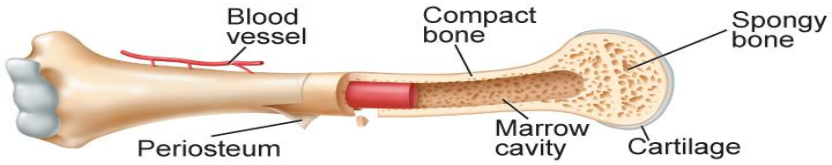
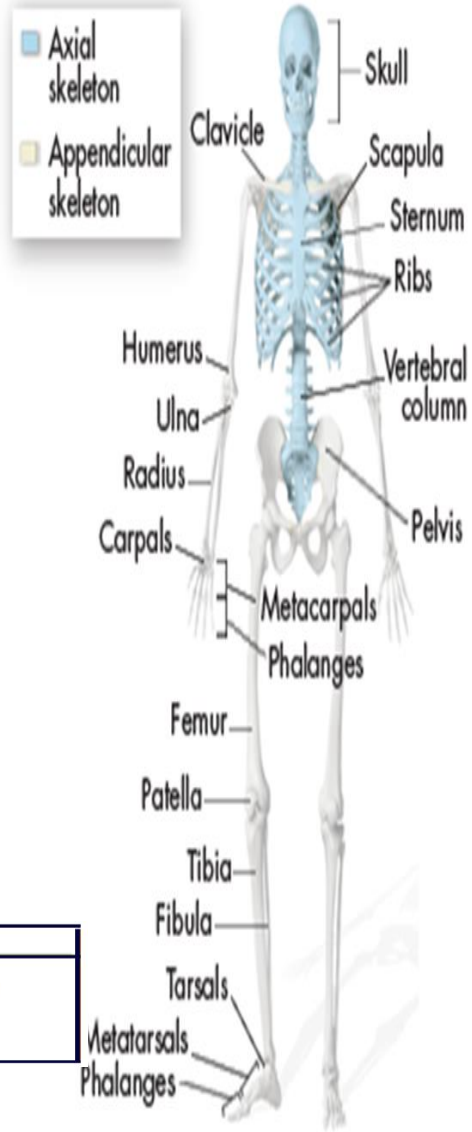
CHAPTER 6: Human Body systems

Part 1: Skeletal System

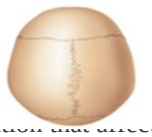
Axial System:
consists of: Skull, Vertebral Column, Ribs and Sternum
Appendicular System:
Upper Limbs, Lower Limbs, Shoulder, Clavicle and the Pelvis
Bone Components:
Compact Bone, Spongy Bone, Osteocytes, Red bone marrow, And Yellow Bone Marrow





Bone C
Long Bones, Short Bones, Flat Bones, and Irregular Bones (like vertebral column or backbone).
Osteoblasts: a type of cell which helps in the building the bone
Osteoclasts: a type of Bone cell that breaks down damaged and weak bone cells
The skeletal system functions
- ***Support:*** supports and holds up the body.
- ***Protection:*** skull protects the brain, vertebra protects the spinal column.
- ***Formation*** of blood cells: red bone marrow produces red blood cells, white blood cells, and platelets. (***yellow bone marrow*** stores fat)
- ***Reservoir:*** stores calcium and phosphorus

Tendons: a solid connective tissue that connects muscles and bones.
Types of Joints
- Gliding Joint (ankles and wrists)
- Pivot Joint (neck)
- Ball/Socket Joint: widest range of motion, (hip and shoulders)
- Hinge Joint (knees, elbow, fingers, and toes)
- Fibrous joint (skull)



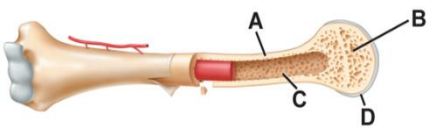
Bone medical conditions:
- Osteoarthritis: a painful condition that affects joints and results from the deterioration of the cartilage.
- Rheumatoid arthritis: affected joints lose their strength and function and are inflamed.

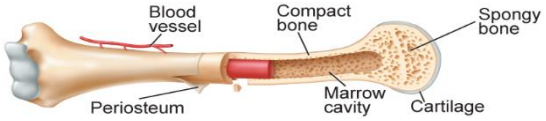
1 **Which of the following is not a part of the Axial Skeleton in a human ?**
CH 6 **A** Ribs **B** Pelvis **C** Vertebral Column **D** Skull
Axial System consists of: Skull, Vertebral Column, Ribs and Sternum →B

2 **Which of the following is a part of the Axial Skeleton in human?**
CH 6 **A** Shoulder Bone **B** Clavicle **C** Sternum **D** Hip Bone
Axial System consists of Skull, Vertebral Column, Ribs and Sternum →C

3 **……. Cells get rid of weak and damaged Osteocytes**
CH 6 **A** Osteoclast **B** Osteolytic **C** Osteoblast **D** Enzymatic osteoblasts
Osteoclasts: a type of Bone cell that breaks down damaged and weak bone cells →A

4 **The picture below shows spongy bones?**
CH 6 **A** A **B** B **C** C **D** D





→B

CHAPTER 6: Human Body systems

5 **Someone with Osteoporosis lacks …**
CH 6
A Sodium **B** Vitamin A
C Calcium **D** Vitamin B
Calcium is important for bones →C

6 **What are the living bone cells?**
CH 6
A Osteoclasts **B** Osteocytes
C Cartilage **D** Bone marrow
Osteoblasts: a type of cell which helps in the building the bone. →B

7 The Hip and Shoulder joints are
CH 6
A Pivot Joints B Hinge Joints
C Gliding Joints D Ball/Socket joint
Ball/Socket Joint (hip and shoulders) →D

8 **When a medical report indicates irregular fractures, the bones are expected to be ….**
CH 6
A Skull **B** Wrist
C Leg **D** Vertebral Column
Bone Classification: Long Bones, Short Bones, Flat Bones, and Irregular Bones (like vertebral column or backbone) →D

9 **What type of joint is the Elbow Joint?**
CH 6
A Pivot Joints **B** Hinge Joints
C Gliding Joints **D** Ball/Socket joint
Hinge Joint (knees, elbow, fingers and toes) →B

10 **The picture below shows which type of joint?**
CH 6
A Hip
B Neck
C Elbow
D Skull

Hinge Joint (knees, elbow, fingers, and toes) →C

11 **An infection that affects the joints and loss their strength is…**
CH 6
A Osteoarthritis **B** Rheumatoid arthritis
C Bursitis **D** Sprain
Rheumatoid arthritis: affected joints lose their strength and function and are inflamed. →B

12 **Which joint provides the widest range of motion?**

CH 6
A A **B** B
C C **D** D
Ball/Socket Joint: widest range of motion, (hip and shoulders) →A

