do illegal drugs contribute to the spread of diseases like HIV/AIDS?

A) By causing impaired judgment

B) By increasing risky behaviors

C) By directly weakening the immune system

D) By interfering with hormone regulation

46. What is a characteristic feature of all addictive drugs?

A) Legal status

B) Mild pleasure

C) Alteration of brain function

D) Temporary effects

47. Which of the following is NOT a common feature of recreational drugs in Ethiopia?

A) Addictive nature

B) Impact on brain function

C) Legal status

D) Availability in shops and bars

48. What is the primary reason for the widespread use of legal recreational drugs?

A) Social acceptance

B) Medicinal benefits

C) Low cost

D) Easy availability

49. How do drugs affect brain function and behavior?

A) By reducing cognitive abilities

B) By enhancing sensory perception

C) By altering neurotransmitter levels

D) By increasing physical strength

50. Which of the following is NOT a consequence of drug abuse?

A) Lower productivity

B) Improved mental health

C) Absence from school or work

D) Financial problems

51. Which part of the nervous system coordinates reflex actions?

A) Peripheral Nervous System

B) Autonomic Nervous System

C) Central Nervous System

D) Somatic Nervous System

52. What is the main function of relay neurons in a reflex arc?

A) Transmit sensory information to the brain

B) Connect sensory and motor neurons in the spinal cord

C) Activate effector neurons in response to a stimulus

D) Initiate conscious decision-making

53. What distinguishes a reflex action from a voluntary action?

A) Involvement of conscious thought

B) Speed of response

C) Complexity of the movement

D) Activation of the somatic nervous system

54. How does a conditioned reflex differ from an innate reflex?

A) It involves conscious decision-making.

B) It is learned through experience.

C) It occurs without sensory input.

D) It requires higher brain functions.

55. Which part of the nervous system is responsible for processing sensory information and initiating reflex actions?

A) Spinal cord

B) Cerebellum

C) Cerebrum

D) Brainstem

56. What initiates a reflex arc in response to a stimulus?

A) Sensory receptor

B) Motor neuron

C) Relay neuron

D) Effector neuron

57. Which of the following is NOT an example of a reflex action?

A) Breathing

B) Blinking in response to bright light

C) Solving a math problem

D) Withdrawing hand from a hot object

58. What distinguishes a reflex arc from a voluntary action?

A) Involvement of the brain

B) Conscious awareness

C) Speed of response

D) Complexity of the movement

59. Which part of the nervous system coordinates reflex actions?

A) Central Nervous System

B) Peripheral Nervous System

C) Autonomic Nervous System

D) Somatic Nervous System

60. What is the main function of relay neurons in a reflex arc?

A) Transmit sensory information to the brain

B) Connect sensory and motor neurons in the spinal cord

C) Activate effector neurons in response to a stimulus

D) Initiate conscious decision-making

61. Which of the following structures in the human eye controls the size of the pupil?

A) Cornea

B) Retina

C) Iris

D) Lens

62. What is the function of the suspensory ligaments in the eye?

A) To hold the retina in place

B) To control the movement of the eyeball

C) To adjust the size of the pupil

D) To hold the lens in place and change its shape for focusing

63. What is the purpose of the blind spot in the human eye?

A) To enhance peripheral vision

B) To focus light onto the retina

C) To provide a region for the optic nerve to exit the eye

D) To adjust the size of the pupil based on light levels

64. Which part of the eye is responsible for fine-tuning the focusing of light?

A) Cornea

B) 6Lens

C) Iris

D) Retina

65. What is the primary function of rods in the retina?

A) To perceive color

B) To perceive light and movement in bright light conditions

C) To perceive light and movement in dim light conditions

D) To perceive shapes and detailed images

66. Which type of cells in the retina are responsible for perceiving colors and giving clear, defined images?

A) Rods

B) Cones

C) Ciliary cells

D) Optic nerve cells

67. What condition results in difficulty focusing on distant objects due to light being focused in front of the retina?

A) Long sight

B) Short sight

C) Astigmatism

D) Color blindness

68. How does the human eye adjust its focus when viewing close-up objects?

A) By contracting the radial muscles of the iris

B) By relaxing the ciliary muscles to flatten the lens

C) By dilating the pupil to allow more light in

D) By increasing the curvature of the lens with the help of the ciliary muscles

69. Which eye defect is caused by an irregular shape of the cornea or lens?

A) Short sight

B) Long sight

C) Astigmatism

D) Color blindness

70. How does the brain create a 3-D image of the world using input from both eyes?

A) By combining the images from each eye to create a flat image

B) By ignoring input from one eye and relying on the other

C) By overlapping the visual fields from both eyes to create depth perception

D) By focusing on objects with one eye at a time and comparing the images

71. What sensory receptors respond to changes in pH and carbon dioxide levels in the arteries and brain?

A) Chemoreceptors

B) Thermoreceptors

C) Mechanoreceptors

D) Photoreceptors

72. What type of stimulus do taste buds in the tongue respond to?

A) Light

B) Sound

C) Chemicals

D) Movement

73. What is the primary function of the semi-circular canals in the ear?

A) To perceive sound vibrations

B) To detect changes in temperature

C) To maintain balance and equilibrium

D) To control the size of the pupil

74. Which organ is responsible for detecting and relaying information about the body's senses to the brain?

A) Liver

B) Kidney

C) Heart

D) Sensory organ

75. What part of the eye controls the amount of light entering the pupil?

A) Retina

B) Cornea

C) Iris

D) Sclera

76. Which type of muscle in the iris contracts to dilate the pupil in dim light?

A) Circular muscles

B) Radial muscles

C) Cardiac muscles

D) Smooth muscles

77. What protective function do eyelids serve?

A) To produce tears

B) To hold the lens in place

C) To sweep tear solution over the surface of the eye

D) To close over the eyes and protect them from foreign objects

78. What is the function of the choroid layer in the eye?

A) To absorb light and prevent reflection

B) To hold the retina in place

C) To control the size of the pupil

D) To supply the retina with food and oxygen

79. What is the purpose of conducting an experiment to demonstrate the blind spot?

A) To test peripheral vision

B) To identify color blindness

C) To prove the presence of a blind spot in the eye

D) To examine the structure of the retina

80. Which sense organ enables humans to perceive changes in temperature, touch, pressure, and pain?

A) Eye

B) Ear

C) Skin

D) Nose

81. What structure in the eye is responsible for fine-tuning the focusing of light?

A) Cornea

B) Iris

C) Lens

D) Retina

82. What type of cells in the retina respond to relatively low light levels but do not give a clear image or respond to different colors?