13 **Red and white blood cells and platelets are formed in…**
CH 6
A Yellow bone marrow
B Bone cells
C Red bone marrow
D Marrow cavity
Red bone marrow produces red blood cells, white blood cells →C

14 **Wrists and ankles have which type of joint?**
CH 6
A Hinge **B** Pivot
C Gliding **D** Ball/Socket
Gliding Joint (ankles and wrists) →C

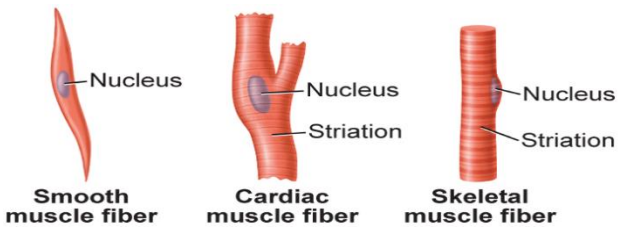
15 **Which of the following is responsible for the formation of red blood cells?**
CH 6
A The muscular system
B The lymphatic system
C The skeletal system
D The nervous system
Red bone marrow in the skeletal system produces red blood cells, white blood cells →C

16 **Where in the bone is fat stored?**
CH 6
A Osteons **B** Spongy bone
C Bone marrow **D** Haversian canals
Yellow bone marrow stores fat →C

1 **When testing a person's blood and it shows high levels of calcium in his or her body, where is the extra calcium stored?**
Do It?
A Liver tissues **B** Bone tissues
C Muscle tissues **D** Cartilage tissues

Part 2: Muscular System

Skeletal muscles: striated, voluntary muscles, cause movements. Composed of actin and myosin. Ex: muscles that move arms.
Most skeletal muscles are arranged in opposing, or antagonistic pairs.
Smooth muscles: not striated, involuntary muscles.
Ex: muscles that line the esophagus, stomach, bladder, and uterus.
Cardiac muscles: striated, involuntary. Ex: heart.



17 **To watch the protein filaments myosin and actin; make a slit in muscular tissue taken from…**
CH 6
A Bladder **B** Uterus
C Stomach **D** Arm
Skeletal muscles composed of actin and myosin →D

18 **Which is not a characteristic of smooth muscle?**
CH 6
A It is an involuntary muscle.
B It has one nucleus per cell.
C It has striations and stripes.
D It lines organs of the digestive tract.
Smooth muscles: not striated, involuntary muscles. →C

19 **What is the type of muscles that line the stomach in humans?**

CH 6
A Smooth **B** Skeletal
C Cardiac **D** Voluntary

Smooth muscles: not striated, involuntary muscles.
Ex: muscles that line the esophagus, stomach, bladder, and uterus. →A

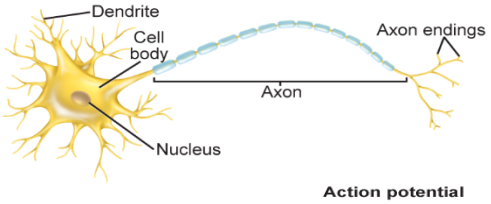
20 **Food moves through the alimentary canal from the esophagus to the large intestine by … muscles.**

CH 6
A Skeletal **B** Smooth
C Striated **D** Voluntary

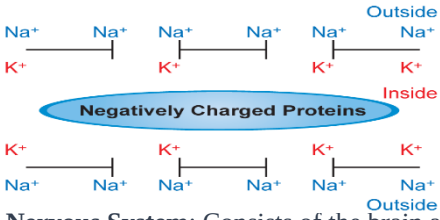
Smooth muscles Ex: muscles that line the esophagus, stomach, bladder, and uterus →B

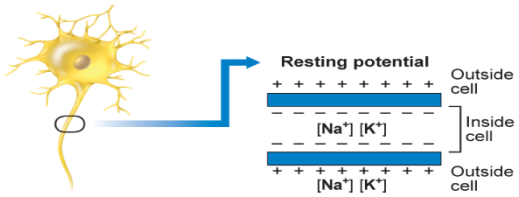
Part 3: Nervous System

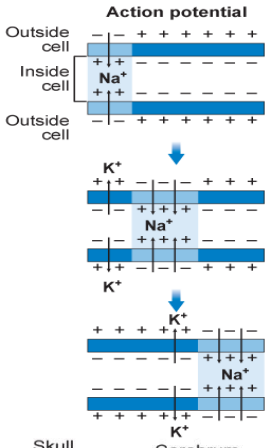
Neurons are composed of dendrites, a cell body that has the nucleus, and the axon that is covered with a lipid called myelin, greatly increasing the speed of the impulse as it travels the length of the axon.



- ***A reflex arc*** is a nerve pathway that consists of a sensory neuron, an interneuron, and a motor neuron.
- ***Threshold***: the minimum stimulus to cause an action potential to be produced.







Central Nervous System: Consists of the brain and spinal cord hypothalamus, medulla oblongata, and pons.

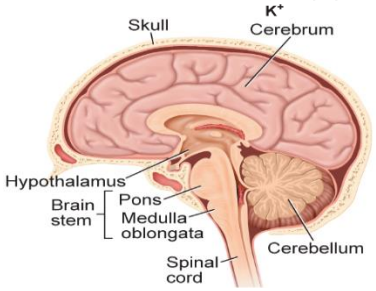
- The ***brain*** consists of the cerebrum, cerebellum

The ***cerebrum*** is the largest part of the brain and is divided into two halves called hemispheres. It involves learning, memory, language, and speech.

Cerebellum: part of the brain responsible for balance and coordination. Responsible for a simple movement like typing on the keyboard or cycling.

Medulla oblongata: connects the brain to the spinal cord. It helps control blood pressure, heart rate, and breathing rate.

Hypothalamus: this is part of the brain that regulates body temperature, appetite, thirst, water balance, and fear.



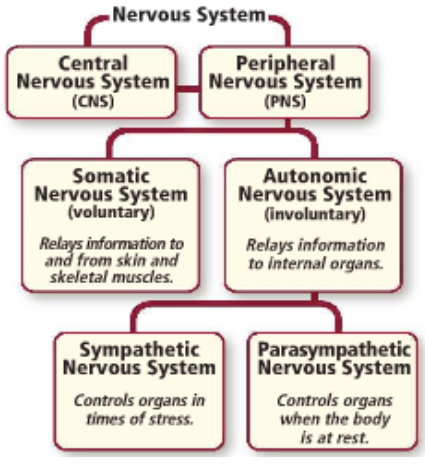
Peripheral Nervous System: Includes: the somatic nervous system (voluntary) and autonomic nervous system (involuntary).

Somatic nervous system: relays information to and from the skin and skeletal muscles.

Autonomic nervous system: sympathetic nervous system and parasympathetic nervous system.

Sympathetic nervous system: controls organs in times of stress.

Parasympathetic nervous system: controls organs when the body is at rest



Drugs: It is a substance, natural or artificial that alerts the function of the body.

Effects on the nervous system

- Increases for a neurotransmitter that is released into a synapse.
- Blocks a receptor site on a dendrite, preventing a neurotransmitter from binding.
- Prevents a neurotransmitter from leaving a synapse
- Imitate a neurotransmitter.

Stimulants: drugs that increase alertness and physical activity, such as caffeine is found in tea, coffee, and soda

Depressants: drugs that tend to slow down the central nervous system, such as alcohol

Addiction: the psychological and physiological dependence on a drug

A person addicted to drugs drives pleasure from increased levels of ***dopamine***

21 **The existence of the myelin layer in the neuron…**

CH 6
A Increases the speed of the impulse
B Decreases the speed of the impulse
C Increases the sense of pain
D Decreases sharp pain

the axon that is covered with a lipid called myelin greatly increases the speed of the impulse as it travels the length of the axon. →A

22 **The minimum stimulus to cause an action to be produced is…**

CH 6
A Reflex arc **B** Effort potential
C Threshold **D** Synapse

Threshold: the minimum stimulus to cause an action potential to be produced. →C

23 **A person got in a car accident and suffered from an irregular heartbeat. The doctors were sure this was because of the infection of…**

CH 6
A Cerebrum **B** Medulla oblongata
C Pons **D** Spinal cord

Medulla oblongata: connects the brain to the spinal cord. It helps control blood pressure, heart rate, and breathing rate. →B

24 **which part is responsible for water balance?**

CH 6
A Cerebrum **B** Cerebellum
C Pons **D** Hypothalamus

Hypothalamus: this is part of the brain that regulates body temperature, appetite, thirst, water balance, and fear. →D

25 **Which of the following works in times of stress and emergencies?**

CH 6
A Central nervous system
B Somatic nervous system
C Sympathetic nervous system
D Parasympathetic nervous system

Sympathetic nervous system: controls organs in times of stress.. →C

26 **Which of the following represents a person's state when does the sympathetic nervous system start work?**

CH 6
A Increase in saliva
B Narrowing in the iris
C Increase in digestion rate
D Increase in heartbeat rate

Sympathetic nervous system: controls organs in times of stress.. →D

27 **The system that works in the human body at rest**

CH 6
A Somatic nervous system
B Narrowing in the iris
C Sympathetic nervous system
D Parasympathetic nervous system

Parasympathetic nervous system: controls organs when the body is at rest →D

28 **Memory loss occurs when there is a disfunction in ...**

CH 6
A Cerebrum **B** Cerebellum
C Spinal cord **D** Medulla oblongata

The cerebrum involves learning, memory, language, and speech. →A

29 **The part responsible for balance is …**

CH 6
A Cerebrum **B** Cerebellum
C Pons **D** Medulla oblongata

Cerebellum: part of the brain responsible for balance and coordination. →B

30 **Which organ is used when typing on a keyboard?**

CH 6
A Cerebrum **B** Cerebellum
C Pons **D** Medulla oblongata

Cerebellum: Responsible for a simple movement like typing on the keyboard or cycling. →B

31 **The drugs effect the neurotransmitter in the nervous system by……**

CH 6
A Increasing its amount
B Decreasing its amount
C Increases its binding to receptors
D Allowing it to leave the synapse

Drugs increasing the neurotransmitter that is released into a synapse. →A

32 **Drugs that increases the alertness and physical activity ……**

CH 6
A Stimulants **B** Depressants
C Inhalants **D** Inhibitors

Stimulants: drugs that increase alertness and physical activity, such as caffeine is found in tea, coffee, and soda →A

33 **What slows down the brain activity?**

CH 6
A Nicotine **B** Caffeine
C Adrenaline **D** Alcohol

Depressants: drugs that tend to slow down the central nervous system, such as alcohol →D

34 **The psychological and physiological dependence on drugs is called……**

CH 6
A Tolerance **B** Recession
C Habitation **D** Addiction

Addiction: the psychological and physiological dependence on a drug →D

35 **Why is caffeine a drug?**

CH 6
A It is a depressant.
B It is an artificial substance.
C It influences the nervous system.
D It builds tolerance to its effects.

Stimulants: drugs that increase alertness and physical activity, such as ***caffeine*** is found in tea, coffee, and soda →C

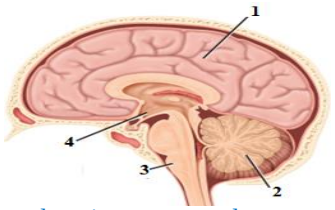
36 **Which neurotransmitter is influenced by nicotine and amphetamines, and is involved with most types of addiction?**

CH 6
A Adenosine **B** Dopamine
C Epinephrine **D** Serotonin

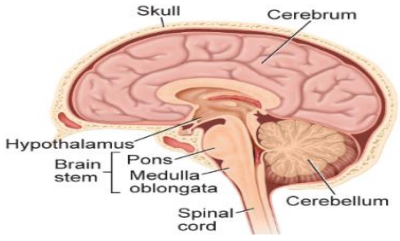
A person addicted to drugs drives pleasure from increased levels of dopamine. →B

37 **Which part of the brain is responsible for memory?**

CH 6
A 1
B 2
C 3
D 4



The cerebrum involves learning, memory, language, and speech.



→A

38 **What substances in the body are most closely associated with a drug's influence on the nervous system?**

CH 6
A Endorphins **B** Na+ and K+ ions
C Neurotransmitters **D** Proteins

Drugs: Increases the neurotransmitter that is released into a synapse. →C

2 **Where in the nerve pathway do drugs have their primary effect?**

Do It?
A Axons
B Dendrites
C Synapses
D Myelin sheaths

Part 4: Circulatory System

Consist of blood, heart, blood vessels (arteries, capillaries, and veins), and lymphatic system.

The heart: four-chambered two atriums and two ventricles

- **Right atrium:** accepts blood from the body
- **Left atrium:** accepts blood from the lungs
- **Right ventricle:** pumps deoxygenated blood to the lungs through the pulmonary arteries
- **Left ventricle:** pumps oxygenated blood to the body through aorta (the largest artery)

The *sinoatrial node (pacemaker)* is located in the right atrium.

Arteries: carries oxygenated blood to the other body parts**.**

Veins: carries deoxygenated blood back to the heart, it contains valves that prevent blood from flowing backward.