A) Rods

B) Cones

C) Ciliary cells

D) Photoreceptors

83. What is the primary function of cones in the retina?

A) Respond to low light levels

B) Provide clear, defined images

C) Trigger impulses in the optic nerve

D) Restore chemicals to their original form

84. What causes the phenomenon of color blindness?

A) Absence of vitamin A

B) Malfunctioning of the optic nerve

C) Missing one or more types of cones

D) Irregular shape of the cornea

85. What term describes the ability of the human eye to focus on objects at different distances?

A) Adaptation

B) Accommodation

C) Refraction

D) Convergence

86. What type of lens corrects short-sightedness?

A) Convex lens

B) Concave lens

C) Diverging lens

D) Inverted lens

87. What is astigmatism?

A) Irregular shape of the eye or lens

B) Inability to focus on distant objects

C) Deficiency of vitamin A

D) Sensory receptor disorder

88. What term describes the spatial awareness derived from overlapping visual fields of both eyes?

A) Astigmatism

B) Depth perception

C) Color vision

D) Peripheral vision

89. How does the brain combine images from both eyes to perceive depth?

A) By closing one eye

B) By focusing on distant objects

C) By ignoring visual information

D) By integrating different views of the same object

90. What muscle surrounds the lens of the eye and changes its shape for focusing?

A) Circular muscles

B) Radial muscles

C) Ciliary muscles

D) Smooth muscles

91. Which part of the ear helps trap and funnel sound into the ear?

A) Auricle

B) Tympanic membrane

C) Cochlea

D) Oval window

92. What is the function of the Eustachian tube?

A) Equalizes air pressure between the middle ear and throat

B) Filters out dust particles from the air entering the ear canal

C) Amplifies sound vibrations in the middle ear

D) Connects the inner ear to the auditory nerve

93. Which of the following bones are part of the middle ear?

A) Malleus, incus, stapes

B) Sphenoid, ethmoid, temporal

C) Maxilla, mandible, frontal

D) Parietal, occipital, zygomatic

94. What is the function of the oval window in the ear?

A) Equalizes air pressure between the middle ear and throat

B) Amplifies sound vibrations in the middle ear

C) Connects the middle ear to the inner ear

D) Transmits vibrations from the middle ear to the cochlea

95. Which structure in the inner ear is responsible for detecting motion?

A) Cochlea

B) Utricle

C) Semicircular canals

D) Sacculus

96. What happens when the fluid in the semicircular canals moves?

A) It stimulates the hair cells in the cochlea

B) It causes the cupula to tilt, stimulating sensory cells

C) It equalizes air pressure in the middle ear

D) It triggers impulses in the auditory nerve

97. What causes the sensation of dizziness when spinning rapidly?

A) Fluid movement in the semicircular canals

B) Stimulation of taste receptors in the mouth

C) Pressure changes in the inner ear

D) Activation of visual receptors in the eyes

98. Which sense organ is primarily responsible for detecting taste?

A) Tongue

B) Nose

C) Skin

D) Eyes

99. What is the function of the hypodermis layer of the skin?

A) Detects temperature changes

B) Protects against UV light

C) Acts as an energy store and insulation

D) Contains sensory receptors for touch

100. Which layer of the skin contains blood vessels, sweat glands, and sensory receptors?

A) Epidermis

B) Dermis

C) Hypodermis

D) Stratum corneum

101. What type of receptors are found in the dermis layer of the skin?

A) Taste receptors

B) Smell receptors

C) Pain receptors

D) Light receptors

102. Which part of the ear is responsible for collecting sound waves?

A) Cochlea

B) Pinna

C) Tympanic membrane

D) Oval window

103. What is the function of the semicircular canals in the inner ear?

A) Detect motion

B) Amplify sound vibrations

C) Equalize air pressure

D) Produce nerve impulses

104. What causes the sensation of dizziness when spinning rapidly?

A) Fluid movement in the semicircular canals

B) Activation of taste receptors

C) Pressure changes in the outer ear

D) Contraction of eye muscles

105. Which part of the inner ear is responsible for detecting changes in head position?

A) Utricle

B) Semicircular canals

C) Cochlea

D) Sacculus

106. What is the function of the Eustachian tube?

A) Equalizes air pressure in the middle ear

B) Filters out dust particles from the ear canal

C) Amplifies sound vibrations in the inner ear

D) Connects the inner ear to the auditory nerve

107. Which of the following is NOT a common disorder of the ear?

A) Deafness

B) Tinnitus

C) Astigmatism

D) Ear infection

108. What are the basic taste sensations?

A) Sweet, sour, bitter, salty

B) Spicy, savory, sour, salty

C) Sweet, savory, bitter, umami

D) Spicy, sour, bitter, umami

109. What is the main function of the skin's hypodermis layer?

A) Temperature regulation

B) Protection against UV light

C) Energy storage and insulation

D) Sensory perception

110. Which layer of the skin contains sweat glands and hair follicles?

A) Epidermis

B) Dermis

C) Hypodermis

D) Stratum corneum

111. What are the smallest bones in the human body, found in the middle ear?

A) Tympanic bones

B) Incus and malleus

C) Stapes and tympanum

D) Malleus and incus

112. What is the function of the malleus bone in the ear?

A) Attaches to the oval window

B) Connects to the eardrum

C) Stimulates sensory cells

D) Equalizes air pressure

113. Which part of the ear is responsible for detecting motion?

A) Cochlea

B) Semicircular canals

C) Oval window

D) Tympanic membrane

114. What sensation do the sacculus and utriculus in the inner ear detect?

A) Sound vibrations

B) Changes in head position

C) Taste sensations

D) Changes in air pressure

115. What is the main function of the pinna in the outer ear?

A) Equalize air pressure

B) Collect and funnel sound waves

C) Protect the ear canal

D) Produce waxy material

116. How does the ear protect against the entry of pathogens?

A) By producing waxy material

B) By filtering out dust particles

C) By closing the Eustachian tube

D) By vibrating the eardrum

117. Which part of the ear is responsible for equalizing air pressure during activities like flying?

A) Cochlea

B) Oval window

C) Eustachian tube

D) Semicircular canals

118. What causes the sensation of dizziness when spinning rapidly?

A) Activation of taste receptors

B) Pressure changes in the outer ear

C) Fluid movement in the semicircular canals

D) Contraction of eye muscles

119. What are the structures in the inner ear filled with fluid?

A) Semicircular canals

B) Sacculus and utriculus

C) Cochlea

D) Oval window

120. Which part of the skin contains blood vessels, sweat glands, and sensory receptors?

A) Epidermis

B) Dermis

C) Hypodermis

D) Sebaceous glands

121. What sensation is primarily detected by receptors in the upper parts of the nasal passages?

A) Taste

B) Touch

C) Smell

D) Temperature

122. Which layer of the skin contains dead cells that protect against water loss and pathogens?

A) Epidermis

B) Dermis

C) Hypodermis

D) Sebaceous glands

123. What is the main function of the dermis layer of the skin?

A) Insulation against heat loss

B) Protection against UV light

C) Temperature control and sense of touch

D) Excretion of nitrogenous wastes

124. What sensation is primarily detected by receptors in the upper surface of the tongue?

A) Smell

B) Taste

C) Touch

D) Temperature

125. What part of the ear collects sound waves and directs them to the eardrum?

A) Oval window

B) Pinna

C) Cochlea

D) Eustachian tube

126. Which glands produce hormones or other secretions?

A) Exocrine glands

B) Endocrine glands

C) Mammary glands

D) Salivary glands

127. What distinguishes endocrine glands from exocrine glands?

A) Presence of ducts

B) Production of hormones

C) Size

D) Location in the body

128. Where is the pituitary gland located?

A) Brain

B) Neck

C) Stomach

D) Liver

129. What is the function of the pituitary gland?

A) Controls blood sugar levels

B) Regulates metabolism

C) Controls secretion of other hormones

D) Aids in digestion

130. What is the hormone produced by the thyroid gland?

A) Glucagon

B) Insulin

C) Thyroxine

D) Adrenaline

131. What causes an overactive thyroid gland?

A) Deficiency of iodine

B) Lack of exercise

C) Excess secretion of thyroxine

D) Insufficient blood supply to the gland

132. What is the main symptom of an overactive thyroid gland?

A) Weight gain

B) Fatigue

C) Weight loss

D) Reduced sweating

133. What is the treatment for goiter caused by iodine deficiency?

A) Surgery

B) Iodine supplementation

C) Antibiotics

D) Radiation therapy

134. What percentage of the Ethiopian population is affected by iodine deficiency disorders?

A) 10-20%

B) 20-30%

C) 30-40%

D) 40-50%

135. How can iodine deficiency disorders be prevented?

A) Consuming iodized salt

B) Avoiding salt intake

C) Taking iodine capsules

D) Drinking fluoridated water

136. What hormone controls blood sugar levels?

A) Insulin

B) Glucagon

C) Thyroxine

D) Adrenaline

137. Which hormone converts glucose into glycogen for storage?

A) Insulin

B) Glucagon

C) Thyroxine

D) Adrenaline

138. What is the primary treatment for type 1 diabetes?

A) Diet management

B) Exercise

C) Insulin injections

D) Oral medication

139. Who discovered the use of insulin for diabetes treatment?

A) Frederick Banting and Charles Best

B) Alexander Fleming

C) Louis Pasteur

D) Gregor Mendel

140. What is the role of adrenaline in the body's response to stress?

A) Decrease heart rate

B) Dilate blood vessels

C) Relax muscles

D) Increase heart rate and breathing rate

141. Where are adrenaline glands located?

A) Liver

B) Brain

C) Kidneys

D) Adrenal glands

142. What effect does adrenaline have on the pupils of the eyes?

A) Constricts them

B) Dilates them

C) No effect

D) Blurs vision

143. What is the primary long-term effect of growth hormones?

A) Increased heart rate

B) Accelerated metabolism

C) Physical development and growth

D) Reduced blood flow to muscles

144. At what stage of life do sex hormones typically begin to be produced?

A) Childhood

B) Adolescence

C) Adulthood

D) Old age

145. Which of the following hormones is produced by the pancreas?

A) Thyroxine

B) Insulin

C) Adrenaline

D) Growth hormone

146. What is the cause of goitre in individuals with iodine deficiency?

A) Excessive thyroxine production

B) Enlarged thyroid gland

C) Inadequate blood supply to the thyroid

D) Overactive pituitary gland

147. What is the primary function of insulin in the body?

A) Converts glycogen to glucose

B) Increases blood sugar levels

C) Stores glucose as glycogen

D) Decreases blood sugar levels

148. How does insulin enter the bloodstream for its action?

A) Through the digestive system

B) Via the lymphatic system

C) Through injection

D) Secreted directly into the bloodstream by the pancreas

149. What is the primary symptom of an underactive thyroid gland?

A) Weight loss

B) Increased energy levels

C) Fatigue

D) Excessive sweating

150. What is the role of glucagon in the body?

A) Lowers blood sugar levels

B) Stimulates conversion of glycogen to glucose

C) Stores glucose as glycogen

D) Inhibits insulin production

151. Which of the following is a treatment for goitre caused by iodine deficiency?

A) Surgery to remove the thyroid gland

B) Hormone replacement therapy

C) Iodine supplementation

D) Radiation therapy

152. What is the primary source of glucose for cellular respiration?

A) Proteins

B) Fats

C) Glycogen

D) Carbohydrates

153. What is the primary function of the thyroid gland?

A) Regulates blood sugar levels

B) Controls metabolism

C) Produces insulin

D) Aids in digestion

154. Which of the following glands is described as the "controller of the endocrine orchestra"?

A) Adrenal gland

B) Pituitary gland

C) Thyroid gland

D) Pancreas

155. What is the effect of adrenaline on the heart rate?

A) Decreases heart rate

B) No effect on heart rate

C) Increases heart rate

D) Stabilizes heart rate

156. What is the main symptom of diabetes caused by inadequate insulin production?

A) Weight gain

B) Frequent urination and thirst

C) Fatigue

D) Reduced appetite

157. Which hormone controls the conversion of glycogen to glucose in the liver?

A) Insulin

B) Glucagon

C) Thyroxine

D) Adrenaline

158. What is the primary function of growth hormones?

A) Regulating metabolism

B) Promoting physical growth and development

C) Controlling blood sugar levels

D) Stimulating adrenaline production

159. What is the long-term effect of untreated diabetes?

A) Increased energy levels

B) Weight loss

C) Organ damage

D) Improved vision

160. What percentage of Ethiopian households used iodised salt in 2000?

A) 10%

B) 28%

C) 50%

D) 90%

161. What is the primary symptom of an overactive thyroid gland?

A) Weight gain

B) Increased energy levels

C) Sweating

D) Fatigue

162. How is insulin typically administered to individuals with diabetes?

A) Orally

B) Nasal spray

C) Injection

D) Intravenous infusion

163. What hormone is responsible for the "fight or flight" response?

A) Insulin

B) Glucagon

C) Thyroxine

D) Adrenaline

164. Where are growth hormones primarily produced?

A) Liver

B) Thyroid gland

C) Pituitary gland

D) Pancreas

165. What is the primary function of insulin in the body?

A) Raises blood sugar levels

B) Converts glucose to glycogen for storage

C) Stimulates adrenaline production

D) Lowers blood sugar levels

166. Which of the following endocrine glands secretes a hormone that directly affects the metabolic rate of the body?

A) Pituitary gland

B) Ovary

C) Thyroid

D) Pancreas

167. Which of the following reproductive hormones is produced by the pituitary gland?

A) Oestrogen

B) Testosterone

C) Follicle stimulating hormone (FSH)