Blood components:

- Plasma: yellowish fluid that makes up 50% of blood

- Red blood cells: do not have a nucleus. An iron-containing protein called hemoglobin, which carries oxygen to the body's cells

White blood cells: fight diseases **- Platelets:** have a role in blood clotting

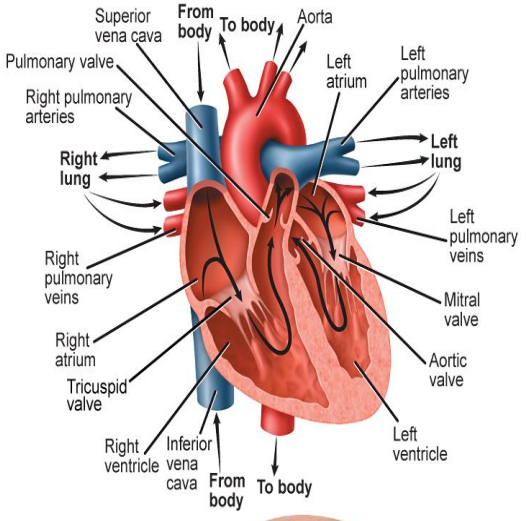
Blood types:

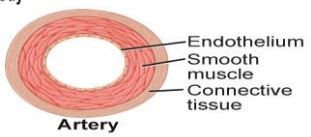
Blood type (A): has marker molecule (A) antibody for (B), donates blood to (A) or (AB), receives blood from (A) or (O**)**

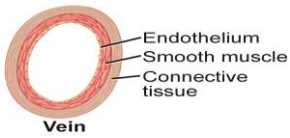
Blood type (B): has marker molecule (B). Antibody for (A), donates blood to (B) or (AB) receives blood from (B) or (O)

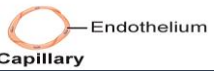
Blood type (AB): has marker molecule (AB) doesn't have the antibody, donates blood to (AB) receives blood from everyone

Blood type (O): doesn't have a marker molecule, the antibody for (A) and (B), donates blood to everyone, receives blood from (O) only









39 **Which of the following accepts the returning blood from the body?**

CH 6
A Right atrium **B** Left atrium
C Right ventricle **D** Left ventricle

Right atrium: accepts blood from the body →A

40 **One of the blood components contains hemoglobin and doesn't have a nucleus…**

CH 6
A Plasma
B Red blood cells
C White blood cells
D Platelets

Red blood cells: they do not have a nucleus. An iron-containing protein called hemoglobin, which carries oxygen to the body's cells →B

41 **If a child has an iron deficiency in his blood, in what way does this affect him?**

CH 6
A Muscle contraction
B Oxygen transportation
C Transmission of nerve impulse
D Production of digestive enzymes

Red blood cells include hemoglobin (Iron-containing protein), which carries oxygen to the body's cells →B

42 **Which heart chamber pumps blood to the body?**

CH 6
A Right atrium **B** Left atrium
C Right ventricle **D** Left ventricle

Left ventricle: pumps oxygenated blood to the body through the aorta (the largest artery) →D

43 **The heart pumps oxygenated blood throughout the body through the?**

CH 6
A Pulmonary vein
B Superior vena cava
C Aorta
D Inferior vena cava

Left ventricle: pumps oxygenated blood to the body through the aorta (the largest artery) →C

44 **The sinoatrial node (pacemaker) in the human is located in…**

CH 6
A Right atrium **B** Left atrium
C Right ventricle **D** Left ventricle

The sinoatrial node (pacemaker) is located in the right Atrium →A

45 **Blood vessels that carry oxygenated blood to the parts of the body away from the heart …**

CH 6 **A** Veins **B** Artery **C** Capillaries **D** valves

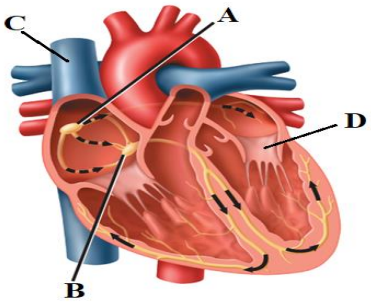
Arteries: carries oxygenated blood to the other body parts. →B

46 **A person had an accident and his blood type wasn't known. Paramedics should transport to the person which type of blood?**

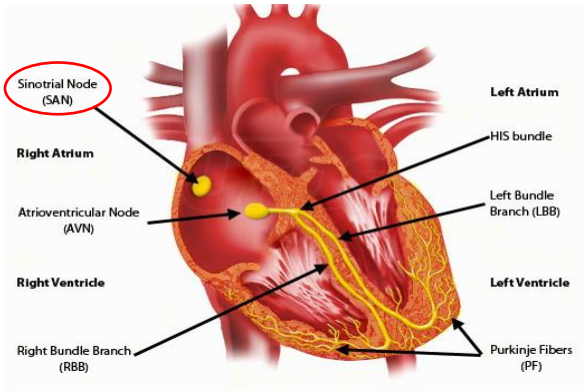
CH 6 **A** A **B** B **C** AB **D** O

Blood type (O): doesn't have a marker molecule, the antibody for (A) and (B), donates blood to everyone, receives blood from (O) only →D

47 **Which of the following points is sinoatrial node (pacemaker)**



CH 6 **A** A **B** B **C** C **D** D



A

48 **Flat fragments in cells that have an important role In blood clotting…**

CH 6 **A** Plasma **B** Red blood cells **C** White blood cells **D** Platelets

Platelets: have a role in blood clotting →D

49 **Which of the following doesn't have an antibody**

CH 6 **A** A **B** B **C** AB **D** O

Blood type (AB): has marker molecule (AB) doesn't have antibody →C

50 **Which arrow in the figure shown represents a wrong blood transfusion process?**

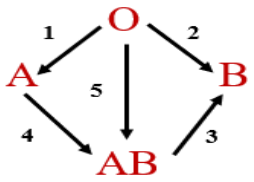
1 - O → O 2 - B → AB

3 - AB → O 4 – A → AB

CH 6 **A** 1 **B** 2 **C** 3 **D** 4

Blood type (AB): has marker molecule (AB) doesn't have antibody, donates blood to (AB) →C

51 **In the adjacent figure, arrows from 1 to 5 indicate blood transfusions from one type to another. The arrow that indicates a wrong transfusion is**



CH 6 **A** 1 **B** 2 **C** 3 **D** 4

Blood type (AB): has marker molecule (AB) doesn't have the antibody, donates blood to (AB) receives blood from everyone →C

52 **Which is the function of the circulatory system?**

CH 6 **A** Get rid of excess blood, salt, and water

B Maintain a low internal body temperature

C Supply body cells with oxygen and food

D Transport oxygen, nutrients, and wastes

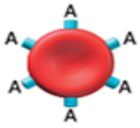
Functions of the Circulatory System:
- Transports oxygen and nutrients.
- Carries disease-fighting materials produced by the immune system.
- Contains cell fragments and proteins for blood clotting.
- Distributes heat throughout the body to help regulate body temperature. →D

53 **Which blood type donor can give blood to a patient with type O blood?**

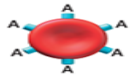
CH 6 **A** A **B** B **C** AB **D** O

Blood type (O): doesn't have a marker molecule, the antibody for (A) and (B), donates blood to everyone, receives blood from (O) only →D

54 **A person has the blood type represented in the illustration below. What blood type can this person safely receive?**



CH 6 **A** A only **B** A or O **C** AB **D** O only

Blood type	A
Marker molecule and antibody	Marker molecule: A Antibody: anti-B
Example	
Can donate blood to:	A or AB
Can receive blood from:	A or O

→B

55 **Which blood vessels have valves that prevent blood from flowing backward?**

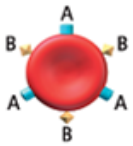
CH 6 **A** Arteries **B** Arterioles **C** Veins **D** Venules

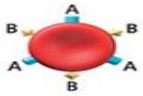
Veins: carries deoxygenated blood back to the heart, it contains valves that prevent blood from flowing backward. →C

56 **The adjacent figure represents the blood type of a person who donates blood, which of the following can receive blood from him?**

CH 6

A A
B B
C AB
D O



Blood type	AB
Marker molecule and antibody	Marker molecules: AB Antibody: none
Example	
Can donate blood to:	AB
Can receive blood from:	A, B, AB, or O

→C

3 **Which blood component can recognize and kill disease-causing organisms?**

Do It?

A Red blood cells
B White blood cells
C Platelets
D Fibrin

Part 5: Respiratory System

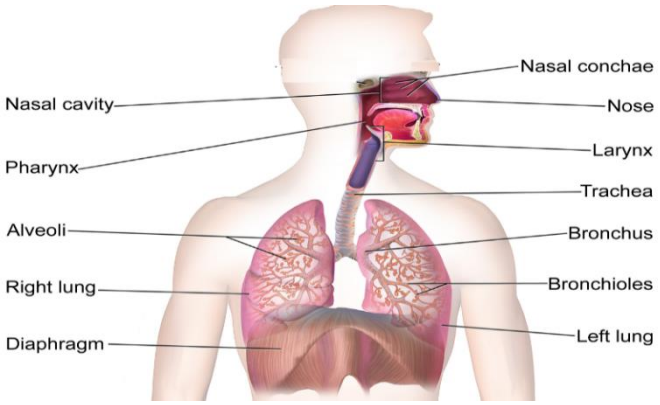
The respiratory system is made up of the nasal passages, Nose, pharynx, larynx, epiglottis, trachea, lungs, bronchi, Alveoli and diaphragm.

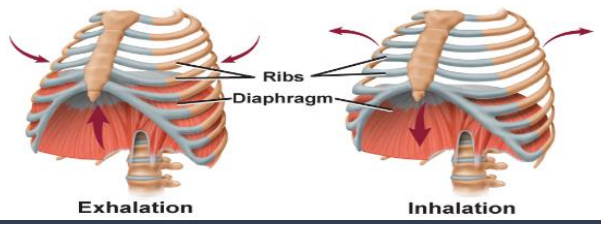
The ***epiglottis*** is usually upright at rest Allowing air to pass into the larynx and lungs. When a person swallows the epiglottis folds backward to cover the entrance of the larynx so food and liquid do not enter the windpipe and lungs

Breathing

Inhalation is the act of taking air into the lungs. The diaphragm contracts, causing the chest cavity to expand as the diaphragm moves down.

During ***exhalation,*** the diaphragm relaxes and returns to its normal resting position. This reduces the size of the chest cavity as the diaphragm moves up.





57 **Which type of respiration takes place only in the lungs?**

CH 6

A Cellular respiration **B** Intercellular respiration
C Internal respiration **D** External respiration

External respiration is the exchange of gases between the atmosphere and the blood, which occurs in the lungs. →D

58 **Which of the following is always an effect of external respiration?**

CH 6

A An increase in carbon dioxide levels in the blood
B A decrease in carbon dioxide levels in the blood
C An increase in the heart rate
D A decrease in the heart rate

External respiration allows oxygen to enter and carbon dioxide to exit the blood. →B

59 **Which of the following is not part of the respiratory system?**

CH 6

A Trachea **B** Bronchus
C Pharynx **D** Esophagus

The respiratory system is made up of the Nose, nasal passages, pharynx, larynx, epiglottis, trachea, lungs, bronchi, bronchi, alveoli, and diaphragm. →D

60 **What causes inhalation of air to the lungs?**

CH 6

A Rib and diaphragm muscles contract.
B Rib and diaphragm muscles relax.
C An increase in hydrogen gas amount
D A decrease in water amount

Inhalation is the act of taking air into the lungs. The diaphragm contracts, causing the chest cavity to expand as the diaphragm moves down. During exhalation, the diaphragm relaxes and returns to its normal resting position. This reduces the size of the chest cavity as the diaphragm moves up. →A

61 **A piece of tissue that prevents food from entering the airway**

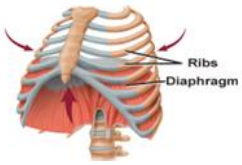
CH 6

A Nose **B** Tongue
C Epiglottis **D** Trachea

When a person swallows the epiglottis folds backward to cover the entrance of the larynx so food and liquid do not enter the windpipe and lungs. →C

CHAPTER 6: Human Body systems

62 **Which is taking place in this diagram?**



CH 6
- **A** Inhalation; the diaphragm is contracting
- **B** Exhalation; the diaphragm is relaxing.
- **C** Inhalation; the chest cavity is reduced.
- **D** Exhalation; the rib cage is expanding.

During exhalation, the diaphragm relaxes and returns to its normal resting position. This reduces the size of the chest cavity as the diaphragm move. →B

63 **The functions of the epiglottis are:**

CH 6
- **A** Digesting proteins
- **B** Allowing fluids to enter the lungs
- **C** Not allowing fluids to enter the lungs
- **D** Allow food to enter the lungs

The epiglottis is usually upright at rest allowing air to pass into the larynx and lungs. When a person swallows the epiglottis folds backward to cover the entrance of the larynx so food and liquid do not enter the windpipe and lungs. →C

Part 6: Excretory System

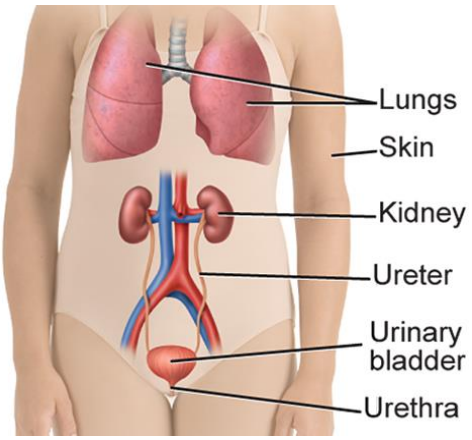
The components that make up the excretory system include
The lungs, skin, and kidneys.