D) Progesterone

168. Which of the following changes takes place at puberty ONLY in boys?

A) Growth spurt

B) Larynx enlarging and voice deepening

C) Body shape changes

D) Mature gametes produced

169. Which hormone stimulates the development of eggs in the ovaries?

A) Testosterone

B) Thyroxine

C) Follicle stimulating hormone (FSH)

D) Insulin

170. What is the primary function of insulin produced by the pancreas?

A) Lowers blood sugar levels

B) Raises blood sugar levels

C) Controls growth rate in children

D) Stimulates egg development

171. What hormone prepares the body for stressful situations, often referred to as the "fight or flight" response?

A) Oestrogen

B) Glucagon

C) Adrenaline

D) Progesterone

172. Which hormone controls the growth rate of children?

A) Thyroxine

B) Growth hormone

C) Insulin

D) Testosterone

173. What hormone stimulates egg release in women?

A) Thyroxine

B) Anti-diuretic hormone (ADH)

C) Luteinising hormone (LH)

D) Glucagon

174. Which gland produces oestrogen?

A) Pancreas

B) Adrenal glands

C) Testes

D) Ovaries

175. What is the primary function of progesterone in the female reproductive system?

A) Controls development of male secondary sexual characteristics

B) Stimulates egg release

C) Involved in sperm production

D) Involved in menstrual cycle

176. Which hormone is responsible for controlling the water content of the blood by its effect on the kidneys?

A) Growth hormone

B) Thyroxine

C) Anti-diuretic hormone (ADH)

D) Testosterone

177. What hormone stimulates sperm production in men?

A) Oestrogen

B) Progesterone

C) Follicle stimulating hormone (FSH)

D) Luteinising hormone (LH)

178. Which hormone controls the metabolic rate of the body?

A) Insulin

B) Adrenaline

C) Thyroxine

D) Glucagon

179. What is the function of luteinising hormone (LH) in the female reproductive system?

A) Stimulates egg release

B) Controls development of female secondary sexual characteristics

C) Involved in menstrual cycle

D) Involved in sperm production

180. Which hormone stimulates the thyroid gland to secrete thyroxine?

A) Growth hormone

B) Thyroxine

C) Anti-diuretic hormone (ADH)

D) Thyroid stimulating hormone (TSH)

181. What hormone is involved in preparing the body for stressful situations?

A) Testosterone

B) Oestrogen

C) Adrenaline

D) Progesterone

182. Which hormone is responsible for lowering blood sugar levels?

A) Glucagon

B) Thyroxine

C) Insulin

D) Growth hormone

183. What is the primary function of growth hormone?

A) Controls growth rate in children

B) Stimulates egg release

C) Involved in sperm production

D) Controls development of female secondary sexual characteristics

184. Which hormone maintains the thickened lining of the uterus and stimulates the growth of blood vessels in preparation for pregnancy?

A) Progesterone

B) Oestrogen

C) Follicle stimulating hormone (FSH)

D) Luteinising hormone (LH)

185. What hormone stimulates the development of eggs in the ovaries?

A) Insulin

B) Thyroxine

C) Luteinising hormone (LH)

D) Follicle stimulating hormone (FSH)

186. Which gland secretes the hormone responsible for directly affecting the metabolic rate of the body?

A) Pituitary gland

B) Ovary

C) Thyroid

D) Pancreas

187. What hormone stimulates the development of male secondary sexual characteristics?

A) Oestrogen

B) Progesterone

C) Testosterone

D) Thyroxine

188. Which hormone stimulates the ovaries to produce the female sex hormone estrogen?

A) Follicle stimulating hormone (FSH)

B) Luteinising hormone (LH)

C) Thyroxine

D) Growth hormone

189. What hormone maintains the thickened lining of the uterus in preparation for pregnancy?

A) Progesterone

B) Oestrogen

C) Anti-diuretic hormone (ADH)

D) Insulin

190. Which hormone controls the release of a ripe egg from the ovary during ovulation?

A) Follicle stimulating hormone (FSH)

B) Luteinising hormone (LH)

C) Thyroxine

D) Insulin

191. What hormone is responsible for controlling the water content of the blood by its effect on the kidneys?

A) Thyroxine

B) Insulin

C) Growth hormone

D) Anti-diuretic hormone (ADH)

192. Which hormone stimulates the growth of eggs in the ovaries?

A) Luteinising hormone (LH)

B) Insulin

C) Follicle stimulating hormone (FSH)

D) Growth hormone

193. What hormone is involved in preparing the body for stressful situations, often referred to as "fight or flight" response?

A) Thyroxine

B) Progesterone

C) Adrenaline

D) Oestrogen

194. Which gland produces insulin to control blood sugar levels?

A) Adrenal gland

B) Pancreas

C) Thyroid

D) Pituitary gland

195. What hormone stimulates the release of egg from the ovary in the middle of the menstrual cycle?

A) Progesterone

B) Thyroxine

C) Luteinising hormone (LH)

D) Follicle stimulating hormone (FSH)