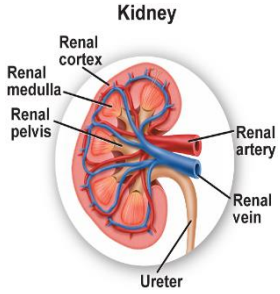
KIDNEYS: The main excretory organ of the Body. Bean shaped organs that filter out wastes, water, and salts from the blood
- **NEPHRON:** Each kidney contains approximately one million filtering units called nephrons. (The functional unit/filtering unit of the kidney).

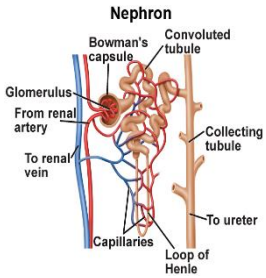
The renal artery transports nutrients and wastes to the kidney.
REABSORPTION: A process in which sugar is returned to the blood.
The *Bowman's capsule* collects the filtrate and passes it to the next parts of the nephron.

Reabsorption and the Formation of Urine
- The filtrate flows through the loop of Henle and the collecting tubule.
- Glucose and minerals are reabsorbed back into the capillaries surrounding the renal tubule.
- Urine, which is excess fluids and wastes, leaves the kidneys through ducts called the ureters.
- Urine is stored in the urinary bladder and exits the body through the urethra.

Common Excretory Disorders
- **Kidney stones:** hard deposits form in the kidney that might pass out of the body in urine, larger kidney stones can block urine flow or irritate the lining of the urinary tract, leading to possible infection
- **Nephritis:** inflammation of the glomeruli can lead to inflammation of the entire kidneys, this disorder can lead to kidney failure if left untreated.







64 **Which of the following filters waste and water from the blood?**

CH 6
- **A** Heart
- **B** Lung
- **C** Stomach
- **D** Kidney

KIDNEYS: The main excretory organ of the Body. Bean-shaped organs that filter out wastes, water, and salts from the blood →D

65 **Each kidney contains approximately one million filtering units, these units are...**

CH 6
- **A** Medulla
- **B** Pelvis
- **C** Bowman's capsule
- **D** Nephrons

NEPHRON: Each kidney contains approximately one million filtering units called nephrons. →D

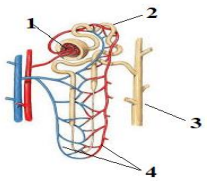
66 **The functional and structural unit of the kidney is ____**

CH 6
- **A** The nephron
- **B** The loop of Henle
- **C** Bowman's capsule
- **D** The basement membrane of the capillaries

The nephron is the functional unit/filtering unit of the kidney. →A

67 **In the adjacent figure, which of the numbers indicates the part in the renal tubular unit that filters water and dissolved substances, including excretory waste?**

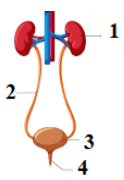
CH 6
- **A** 1
- **B** 2
- **C** 3
- **D** 4



The Bowman's capsule collects the filtrate and passes it to next parts of the nephron →A

68 **In the adjacent figure, where is urine stored?**

CH 6
- **A** 1
- **B** 2
- **C** 3
- **D** 4



The urine is stored in the bladder until it leaves the body through the urethra. →C

CHAPTER 6: Human Body systems

Part 7: Digestive System

Includes: Mouth, esophagus, stomach, small intestines, large intestines, and accessory organs (pancreas, liver, gallbladder)

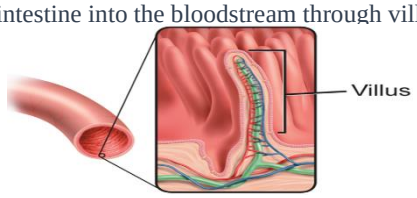
***MOUTH*:** begins the process of digestion by breaking down starches into sugars by the enzyme amylase**.**

***ESOPHAGUS*:** pushes food toward the stomach.

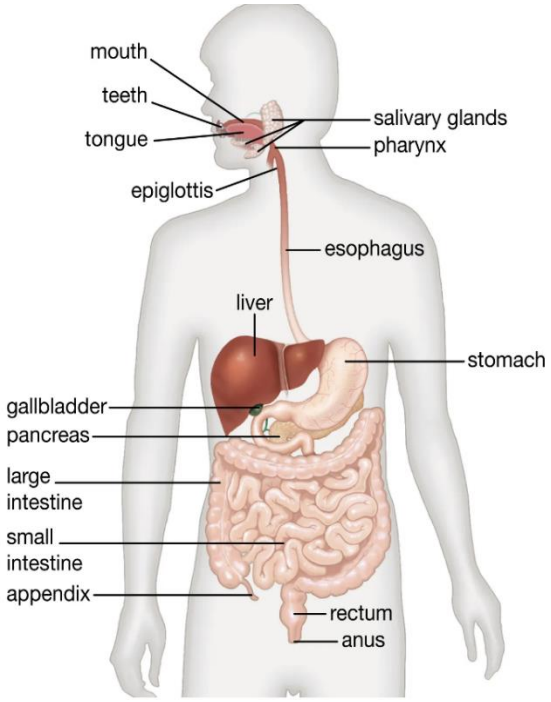
Carbohydrates can continue digestion in the esophagus.

***STOMACH*:** The environment in the stomach is very acidic because of the presence of HCl, Protein digestion occurs in the stomach by the action of the pepsin enzyme The acidic environment in the stomach is essential for the work of the enzyme pepsin.

***SMALL INTESTINES*:** most of the nutrients from food are absorbed from the small intestine into the bloodstream through villi, pH should be 7.



Villi increase the surface area of absorption.



***CHYME*:** A semiliquid form of remaining digested food

***PERISTALSIS*:** Rhythmic wavelike muscular contractions that move food throughout the digestive tract.

LARGE INTESTINE: Absorbs water from chyme.

After the water is absorbed from chyme it becomes a solid called feces.

LIVER: produces bile which helps break down fat.