196. Which of the following is NOT a learning outcome of the section on reproductive health?

A) List different birth control methods

B) Describe symptoms of HIV/AIDS

C) Explain the process of ovulation

D) Demonstrate life skills to prevent HIV/AIDS spread

197. How do sperm reach the Fallopian tubes?

A) Through the cervix

B) Via ejaculation

C) By crossing the uterus

D) Following ovulation

198. What is the result of fertilization in humans?

A) Formation of zygote

B) Release of ovum

C) Menstruation cycle

D) Cervical mucus changes

199. Which method of contraception relies on understanding the menstrual cycle?

A) Hormone injections

B) Natural methods

C) IUD insertion

D) Sterilization

200. How do condoms prevent pregnancy?

A) By stopping ovulation

B) By preventing sperm entry

C) By blocking Fallopian tubes

D) By altering cervical mucus

201. Which hormone is primarily targeted by the combined pill for contraception?

A) FSH

B) LH

C) Oestrogen

D) Progesterone

202. What is the primary purpose of hormone implants?

A) Preventing ovulation

B) Enhancing fertility

C) Inducing menstruation

D) Reducing cervical mucus

203. What is the effectiveness rate of sterilization as a contraceptive method?

A) 10 pregnancies per 100 woman years

B) 0.5 pregnancies per 100 woman years

C) 0.05 pregnancies per 100 woman years

D) 2.5 pregnancies per 100 woman years

204. How does the IUD prevent pregnancy?

A) By blocking sperm entry

B) By inhibiting ovulation

C) By preventing implantation

D) By altering hormone levels

205. What is the incubation period for HIV/AIDS?

A) 2–3 years

B) 3–12 weeks

C) 20 years or more

D) 60,000–70,000 annually

206. Which bodily fluids can transmit HIV/AIDS?

A) Saliva and sweat

B) Blood and semen

C) Urine and tears

D) Breast milk and vaginal secretions

207. What are the initial symptoms of HIV/AIDS?

A) Swollen glands and weight loss

B) Extreme fatigue and cough

C) High fever and headaches

D) Night sweats and rapid weight loss

208. How does one become HIV-positive?

A) Exposure to infected saliva

B) Sharing of non-sterilized needles

C) Eating contaminated food

D) Casual contact with infected person

209. Which statement regarding HIV/AIDS symptoms is FALSE?

A) Whitish coating on the tongue indicates fungal infection

B) TB and pneumonia are common infections

C) Extreme fatigue is not associated with AIDS

D) Karposi's sarcoma leads to appearance of purple spots

210. What is the recommended action for individuals with negative HIV test results?

A) Abstinence from sex

B) Second test after three months

C) Immediate treatment with antiretrovirals

D) Sharing needles with trusted partners

211. What lifestyle factors can help manage HIV/AIDS progression?

A) Smoking and alcohol abuse

B) Regular exercise and balanced diet

C) Sharing needles and unprotected sex

D) High-risk sexual behavior

212. Which contraceptive method is NOT hormone-based?

A) Hormone injections

B) Mixed pill

C) Hormone implants

D) IUD insertion

213. What is the primary mode of HIV transmission in Ethiopia?

A) Sharing non-sterilized needles

B) Blood transfusion

C) Mother-to-child transmission

D) Unprotected heterosexual sex

214. Which method is recommended for reducing HIV transmission during pregnancy?

A) Bottle-feeding

B) Prenatal screening

C) Breastfeeding

D) Use of antiretroviral drugs

215. What is emphasized as a preventive measure for HIV/AIDS spread?

A) Unprotected sex

B) Avoiding substance abuse

C) Sharing needles

D) Multiple sexual partners

216. What is a crucial factor in reducing HIV/AIDS spread?

A) Assertiveness and decision-making

B) Abstinence-only education

C) Relying solely on condoms

D) Ignoring HIV status

217. Which statement regarding needle exchange programs is TRUE?

A) They encourage sharing of needles

B) They promote safe injection practices

C) They increase HIV transmission

D) They prioritize substance abuse

218. What is a recommended practice for handling blood and body fluids?

A) Sharing personal hygiene items

B) Avoiding hand washing

C) Wearing protective gloves

D) Disposing needles unsafely

219. Which statement regarding HIV/AIDS education is FALSE?

A) Knowledge about transmission reduces stigma

B) Regular condom use eliminates HIV risk

C) Early testing helps in timely intervention

D) Education promotes responsible behavior

220. What is emphasized for young women in preventing HIV/AIDS spread?

A) Refusal of condom use

B) Assertiveness in condom negotiation

C) Passive acceptance of partner's choices

D) Avoidance of HIV testing

221. What is the primary goal of life skills education related to HIV/AIDS?

A) Encouraging risky behaviors

B) Promoting abstinence-only approach

C) Empowering individuals to make informed choices

D) Disregarding partner's HIV status

222. What is the main advantage of abstinence from extra-marital sex?

A) Increased risk of HIV transmission

B) Elimination of HIV risk

C) Higher likelihood of HIV infection

D) Greater susceptibility to HIV/AIDS

223. What is the role of antiretroviral medications in HIV/AIDS treatment?

A) They cure HIV infection

B) They prevent HIV transmission

C) They lengthen the period of healthy life

D) They have no effect on HIV progression

224. What is an effective strategy for reducing HIV/AIDS transmission within communities?

A) Encouraging substance abuse

B) Promoting multiple sexual partners

C) Providing access to HIV testing and treatment

D) Discouraging condom use

225. What is another term for female genital mutilation (FGM) as mentioned in the text?

A) Female Genital Excision (FGE)

B) Female Genital Infection (FGI)

C) Female Genital Treatment (FGT)

D) Female Genital Procedure (FGP)

226. At what age range is female genital mutilation (FGM) typically performed?

A) From birth to six months

B) From six years old until just before marriage

C) During adolescence

D) During pregnancy

227. Which region of Ethiopia has the highest percentage of girls experiencing FGM?

A) SNNPR

B) Amhara

C) Tigray

D) Somali

228. What is the primary reason traditionally given for practicing female genital mutilation (FGM)?

A) To increase fertility

B) To decrease the risk of HIV/AIDS

C) To ensure acceptance in marriage

D) To promote sexual pleasure

229. How does female genital mutilation (FGM) contribute to the spread of HIV/AIDS, according to the text?

A) By increasing fertility rates

B) By causing infertility in women

C) By promoting unprotected sex

D) By creating opportunities for bloodborne transmission

230. Which organization was established by Bogaletch Gebre to combat harmful traditional practices like FGM?

A) Eradication of Harmful Traditional Practices (EHTP)

B) Kembatta Women's Self-Help Centre

C) Ethiopian National Health Committee (ENHC)

D) Addis Ababa University Health Initiative (AAUHI)

231. What is homeostasis?

A) The ability to maintain normal function and stability

B) The process of breaking down food in the body

C) The regulation of external environmental conditions

D) The production of energy in cells

232. Which term refers to organisms whose temperature is governed by the external temperature?

A) Homeotherms

B) Homoiotherms

C) Poikilotherms

D) Endotherms

233. What are homoiotherms also known as?

A) Endotherms

B) Poikilotherms

C) Hibernators

D) Ectotherms

234. What are some physiological methods of temperature regulation in homoiotherms?

A) Sweating and vasodilation

B) Basking in the sun and moving into shade

C) Hibernation and aestivation

D) Panting and licking

235. Which organ is primarily responsible for temperature regulation in humans?

A) Liver

B) Skin

C) Kidney

D) Brain

236. How does sweating help regulate body temperature?

A) By increasing metabolic rate

B) By releasing heat through evaporation

C) By constricting blood vessels

D) By trapping an insulating layer of air

237. What happens to blood vessels near the skin during vasodilation?

A) They constrict

B) They dilate

C) They remain unchanged

D) They collapse

238. Which of the following is a behavioural method of temperature regulation?

A) Sweating

B) Vasodilation

C) Seeking shade

D) Shivering

239. What is an example of a physiological response to hypothermia?

A) Vasodilation

B) Shivering

C) Sweating

D) Vasoconstriction

240. What is the purpose of the thermoregulatory centre in the brain?

A) To regulate water balance

B) To control body temperature

C) To process sensory information

D) To coordinate muscle movements

241. How is the term "homeostasis" derived?

A) From Latin words meaning "stable environment"

B) From Greek words meaning "like" and "state"

C) From Arabic words meaning "internal balance"

D) From Sanskrit words meaning "constant temperature"

242. What is the significance of homeostasis in living organisms?

A) It ensures constant fluctuations in internal conditions

B) It allows organisms to adapt to changing environments

C) It maintains stability in the internal environment

D) It promotes rapid growth and development

243. What is the primary function of poikilotherms?

A) To maintain a constant body temperature

B) To regulate their internal environment

C) To rely on external temperatures for warmth

D) To produce excess heat through metabolism

244. Which statement accurately describes homoiotherms?

A) They have variable body temperatures

B) They are unable to regulate their internal temperature

C) They rely solely on external sources for heat

D) They maintain a constant internal body temperature

245. What role does the kidney play in maintaining homeostasis?

A) Regulation of water and ion balance

B) Production of body heat

C) Control of blood sugar levels

D) Maintenance of oxygen levels in the blood

246. How does the skin contribute to water and salt balance in the body?

A) By producing sweat

B) By synthesizing hormones

C) By regulating blood flow

D) By controlling muscle movements

247. Which organ is involved in the regulation of body temperature through sweating?

A) Kidney

B) Liver

C) Skin

D) Brain

248. What physiological response occurs when the body temperature rises above normal?

A) Vasodilation

B) Shivering

C) Vasoconstriction

D) Sweating

249. Which behavioural method helps animals conserve heat in cold environments?

A) Seeking shade

B) Basking in the sun

C) Wallowing in mud

D) Moving into water

250. What is the purpose of shivering in response to cold temperatures?

A) To increase metabolic rate

B) To reduce blood flow to the skin

C) To generate heat through muscle contractions

D) To dilate blood vessels in the extremities

251. How do mammals like dogs and cats regulate body temperature when they lack sweat glands?

A) By shivering

B) By panting and licking

C) By seeking shade

D) By increasing metabolic rate

252. What is the function of the fat layer under the skin in homoiotherms?

A) To provide insulation and prevent heat loss

B) To enhance sensory perception

C) To store excess water and salt

D) To regulate blood pressure

253. What is an example of a behavioural method of temperature regulation unique to humans?

A) Hibernation

B) Aestivation

C) Seeking shade

D) Wallowing in mud

254. How does the surface area to volume ratio affect heat loss in organisms?

A) Small organisms lose heat faster than larger ones

B) Large organisms lose heat faster than smaller ones

C) Heat loss is independent of organism size

D) Organisms with high surface area lose less heat

255. Which mechanism is responsible for controlling the core body temperature through a negative feedback loop?

A) Thermoregulatory centre in the brain

B) Sweat production in the skin

C) Shivering of muscles

D) Vasodilation of blood vessels

256. Which of the following is NOT a metabolic waste product?

A) Carbon dioxide

B) Urea

C) Glucose

D) Ammonia

257. What is the primary function of excretory organs in the body?

A) Gas exchange

B) Nutrient absorption

C) Waste elimination

D) Hormone production

258. Which organ is responsible for removing carbon dioxide from the body during respiration?

A) Kidneys

B) Liver

C) Lungs

D) Skin

259. What triggers an increase in breathing rate when carbon dioxide levels rise during exercise?

A) Decreased electrical impulses

B) Reduced stimulation of breathing centers

C) Increased oxygen levels

D) Elevated carbon dioxide levels

260. Urea is primarily produced in which organ of the body?

A) Liver

B) Kidneys

C) Lungs

D) Skin

261. What happens to excess amino acids in the body?

A) Stored as fat

B) Converted into urea

C) Used for energy production

D) Secreted by the lungs

262. How is urea removed from the body?

A) Through sweat glands

B) Via the lungs

C) Filtered by the kidneys

D) Excreted by the liver

263. What is the main role of kidneys in homeostasis?

A) Nutrient absorption

B) Waste elimination

C) Gas exchange

D) Hormone production

264. How does the body maintain water balance during different levels of hydration?

A) Through sweating only

B) By adjusting urine production

C) Via increased respiration

D) Through reduced thirst sensation

265. Which hormone regulates water reabsorption in the kidneys?

A) Insulin

B) Glucagon

C) ADH (antidiuretic hormone)