69 **Primary digestion of carbohydrates is done by the enzyme…**

CH 6
A Amylase **B** Pepsin
C Trypsin **D** Glycogen

MOUTH: begins the process of digestion by breaking down starches into sugars by the enzyme amylase. →A

70 **Which of the following substances can continue digestion in the esophagus?**

CH 6
A Proteins **B** Carbohydrates
C Nucleic acid **D** Fats

Carbohydrates can continue digestion in the esophagus. →B

71 **Proteins are digested in the stomach by which enzyme?**

CH 6
A Amylase **B** Pepsin
C Trypsin **D** Glycogen

Protein digestion occurs in the stomach by the action of the pepsin enzyme. →B

72 **In what range does the pepsin enzyme work?**

CH 6
A Basic environment
B Acidic environment
C Neutral environ
D Both basic or acidic

The acidic environment in the stomach is essential for the work of the enzyme pepsin. →B

73 **Why is insulin given by injection and not by mouth?**

CH 6
A Pepsin might ingest it in the stomach
B Its absorption increases in the stomach
C Its amount is too little to reach the blood stream
D It will affect the function of lymphatic glands

Insulin can't be taken in pill form because your digestive enzymes would break it down before it could be used in your body. Insulin should be injected into the fat just below your skin. →A

74 **Which of the following if removed stops the process of absorption of nutrients in the human body?**

CH 6
A Esophagus **B** Stomach
C Small intestines **D** Large intestines

Small intestines: most of the nutrients from food are absorbed from the small intestine into the bloodstream through villi. →C

75 **A semiliquid form of digested food that turn into feces…**

CH 6
A Carotid body **B** Glycogen
C Blastula **D** Chyme

Chyme: A semiliquid form of remaining digested food →D

76 **If a person consumed a large amount of magnesium milk Mg(OH)2, it is expected that this will lead to…**

CH 6
A A defect in the secretion of bile
B Stopping of pepsin enzyme function
C Stopping of amylase enzyme function
D Indigestion

The acidic environment in the stomach is essential for the work of the enzyme pepsin. →B

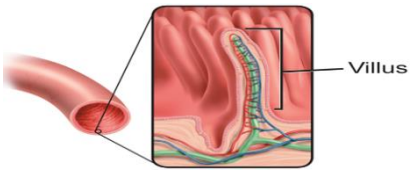
77 **Which of the following causes constipation?**

CH 6
A Decrease of water in chyme
B Increase of water in chyme
C Lack of water absorption
D Weakness of the function of kidney

After water is absorbed from chyme it becomes a solid called feces. →A

CHAPTER 6: Human Body systems

78 **How does this structure aid in the digestive process?**



CH 6
A Increases surface area
B Mechanically digests food.
C Secretes digestive enzymes.
D Traps foreign particles.

Villi increase the surface area of absorption →A

79 **Through the adjacent table, which of the following sites represent the small intestine in the human body?**

CH 6
A A
B B
C C
D D

Location	pH
A	1
B	13
C	3
D	7

Villi increase the surface area of absorption →D

4 **What type of digestion is carried out by the action of smooth muscles in the stomach and small intestine?**

Do It?
A Mechanical **B** Chemical
C Mechanical and chemical **D** Brownian

Part 8: Nutrition

***Nutrition*:** A process by which a person takes in and uses food.
***Nutrients*:** Carbohydrates, fats, proteins, vitamins, and minerals.
Carbohydrates: Found in wheat, pasta, potatoes, rice, fruits, and sweets.
Cellulose (dietary fibers): A complex carbohydrate that cannot be digested in the human body.
Fats: The most concentrated energy source available to the body. Found in meat, and dairy products (cheese, butter, milk).
Proteins: found in meat, beans, vegetables, and fruits. (Humans require 20 different Amino Acids for protein synthesis.)
1g of carbohydrates or proteins contains 4 Calories. And 1g of fats contains 9 Calories.
***Vitamins*:** are organic compounds that are needed by the body in small quantities to complete metabolic activities
Ex: - ***Vitamin A*** (for vision) - ***vitamin D*** (made in the- skin, important for the health of bones).
Exposure to sunlight makes the body produce vitamin D.
Types of vitamins…
- ***Vitamins that are fat-soluble****:* can be stored in small quantities in the body, like vitamin A and D.
- ***Water soluble vitamins*:** cannot be stored in the body, like vitamins B and C.

Minerals: are inorganic compounds used by the body as building materials. **Ex:** - Calcium and phosphorous for strengthening the bones.
- Iron to make hemoglobin.

80 **A process in which a person takes in and uses food.**

CH 6
A Nutrition **B** Excretion
C Swallowing **D** Digestion

Nutrition: A process by which a person takes in and uses food. →A

81 **Which of the following foods contains a high percentage of carbohydrates?**

CH 6
A Butter **B** Meat **C** Lentil **D** Potato

Carbohydrates: Found in wheat, pasta, potatoes, rice, fruits, and sweets →D

82 **Which of the following meals contains the least calories**

CH 6
A bread + eggs + butter + cream
B rice + vegetables + soup + lentils
C bread + meat + rice + butter
D bread + butter + milk + honey

1g of carbohydrates or proteins contains 4 Calories. And 1g of fats contains 9 Calories. →B

83 **Which of the following vitamin deficiency causes A lack of vision in humans?**

CH 6
A A **B** B **C** D **D** C

Vitamin A (for vision) →A

84 **Carbohydrates that are not digested in the body, and provides fiber in a diet…**

CH 6
A Cellulose **B** Starch **C** Sucrose **D** Glycogen

Cellulose (dietary fibers): A complex carbohydrate that cannot be digested in the human body. →A

85 **Humans require ___ different amino acids for protein synthesis.**

CH 6
A 22 **B** 12 **C** 8 **D** 20

Humans require 20 different Amino Acids for protein synthesis. →D

86 **Organic compounds needed by the body in small quantities to complete metabolic activities…**

CH 6
A Carbohydrates **B** Proteins
C Vitamins **D** Minerals

Vitamins: are organic compounds that are needed by the body in small quantities to complete metabolically activities →C

87 **Which has the highest calories?**

CH 6
A 1 kg fats **B** 2 kg sugar
C 2 kg minerals **D** 2 kg protein

1g of carbohydrates or proteins contains 4 Calories. And 1g f fats contains 9 Calories. →A

88 **One of the following vitamins does not dissolve in Fat (insoluble)…**

CH 6
A A **B** D **C** K **D** B and C

Water soluble vitamins: cannot be stored in the body, like vitamins B and C. →D

89 **The vitamin that is made by cells in the skin…**

CH 6
A A **B** B **C** C **D** D

Vitamin D (made in the skin) →D

90 **The mineral_____ is needed to make Hemoglobin**

CH 6
A Calcium **B** Potassium
C Sodium **D** Iron

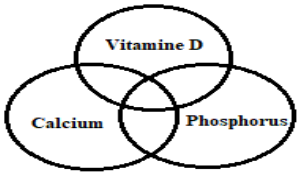
Iron to make hemoglobin. →D

91 **Exposure to sunlight provides us with vitamin…**

CH 6
A A **B** B **C** C **D** D

Exposure to sunlight makes the body produce vitamin D. →D

92 **What does the common region represent in the Figure below?**



CH 6
A The health of bones and teeth
B The health of the red blood cell membrane
C Synthesis of protein
D Formation of collagen