D) Cortisol

266. What is the function of osmoreceptors in the body?

A) Regulation of blood pressure

B) Monitoring oxygen levels

C) Detection of water concentration

D) Control of muscle contraction

267. What happens to ADH release when blood water content is too high?

A) Increased release

B) Decreased release

C) No change

D) Rapid fluctuations

268. What mechanism controls the volume and concentration of urine produced by the kidneys?

A) Positive feedback

B) Negative feedback

C) Hormonal regulation

D) Neurotransmitter release

269. How does sweating contribute to the body's water and salt balance?

A) By reducing water loss

B) By increasing water retention

C) By eliminating excess salt

D) By maintaining osmotic pressure

270. Which organ system primarily regulates water and electrolyte balance in the body?

A) Nervous system

B) Endocrine system

C) Digestive system

D) Urinary system

271. Which organ is responsible for filtering blood and removing waste products like urea?

A) Liver

B) Heart

C) Kidneys

D) Pancreas

272. What is the function of the nephrons in the kidneys?

A) Regulating blood pressure

B) Producing hormones

C) Filtering blood and producing urine

D) Storing excess nutrients

273. Which structure in the kidney is responsible for ultrafiltration of blood?

A) Glomerulus

B) Bowman's capsule

C) Loop of Henle

D) Collecting duct

274. What happens to glucose during the process of urine formation in the kidney tubules?

A) It is reabsorbed into the blood

B) It is converted into urea

C) It is secreted into the urine

D) It is broken down into amino acids

275. Which part of the kidney tubule is responsible for reabsorbing water and ions back into the blood?

A) Bowman's capsule

B) Glomerulus

C) Loop of Henle

D) Second coiled tubule

276. What is the primary function of the collecting duct in the kidney?

A) Filtration of blood

B) Reabsorption of glucose

C) Concentration of urine

D) Secretion of hormones

277. How does the body regulate urine volume based on hydration status?

A) By adjusting blood pressure

B) By controlling thirst sensation

C) By releasing vasopressin hormone

D) By increasing heart rate

278. What is the role of the bladder in the urinary system?

A) Filtration of blood

B) Reabsorption of water

C) Storage of urine

D) Production of urine

279. How does the body prevent uncontrolled loss of water through the skin?

A) By increasing sweat production

B) By forming a waterproof layer

C) By reducing blood flow to the skin

D) By closing sweat glands

280. What is the significance of homeostasis in maintaining overall health and well-being?

A) It prevents dehydration

B) It ensures stability of internal conditions

C) It regulates blood pressure

D) It controls immune responses

281. What percentage of body mass does the liver approximately constitute?

A) 2%

B) 5%

C) 10%

D) 15%

282. Which blood vessel brings the products of digestion directly to the liver?

A) Hepatic artery

B) Renal artery

C) Hepatic portal vein

D) Pulmonary artery

283. Which organ stores bile before releasing it into the gut for fat digestion?

A) Liver

B) Gall bladder

C) Pancreas

D) Stomach

284. What is the primary function of deamination in the liver?

A) Formation of glycogen

B) Breakdown of red blood cells

C) Conversion of excess amino acids into urea

D) Production of bile

285. Which function of the liver involves the breakdown of poisons, including alcohol?

A) Protein metabolism

B) Control of toxins

C) Temperature control

D) Formation of bile

286. What condition can heavy alcohol consumption lead to, which damages the liver tissue?

A) Diabetes

B) Cirrhosis

C) Hepatitis

D) Jaundice

287. How does the liver contribute to temperature regulation in the body?

A) By generating excess heat

B) By spreading heat through the bloodstream

C) By producing hormones

D) By controlling metabolic rate

288. Which system is responsible for the most rapid coordination and control in the body?

A) Endocrine system

B) Nervous system

C) Immune system

D) Respiratory system

289. What is the primary role of motor neurons in the nervous system?

A) Carrying information from sense organs to the central nervous system

B) Coordinating responses to stimuli

C) Carrying instructions from the central nervous system to muscles and glands

D) Assimilating and coordinating information in the CNS

290. What are the junctions between neurons called?

A) Nuclei

B) Synapses

C) Dendrites

D) Axons

Answer Key

1. C) It provides rapid, coordinated responses to stimuli.

Explanation: The nervous system is responsible for transmitting electrical signals quickly to coordinate responses to stimuli.

2. A) Brain and spinal cord

Explanation: The central nervous system consists of the brain and spinal cord, which process and integrate sensory information.

3. B) Afferent neuron

Explanation: Afferent neurons carry sensory information from sensory receptors to the central nervous system for processing.

4. A) They transmit electrical impulses across synapses.

Explanation: Neurotransmitters are chemical messengers that transmit signals across synapses between neurons.

5. C) Cerebrum

Explanation: The cerebrum is responsible for higher-level cognitive functions such as thinking, reasoning, and memory.

6. A) To provide insulation and speed up the transmission of nerve impulses

Explanation: The myelin sheath surrounds the axon of neurons and helps in the rapid transmission of nerve impulses.

7. D) It serves as a pathway for nerve impulses between the brain and the rest of the body.

Explanation: The spinal cord acts as a conduit for nerve signals between the brain and the peripheral nervous system.

8. C) Endocrine glands release secretions into the bloodstream, while exocrine glands release secretions onto body surfaces or into ducts.

Explanation: Endocrine glands secrete hormones directly into the bloodstream, while exocrine glands secrete their products through ducts onto body surfaces or into body cavities.

9. B) A gap between two neurons where neurotransmitters are released.

Explanation: Synapses are the junctions between neurons where neurotransmitters are released to transmit signals.

10. A) The nervous system uses electrical impulses, while the endocrine system uses chemical messengers.

Explanation: The nervous system communicates through electrical impulses transmitted along neurons, while the endocrine system uses hormones as chemical messengers.

11. B) Coordinating voluntary muscle movements

Explanation: One of the functions of the central nervous system is to coordinate voluntary muscle movements.

12. B) Initiating muscle contractions or glandular secretions in response to nerve impulses

Explanation: Effector neurons transmit signals from the central nervous system to muscles or glands, initiating responses to nerve impulses.

13. B) Coordination of balance and muscle activity

Explanation: The cerebellum is responsible for coordinating muscle movements and maintaining balance.

14. C) They transmit nerve impulses across synapses by chemical means.

Explanation: Neurotransmitters are chemicals that transmit nerve impulses across synapses between neurons.

15. B) Regulate body temperature and hunger.

Explanation: The hypothalamus regulates various physiological functions, including body temperature, hunger, and thirst.

16. A) It accelerates the transmission of nerve impulses.

Explanation: The myelin sheath helps to increase the speed of nerve impulse transmission along the axon of neurons.

17. A) Cranial nerves

Explanation: Cranial nerves contain both sensory and motor fibers, making them mixed nerves.

18. B) By releasing neurotransmitters that bind to receptors on neighboring neurons

Explanation: Neurons communicate across synapses by releasing neurotransmitters that bind to receptors on neighboring neurons.

19. C) Medulla

Explanation: The medulla, located in the brainstem, regulates basic life functions such as heartbeat and breathing.

20. D) They have a cell body, dendrites, and an axon for transmitting electrical impulses.

Explanation: Neurons consist of a cell body, dendrites (which receive signals), and an axon (which transmits signals).

21. B) Reflex arcs bypass the brain and involve only the spinal cord.

Explanation: Reflex arcs involve the spinal cord and do not require input from the brain for a response.

22. C) It relays sensory information to the brain and motor commands to the body.

Explanation: The spinal cord acts as a conduit for transmitting sensory information to the brain and motor commands to the body.

23. B) Neuromuscular junctions involve the transmission of signals to muscle fibers.

Explanation: Neuromuscular junctions are synapses between motor neurons and muscle fibers, where signals are transmitted to initiate muscle contractions.

24. D) It controls basic life functions such as heartbeat and breathing.

Explanation: The medulla oblongata in the brainstem controls basic life functions such as heartbeat and breathing.

25. C) They detect changes in the internal or external environment.

Explanation: Sensory receptors detect changes in the internal or external environment and transmit this information to the nervous system.

26. C) The endocrine system uses hormones for long-distance signaling.

Explanation: The endocrine system releases hormones into the bloodstream for signaling to distant target cells.

27. C) Glands

Explanation: Endocrine glands synthesize and release hormones into the bloodstream.

28. B) Processing sensory information and controlling voluntary movements

Explanation: The cerebrum processes sensory information and controls voluntary movements.

29. B) By initiating muscle contractions in response to sensory input

Explanation: The nervous system coordinates voluntary actions by initiating muscle contractions in response to sensory input.

30. C) It indicates the time taken to respond to sensory stimuli.

Explanation: Reaction time measures the time taken to respond to sensory stimuli, indicating the efficiency of neural processing.

31. C) Avoiding danger or damage

Explanation: Reflex actions are rapid, involuntary responses that help to avoid danger or damage to the body.

32. C) Reflex arcs are slower than voluntary neural pathways.

Explanation: Reflex arcs are rapid and involuntary, often faster than conscious, voluntary actions.

33. D) Interneuron

Explanation: Interneurons connect sensory and motor neurons within the central nervous system.

34. B) Sensory receptor

Explanation: Sensory receptors detect stimuli and initiate reflex arcs in response to a stimulus.

35. A) Central Nervous System

Explanation: The central nervous system coordinates reflex actions, including the spinal cord and brain.

36. D) Complexity of the movement

Explanation: Reflex actions are typically simpler and faster than voluntary actions, which involve conscious decision-making.

37. B) Ivan Pavlov

Explanation: Ivan Pavlov is credited with investigating conditioned reflex action using a dog in his famous experiments on classical conditioning.

38. C) Learning through experience

Explanation: Conditioned reflex actions are learned through repeated association of a stimulus with a particular response.

39. B) Learning new behaviors

Explanation: The primary purpose of a conditioned reflex action is to learn new behaviors through experience and association.

40. B) Legal drug use

Explanation: Drug abuse typically involves excessive or inappropriate consumption of drugs, whether legal or illegal.

41. A) Their effect on the body

Explanation: Legal and illegal drugs can have different effects on the body, but legality is determined by governmental regulations.

42. C) LSD

Explanation: LSD (Lysergic acid diethylamide) is not commonly used as a recreational drug in Ethiopia.

43. C) Physical or psychological addiction

Explanation: Drug dependence involves physical or psychological addiction to a substance, leading to withdrawal symptoms upon cessation.

44. D) Emotional well-being

Explanation: Drug abuse can adversely affect emotional well-being, leading to mood disorders and psychological issues.

45. B) By increasing risky behaviors

Explanation: Drug abuse can lead to impaired judgment and risky behaviors, increasing the likelihood of disease transmission such as HIV/AIDS.

46. C) Alteration of brain function

Explanation: Addictive drugs alter brain function, leading to dependence and compulsive drug-seeking behavior.

47. D) Availability in shops and bars

Explanation: Availability in shops and bars is not typically a common feature of recreational drugs in Ethiopia.

48. A) Social acceptance

Explanation: The widespread use of legal recreational drugs may be influenced by social acceptance and cultural norms.

49. C) By altering neurotransmitter levels

Explanation: Drugs affect brain function and behavior by altering neurotransmitter levels, leading to changes in mood, cognition, and behavior.

50. B) Improved mental health

Explanation: Drug abuse typically leads to negative consequences such as lower productivity, absence from school or work, and financial problems.

51. A) Peripheral Nervous System

Explanation: The peripheral nervous system coordinates reflex actions, including sensory receptors, afferent neurons, and efferent neurons.

52. B) Connect sensory and motor neurons in the spinal cord

Explanation: Relay neurons connect sensory and motor neurons within the central nervous system, including in reflex arcs.

53. B) Speed of response

Explanation: Reflex actions are typically faster than voluntary actions due to their direct spinal cord involvement.

54. C) Learning through experience

Explanation: Conditioned reflexes are learned through experience and association, whereas innate reflexes are automatic and instinctive.

55. D) Brainstem

Explanation: The brainstem processes sensory information and initiates reflex actions, including those involving the eyes, ears, and other senses.

56. A) Sensory receptor

Explanation: Sensory receptors detect stimuli and initiate reflex arcs in response to a stimulus.

57. C) Solving a math problem

Explanation: Solving a math problem is a voluntary action that involves conscious thought, unlike reflex actions.

58. B) Conscious awareness

Explanation: Reflex actions occur without conscious awareness or decision-making, unlike voluntary actions.

59. A) Central Nervous System

Explanation: The central nervous system coordinates reflex actions, including sensory receptors, the spinal cord, and the brain.

60. C) Activate effector neurons in response to a stimulus

Explanation: Relay neurons connect sensory and motor neurons and help transmit signals in reflex arcs.

61. C) Iris

Explanation: The iris controls the size of the pupil, regulating the amount of light entering the eye.

62. D) To hold the lens in place and change its shape for focusing

Explanation: The suspensory ligaments hold the lens in place and adjust its shape for focusing on near or distant objects.

63. C) To provide a region for the optic nerve to exit the eye

Explanation: The blind spot is where the optic nerve exits the eye, lacking photoreceptor cells.

64. C) Iris

Explanation: The iris adjusts the size of the pupil to control the amount of light entering the eye and fine-tune focusing.

65. B) To perceive light and movement in dim light conditions

Explanation: Rods are responsible for perceiving light and movement in low-light conditions but do not perceive color.

66. B) Cones

Explanation: Cones are responsible for color vision and provide clear, defined images.

67. A) Long sight

Explanation: Long sight, or hyperopia, results from the focal point of light being behind the retina, causing difficulty focusing on near objects.

68. D) By increasing the curvature of the lens with the help of the ciliary muscles

Explanation: The ciliary muscles change the shape of the lens to focus on close-up objects, a process called accommodation.

69. C) Astigmatism

Explanation: Astigmatism results from an irregular shape of the cornea or lens, causing blurred vision at all distances.

70. C) By overlapping the visual fields from both eyes to create depth perception

Explanation: The brain combines images from both eyes to create depth perception by overlapping visual fields.

71. A) Chemoreceptors

Explanation: Chemoreceptors respond to changes in chemical concentrations, such as pH and carbon dioxide levels.

72. C) Chemicals

Explanation: Taste buds in the tongue respond to various chemicals present in food, allowing humans to perceive taste.

73. C) To maintain balance and equilibrium

Explanation: The semi-circular canals in the inner ear help maintain balance and equilibrium by detecting rotational movements.

74. D) Sensory organ

Explanation: The sensory organs, including the eyes, ears, nose, tongue, and skin, detect and relay information about the body's senses to the brain.

75. C) Iris

Explanation: The iris controls the size of the pupil, regulating the amount of light entering the eye.

76. B) Radial muscles

Explanation: The radial muscles in the iris contract to dilate the pupil in dim light conditions, allowing more light to enter the eye.

77. D) To close over the eyes and protect them from foreign objects

Explanation: Eyelids serve a protective function by closing over the eyes to protect them from foreign objects and debris.

78. D) To supply the retina with food and oxygen

Explanation: The choroid layer supplies the retina with nutrients, oxygen, and removes waste products.

79. C) To prove the presence of a blind spot in the eye

Explanation: Conducting an experiment to demonstrate the blind spot helps illustrate the structure and function of the retina.

80. C) Skin

Explanation: The skin contains sensory receptors for temperature, touch, pressure, and pain, allowing humans to perceive changes in their environment.

81. C) Lens

Explanation: The lens of the eye fine-tunes the focusing of light onto the retina for clear vision.

82. A) Rods

Explanation: Rods respond to relatively low light levels but do not provide clear images or color vision.

83. B) Provide clear, defined images

Explanation: Cones are responsible for color vision and provide clear, defined images, particularly in bright light conditions.

84. C) Missing one or more types of cones

Explanation: Color blindness occurs when an individual is missing one or more types of cones responsible for perceiving color.

85. B) Accommodation

Explanation: Accommodation refers to the ability of the eye to adjust its focus on objects at different distances by changing the shape of the lens.

86. B) Concave lens

Explanation: A concave lens corrects short-sightedness by diverging light rays before they enter the eye, allowing them to focus properly on the retina.

87. A) Irregular shape of the eye or lens

Explanation: Astigmatism is caused by an irregular shape of the cornea or lens, leading to blurred vision at all distances.

88. B) Depth perception

Explanation: Depth perception allows humans to perceive spatial relationships and distances in three dimensions, derived from overlapping visual fields of both eyes.

89. D) By integrating different views of the same object

Explanation: The brain combines images from both eyes by integrating different views of the same object to perceive depth and distance.

90. C) Ciliary muscles

Explanation: The ciliary muscles surround the lens and change its shape for focusing on near or distant objects, a process called accommodation.

91. A) Auricle

Explanation: The auricle, or pinna, helps trap and funnel sound into the ear canal.

92. A) Equalizes air pressure between the middle ear and throat

Explanation: The Eustachian tube equalizes air pressure between the middle ear and the throat, helping maintain optimal conditions for hearing.

93. A) Malleus, incus, stapes

Explanation: The malleus, incus, and stapes are the three small bones of the middle ear, also known as the ossicles.

94. D) Transmits vibrations from the middle ear to the cochlea

Explanation: The oval window transmits vibrations from the middle ear to the cochlea, initiating the process of hearing.

95. C) Semicircular canals

Explanation: The semicircular canals are responsible for detecting motion and changes in head position, contributing to balance and equilibrium.

96. B) It causes the cupula to tilt, stimulating sensory cells

Explanation: Fluid movement in the semicircular canals causes the cupula to tilt, stimulating sensory hair cells and signaling motion to the brain.

97. A) Fluid movement in the semicircular canals

Explanation: Rapid spinning causes fluid movement in the semicircular canals, leading to a sensation of dizziness or vertigo.

98. A) Tongue

Explanation: Taste buds in the tongue detect different tastes, including sweet, sour, salty, and bitter.

99. C) Acts as an energy store and insulation

Explanation: The hypodermis layer of the skin acts as an energy store, provides insulation, and contains sensory receptors for touch.

100. B) Dermis

Explanation: The dermis layer of the skin contains blood vessels, sweat glands, hair follicles, and sensory receptors for touch, temperature, and pressure.

101. C) Pain receptors

Explanation: Pain receptors, also known as nociceptors, are found in the dermis layer of the skin.

102. B) Pinna

Explanation: The pinna, also known as the auricle, collects sound waves and funnels them into the ear canal.

103. A) Detect motion

Explanation: The semicircular canals in the inner ear are responsible for detecting motion and changes in head position.

104. A) Fluid movement in the semicircular canals

Explanation: Rapid spinning causes fluid movement in the semicircular canals, leading to a sensation of dizziness or vertigo.

105. A) Utricle

Explanation: The utricle and saccule, structures in the inner ear, are responsible for detecting changes in head position and linear acceleration.

106. A) Equalizes air pressure in the middle ear

Explanation: The Eustachian tube equalizes air pressure between the middle ear and the throat.

107. C) Astigmatism

Explanation: Astigmatism is a common disorder of the eye, not the ear.

108. A) Sweet, sour, bitter, salty

Explanation: The basic taste sensations are sweet, sour, bitter, and salty.

109. C) Energy storage and insulation

Explanation: The main function of the skin's hypodermis layer is energy storage and insulation.

110. B) Dermis

Explanation: The dermis layer of the skin contains sweat glands and hair follicles.

111. B) Incus and malleus

Explanation: The incus and malleus are the two smallest bones in the human body, found in the middle ear.

112. B) Connects to the eardrum

Explanation: The malleus bone in the ear connects to the eardrum.

113. B) Semicircular canals

Explanation: The semicircular canals in the inner ear are responsible for detecting motion.

114. B) Changes in head position

Explanation: The sacculus and utriculus in the inner ear detect changes in head position and linear acceleration.

115. B) Collect and funnel sound waves

Explanation: The primary function of the pinna in the outer ear is to collect and funnel sound waves into the ear canal.

116. A) By producing waxy material

Explanation: The ear protects against the entry of pathogens by producing waxy material.

117. C) Eustachian tube

Explanation: The Eustachian tube is responsible for equalizing air pressure during activities like flying.

118. C) Fluid movement in the semicircular canals

Explanation: Rapid spinning causes fluid movement in the semicircular canals, leading to a sensation of dizziness or vertigo.

119. A) Semicircular canals

Explanation: The structures in the inner ear filled with fluid are the semicircular canals.

120. B) Dermis

Explanation: The dermis layer of the skin contains blood vessels, sweat glands, and sensory receptors.

121. C) Smell

Explanation: Receptors in the upper parts of the nasal passages primarily detect smell.

122. A) Epidermis

Explanation: The epidermis layer of the skin contains dead cells that protect against water loss and pathogens.

123. C) Temperature control and sense of touch

Explanation: The main function of the dermis layer of the skin is temperature control and the sense of touch.

124. B) Taste

Explanation: Receptors in the upper surface of the tongue primarily detect taste.

125. B) Pinna

Explanation: The pinna collects sound waves and directs them to the eardrum.

126. B) Endocrine glands

Explanation: Endocrine glands produce hormones or other secretions.

127. A) Presence of ducts

Explanation: Endocrine glands do not have ducts, while exocrine glands do.

128. A) Brain

Explanation: The pituitary gland is located in the brain.

129. C) Controls secretion of other hormones

Explanation: The pituitary gland controls the secretion of other hormones from various endocrine glands.

130. C) Thyroxine

Explanation: The hormone produced by the thyroid gland is thyroxine.

131. C) Excess secretion of thyroxine

Explanation: An overactive thyroid gland results from excess secretion of thyroxine.

132. C) Weight loss

Explanation: Weight loss is a primary symptom of an overactive thyroid gland.

133. B) Iodine supplementation

Explanation: Iodine supplementation is a treatment for goiter caused by iodine deficiency.

134. A) 10-20%

Explanation: Around 10-20% of the Ethiopian population is affected by iodine deficiency disorders.

135. A) Consuming iodized salt

Explanation: Iodine deficiency disorders can be prevented by consuming iodized salt.

136. A) Insulin

Explanation: Insulin controls blood sugar levels.

137. B) Glucagon

Explanation: Glucagon stimulates the conversion of glycogen to glucose for energy.

138. C) Insulin injections

Explanation: The primary treatment for type 1 diabetes is insulin injections.

139. A) Frederick Banting and Charles Best

Explanation: Frederick Banting and Charles Best discovered the use of insulin for diabetes treatment.

140. D) Increase heart rate and breathing rate

Explanation: Adrenaline increases heart rate and breathing rate in response to stress.

141. D) Adrenal glands

Explanation: Adrenaline glands are located in the adrenal glands.

142. B) Dilates them

Explanation: Adrenaline dilates the pupils of the eyes.

143. B) Accelerated metabolism

Explanation: The primary long-term effect of growth hormones is accelerated metabolism.

144. B) Adolescence

Explanation: Sex hormones typically begin to be produced at puberty.

145. B) Insulin

Explanation: Insulin is produced by the pancreas.

146. B) Enlarged thyroid gland

Explanation: Goiter in individuals with iodine deficiency is caused by an enlarged thyroid gland.

147. D) Decreases blood sugar levels

Explanation: The primary function of insulin is to decrease blood sugar levels.

148. D) Secreted directly into the bloodstream by the pancreas

Explanation: Insulin is secreted directly into the bloodstream by the pancreas for its action.

149. C) Fatigue

Explanation: Fatigue is a primary symptom of an underactive thyroid gland.

150. B) Stimulates conversion of glycogen to glucose

Explanation: Glucagon stimulates the conversion of glycogen to glucose for energy.

151. C) Iodine supplementation

Explanation: Iodine supplementation is a treatment for goiter caused by iodine deficiency.

152. D) Carbohydrates

Explanation: Glucose is the primary source of energy for cellular respiration and is derived from carbohydrates.

153. B) Controls metabolism

Explanation: The primary function of the thyroid gland is to control metabolism.

154. B) Pituitary gland

Explanation: The pituitary gland is often referred to as the "controller of the endocrine orchestra."

155. C) Increases heart rate

Explanation: Adrenaline increases heart rate.

156. B) Frequent urination and thirst

Explanation: Frequent urination and thirst are primary symptoms of diabetes caused by inadequate insulin production.

157. B) Glucagon

Explanation: Glucagon stimulates the conversion of glycogen to glucose in the liver.

158. A) Regulating metabolism

Explanation: Growth hormones regulate metabolism and stimulate growth.

159. C) Organ damage

Explanation: Untreated diabetes can lead to organ damage.

160. B) 28%

Explanation: Approximately 28% of Ethiopian households used iodised salt in 2000.

161. D) Fatigue

Explanation: Fatigue is a primary symptom of an overactive thyroid gland.

162. C) Injection

Explanation: Insulin is typically administered to individuals with diabetes through injection.

163. D) Adrenaline

Explanation: Adrenaline is responsible for the "fight or flight" response.

164. C) Pituitary gland

Explanation: Growth hormones are primarily produced in the pituitary gland.

165. D) Lowers blood sugar levels

Explanation: The primary function of insulin is to lower blood sugar levels.

166. C) Thyroid

Explanation: The thyroid gland directly affects the metabolic rate of the body.

167. C) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) is produced by the pituitary gland.

168. B) Larynx enlarging and voice deepening

Explanation: Larynx enlarging and voice deepening is a change that takes place at puberty only in boys.

169. C) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) stimulates the development of eggs in the ovaries.

170. D) Lowers blood sugar levels

Explanation: The primary function of insulin produced by the pancreas is to lower blood sugar levels.

171. C) Adrenaline

Explanation: Adrenaline prepares the body for stressful situations, often referred to as the "fight or flight" response.

172. B) Growth hormone

Explanation: Growth hormone controls the growth rate of children.

173. C) Luteinising hormone (LH)

Explanation: Luteinising hormone (LH) stimulates egg release in women.

174. D) Ovaries

Explanation: Oestrogen is produced by the ovaries.

175. D) Involved in menstrual cycle

Explanation: Progesterone is involved in the menstrual cycle.

176. C) Anti-diuretic hormone (ADH)

Explanation: Anti-diuretic hormone (ADH) controls the water content of the blood by its effect on the kidneys.

177. C) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) stimulates sperm production in men.

178. C) Thyroxine

Explanation: Thyroxine controls the metabolic rate of the body.

179. A) Stimulates egg release

Explanation: Luteinising hormone (LH) stimulates egg release in the female reproductive system.

180. D) Thyroid stimulating hormone (TSH)

Explanation: Thyroid stimulating hormone (TSH) stimulates the thyroid gland to secrete thyroxine.

181. C) Adrenaline

Explanation: Adrenaline is involved in preparing the body for stressful situations.

182. D) Growth hormone

Explanation: Insulin lowers blood sugar levels.

183. A) Controls growth rate in children

Explanation: The primary function of growth hormone is to control the growth rate in children.

184. A) Progesterone

Explanation: Progesterone maintains the thickened lining of the uterus and stimulates the growth of blood vessels in preparation for pregnancy.

185. D) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) stimulates the development of eggs in the ovaries.

186. C) Thyroid

Explanation: The thyroid gland is responsible for directly affecting the metabolic rate of the body.

187. C) Testosterone

Explanation: Testosterone is responsible for controlling the development of male secondary sexual characteristics.

188. A) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) stimulates the ovaries to produce the female sex hormone estrogen.

189. A)

Progesterone

Explanation: Progesterone maintains the thickened lining of the uterus in preparation for pregnancy.

190. B) Luteinising hormone (LH)

Explanation: Luteinising hormone (LH) controls the release of a ripe egg from the ovary during ovulation.

191. D) Anti-diuretic hormone (ADH)

Explanation: Anti-diuretic hormone (ADH) controls the water content of the blood by its effect on the kidneys.

192. C) Follicle stimulating hormone (FSH)

Explanation: Follicle stimulating hormone (FSH) stimulates the growth of eggs in the ovaries.

193. C) Adrenaline

Explanation: Adrenaline is involved in preparing the body for stressful situations, often referred to as the "fight or flight" response.

194. B) Pancreas

Explanation: The pancreas produces insulin to control blood sugar levels.

195. C) Luteinising hormone (LH)

Explanation: Luteinising hormone (LH) stimulates the release of egg from the ovary in the middle of the menstrual cycle.

196. C) Explain the process of ovulation

Explanation: Understanding the process of ovulation is not a learning outcome of the section on reproductive health.

197. B) Via ejaculation

Explanation: Sperm reach the Fallopian tubes via ejaculation.

198. A) Formation of zygote

Explanation: Fertilization in humans results in the formation of a zygote.

199. B) Natural methods

Explanation: Natural methods of contraception rely on understanding the menstrual cycle.

200. B) By preventing sperm entry

Explanation: Condoms prevent pregnancy by preventing sperm entry into the female reproductive system.

201. C) Oestrogen

Explanation: The combined pill primarily targets oestrogen and progestogen hormones to prevent ovulation.

202. A) Preventing ovulation

Explanation: Hormone implants work by continuously releasing hormones to prevent ovulation.

203. C) 0.05 pregnancies per 100 woman years

Explanation: Sterilization has an effectiveness rate of approximately 0.05 pregnancies per 100 woman years.

204. C) By preventing implantation

Explanation: Intrauterine devices (IUDs) prevent pregnancy primarily by preventing implantation of the fertilized egg.

205. B) 3–12 weeks

Explanation: The incubation period for HIV/AIDS is typically 3–12 weeks after exposure.

206. B) Blood and semen

Explanation: HIV/AIDS can be transmitted through bodily fluids such as blood and semen.

207. A) Swollen glands and weight loss

Explanation: Swollen glands and weight loss are common initial symptoms of HIV/AIDS.

208. B) Sharing of non-sterilized needles

Explanation: HIV can be transmitted through the sharing of non-sterilized needles contaminated with infected blood.

209. C) Extreme fatigue is not associated with AIDS

Explanation: Extreme fatigue is associated with AIDS, so the statement that it's not associated is false.

210. B) Second test after three months

Explanation: Individuals with negative HIV test results should undergo a second test after three months for confirmation.

211. B) Regular exercise and balanced diet

Explanation: Lifestyle factors such as regular exercise and a balanced diet can help manage HIV/AIDS progression.

212. D) IUD insertion

Explanation: Intrauterine devices (IUDs) are not hormone-based contraceptives.

213. D) Unprotected heterosexual sex

Explanation: Unprotected heterosexual sex is the primary mode of HIV transmission in Ethiopia.

214. D) Use of antiretroviral drugs

Explanation: The use of antiretroviral drugs is recommended for reducing HIV transmission during pregnancy.

215. B) Avoiding substance abuse

Explanation: Avoiding substance abuse is emphasized as a preventive measure for HIV/AIDS spread.

216. A) Assertiveness and decision-making

Explanation: Assertiveness and decision-making are crucial factors in reducing HIV/AIDS spread.

217. B) They promote safe injection practices

Explanation: Needle exchange programs promote safe injection practices to reduce HIV transmission.

218. C) Wearing protective gloves

Explanation: Wearing protective gloves is a recommended practice for handling blood and body fluids.

219. B) Regular condom use eliminates HIV risk

Explanation: Regular condom use reduces but does not eliminate the risk of HIV transmission.

220. B) Assertiveness in condom negotiation

Explanation: Assertiveness in condom negotiation is emphasized for young women in preventing HIV/AIDS spread.

221. C) Empowering individuals to make informed choices

Explanation: The primary goal of life skills education related to HIV/AIDS is to empower individuals to make informed choices.

222. B) Elimination of HIV risk

Explanation: Abstinence from extra-marital sex reduces the risk of HIV transmission but does not eliminate it entirely.

223. C) They lengthen the period of healthy life

Explanation: Antiretroviral medications are used to prolong the period of healthy life in HIV/AIDS treatment.

224. C) Providing access to HIV testing and treatment

Explanation: Providing access to HIV testing and treatment is an effective strategy for reducing HIV/AIDS transmission within communities.

225. A) Female Genital Excision (FGE)

Explanation: Female Genital Excision (FGE) is another term for female genital mutilation (FGM).

226. B) From six years old until just before marriage

Explanation: Female genital mutilation (FGM) is typically performed from six years old until just before marriage.

227. D) Somali

Explanation: Somali region of Ethiopia has the highest percentage of girls experiencing FGM.

228. C) To ensure acceptance in marriage

Explanation: Traditionally, one of the reasons given for practicing female genital mutilation (FGM) is to ensure acceptance in marriage.

229. D) By creating opportunities for bloodborne transmission

Explanation: Female genital mutilation (FGM) can contribute to the spread of HIV/AIDS by creating opportunities for bloodborne transmission.

230. B) Kembatta Women's Self-Help Centre

Explanation: Bogaletch Gebre established the Kembatta Women's Self-Help Centre to combat harmful traditional practices like FGM.

231. A) The ability to maintain normal function and stability

Explanation: Homeostasis refers to the ability of an organism to maintain normal function and stability in its internal environment.

232. C) Poikilotherms

Explanation: Organisms whose temperature is governed by the external temperature are known as poikilotherms.

233. C) Hibernators

Explanation: Homoiotherms are also known as endotherms or warm-blooded animals.

234. A) Sweating and vasodilation

Explanation: Sweating and vasodilation are physiological methods of temperature regulation in homoiotherms.

235. B) Skin

Explanation: The skin is primarily responsible for temperature regulation in humans through sweating, vasodilation, and vasoconstriction.

236. B) By releasing heat through evaporation

Explanation: Sweating helps regulate body temperature by releasing heat through evaporation.

237. B) They dilate

Explanation: Blood vessels near the skin dilate during vasodilation, allowing more blood to flow near the surface, releasing heat.

238. C) Seeking shade

Explanation: Seeking shade is a behavioral method of temperature regulation.

239. B) Shivering

Explanation: Shivering is a physiological response to hypothermia, generating heat through muscle contractions.

240. B) To control body temperature

Explanation: The primary function of the thermoregulatory center in the brain is to control body temperature.

241. A) From Latin words meaning "stable environment"

Explanation: The term "homeostasis" is derived from Latin words meaning "stable environment."

242. B) It allows organisms to adapt to changing environments

Explanation: Homeostasis ensures stability in the internal environment, allowing organisms to adapt to changing external conditions.

243. C) To rely on external temperatures for warmth

Explanation: Poikilotherms rely on external temperatures for warmth and cannot regulate their internal body temperature.

244. D) To maintain a constant internal body temperature

Explanation: Homoiotherms, or endotherms, maintain a constant internal body temperature.

245. A) Regulation of water and ion balance

Explanation: The kidneys play a crucial role in maintaining homeostasis by regulating water and ion balance.

246. A) By producing sweat

Explanation: Sweating helps regulate water and salt balance in the body by eliminating excess salt and water.

247. C) Skin

Explanation: The skin is involved in temperature regulation through sweating and vasodilation.

248. D) Sweating

Explanation: Sweating is a physiological response to elevated body temperature, helping to cool the body down.

249. D) Moving into water

Explanation: Moving into water helps animals conserve heat in cold environments by reducing heat loss through convection.

250. C) To generate heat through muscle contractions

Explanation: Shivering generates heat through muscle contractions, helping to increase body temperature.

251. B) By panting and licking

Explanation: Mammals like dogs and cats regulate body temperature by panting and licking, as they lack sweat glands.

252. A) To provide insulation and prevent heat loss

Explanation: The fat layer under the skin in homoiotherms provides insulation and prevents heat loss.

253. C) Seeking shade

Explanation: Seeking shade is a behavioral method of temperature regulation unique to humans.

254. A) Small organisms lose heat faster than larger ones

Explanation: Small organisms have a higher surface area to volume ratio and lose heat faster than larger ones.

255. A) Thermoregulatory center in the brain

Explanation: The thermoregulatory center in the brain controls core body temperature through a negative feedback loop.

256. C) Glucose

Explanation: Glucose is not a metabolic waste product; it's a vital energy source for cells.

257. C) Waste elimination

Explanation: The primary function of excretory organs is waste elimination from the body.

258. C) Lungs

Explanation: The lungs remove carbon dioxide from the body during respiration.

259. D) Elevated carbon dioxide levels

Explanation: Elevated carbon dioxide levels trigger an increase in breathing rate during exercise.

260. A) Liver

Explanation: Urea is primarily produced in the liver from the breakdown of amino acids.

261. C) Used for energy production

Explanation: Excess amino acids in the body can be used for energy production or converted into fat or glycogen.

262. C) Filtered by the kidneys

Explanation: Urea is filtered by the kidneys and excreted in the urine.

263. B) Waste elimination

Explanation: The kidneys play a primary role in waste elimination and maintaining homeostasis.

264. B) By adjusting urine production

Explanation: The body regulates urine volume based on hydration status by adjusting urine production in the kidneys.

265. C) ADH (antidiuretic hormone)

Explanation: Antidiuretic hormone (ADH) regulates water reabsorption in the kidneys.

266. C) Detection of water concentration

Explanation: Osmoreceptors detect changes in water concentration in the body.

267. B) Decreased release

Explanation: When blood water content is too high, ADH release decreases to reduce water reabsorption in the kidneys.

268. B) Negative feedback

Explanation: The volume and concentration of urine produced by the kidneys are controlled by negative feedback mechanisms.

269. A) By reducing water loss

Explanation: Sweating helps maintain water balance by reducing water loss through the skin.

270. D) Urinary system

Explanation: The urinary system primarily regulates water and electrolyte balance in the body.

271. C) Kidneys

Explanation: The kidneys filter blood and remove waste products like urea.

272. C) Filtering blood and producing urine

Explanation: Nephrons in the kidneys are responsible for filtering blood and producing urine.

273. A) Glomerulus

Explanation: The glomerulus is responsible for ultrafiltration of blood in the kidneys.

274. A) It is reabsorbed into the blood

Explanation: Glucose is reabsorbed into the blood during urine formation in the kidney tubules.

275. D) Second coiled tubule

Explanation: The second coiled tubule in the kidney is responsible for reabsorbing water and ions back into the blood.

276. C) Concentration of urine

Explanation: The collecting duct in the kidney is responsible for concentrating urine.

277. B) By controlling thirst sensation

Explanation: The body regulates urine volume based on hydration status by controlling thirst sensation.

278. C) Storage of urine

Explanation: The bladder stores urine before it is excreted from the body.

279. B) By forming a waterproof layer

Explanation: The skin prevents uncontrolled loss of water through the formation of a waterproof layer.

280. B) It ensures stability of internal conditions

Explanation: Homeostasis ensures stability of internal conditions, promoting overall health and well-being.

281. B) 5%

Explanation: The liver approximately constitutes about 5% of body mass.

282. C) Hepatic portal vein

Explanation: The hepatic portal vein brings the products of digestion directly to the liver.

283. B) Gall bladder

Explanation: The gall bladder stores bile before releasing it into the gut for fat digestion.

284. C) Conversion of excess amino acids into urea

Explanation: Deamination in the liver involves converting excess amino acids into urea for excretion.

285. D) Formation of bile

Explanation: The liver performs various functions, including the formation of bile.

286. B) Cirrhosis

Explanation: Heavy alcohol consumption can lead to cirrhosis, which damages liver tissue.

287. D) By controlling metabolic rate

Explanation: The liver contributes to temperature regulation by controlling metabolic rate.

288. B) Nervous system

Explanation: The nervous system is responsible for rapid coordination and control in the body.

289. C) Carrying instructions from the central nervous system to muscles and glands

Explanation: Motor neurons carry instructions from the central nervous system to muscles and glands.

290. B) Synapses

Explanation: Synapses are the junctions between neurons where transmission of nerve impulses occurs.