The health of bones and teeth. →A

Part 9: Endocrine System

Hormone: a chemical substance that acts on certain target cells and tissues to produce a specific response.
Types of hormones: Steroid hormones: are soluble in lipids and therefore can diffuse through the plasma membrane of a target cell.
Amino acid hormones: must bind to receptors found on the plasma membrane of a target cell because they cannot diffuse through the Plasma membrane.
Pituitary gland: master gland, located at the base of the brain, secretes human growth Hormone (hGH).
Thyroid gland: produces thyroxine and calcitonin hormones which lower the calcium in the blood
Parathyroid gland: produces parathyroid hormones which raise the calcium in the blood
Adrenal glands (located just above the kidneys): secretes three hormones
-***Aldosterone***: important for reabsorbing Sodium.
-***Cortisol***: reduces inflammations -***Adrenaline, epinephrine, or*** **norepinephrine** occurs when there seems to be a sudden burst of energy during a stressful situation.
The sympathetic system is most active in times of emergency or stress, while the parasympathetic system is most active when the body is relaxed.
Negative Feedback: Homeostasis in the body I maintained by internal feedback mechanisms called negative feedback.
Negative feedback returns a system to a set point once it deviates from that set point.
The pancreas in the digestive system: secretes two hormones.
Insulin: Reduces blood sugar (reduces glucose levels in the blood).
Glucagon: Raises blood sugar (increases glucose levels in the blood).
The hypothalamus in the nervous system: produces two hormones, oxytocin and antidiuretic hormone

93 **What is the reason for using receptors for amino acid hormones?**

CH 6
A Because the cell is not the target cell
B Because it is soluble in lipids outside of the cell
C Cannot diffuse through the plasma membrane
D Because it acts as a vital catalyst

Amino acid hormones: must bind to receptors found on the plasma membrane of a target cell because they cannot diffuse through the Plasma membrane. →C

94 **If a person gets angry, his heartbeats increase and a hormone is secreted in the blood, what is that hormone**

CH 6
A Testosterone **B** Insulin
C Estrogen **D** Adrenaline

Adrenaline occurs when there seems to be a sudden burst of energy during a stressful situation. →D

95 **A hormone that is used to remove the feeling of pain…**

CH 6
A Testosterone **B** Insulin
C Estrogen **D** Cortisol

Cortisol: reduces inflammations →D

96 **The adrenaline hormone is secreted from which gland?**

CH 6
A Adrenal **B** Thyroid
C Pituitary **D** Thymus

Adrenal glands hormones
-Aldosterone: is important for reabsorbing Sodium.
-Cortisol: reduces inflammations -Adrenaline, epinephrine, or norepinephrine occurs when there seems to be a sudden burst of energy during a stressful situation. →A

97 **What works when a wild animal attacks you?**

CH 6
A The pituitary gland and parasympathetic system
B The pituitary gland and sympathetic system
C Pituitary gland
D Sympathetic system

Pituitary gland: master gland, that regulates the secrets of other glands.
Sympathetic nervous system: controls organs in times of stress. →B

98 **If you are going to participate in the morning assembly and you felt scared, then which hormone your body is going to secrete?**

CH 6
A Adrenaline **B** Cortisol
C Thyroxine **D** Aldosterone

Adrenaline, epinephrine, or norepinephrine occurs when there seems to be a sudden burst of energy during a stressful situation. →A

99 **Which of the following hormones work when the glucose level increased in the blood?**

CH 6
A Adrenaline **B** Insulin
C Thyroxine **D** Glucagon

Insulin: Reduces blood sugar (reduces glucose levels in the blood). →B

100 **A hormone that is secreted during stress…**

CH 6
A Adrenaline **B** Insulin
C Thyroxine **D** Cortisol

Adrenaline occurs when there seems to be a sudden burst of energy during a stressful situation. →A

CHAPTER 6: Human Body systems

101 **In the figure below, what is the specific relationship?**

CH 6
A Positive feedback **B** Negative feedback
C Double feedback **D** Single feedback

Negative feedback returns a system to a set point once it deviates from that set point. →D

102 **Which of the following hormones is produced by neurons**

CH 6
A Adrenaline **B** Insulin
C Thyroxine **D** Oxytocin

The hypothalamus in the nervous system: produces two hormones, oxytocin and antidiuretic hormone. →D

Part 10: Reproductive System

Human Male Reproductive System:

Its structure: Testes, Epididymis, Vas deferens, Urethra.

Testis: are located outside of the body cavity in a pouch called the scrotum, and produce sperms.

Epididymis: a structure located on top of each testis where sperm mature and are stored.

Urethra: the tube that carries both semen and urine outside of the body through h the penis.

Seminal vesicles: contribute over half of the semen and secrete sugar into the fluid, which provides energy, other nutrients, proteins, and enzymes for the sperm.

Male hormone (testosterone): made in the testes, a steroid hormone that is necessary for the production of sperm.

It also influences the development of male secondary sex characteristic

Human Female Reproductive System:

It consists of the ovaries, oviduct, uterus, and vagina.

- **Ovaries**: have two main reproductive functions in the body.

They produce oocytes (eggs) for fertilization and they produce the reproductive hormones, estrogen, and progesterone.

Uterus: where the embryo develops until birth time

Female hormones: progesterone and estrogen are produced from the ovary.

Fertilization: the process of a sperm joining with an egg to form a zygote, it occurs in the upper portion of an oviduct.

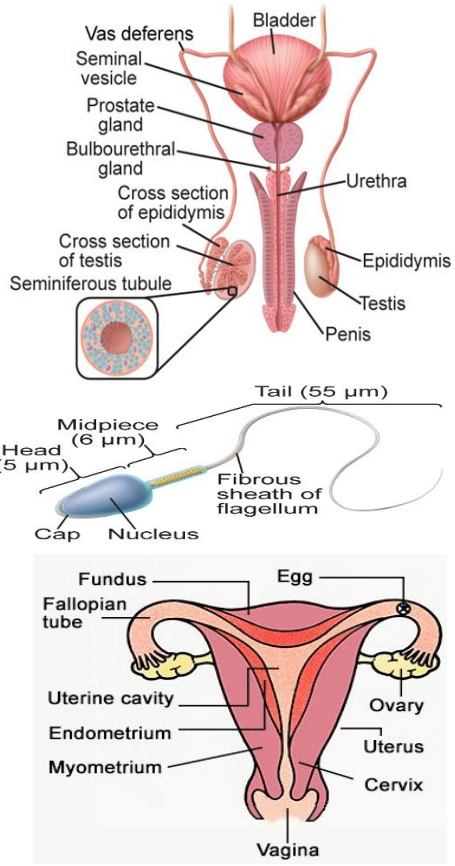
Early development: egg, zygote, morula, blastocyst that is made on the fifth day after fertilization

In the first trimester: fingerprints appear

In the second trimester: the mother feels the fetal movement

In the third trimester: the accumulation of fat under the skin

Alcohol causes birth defects. Smoking decreases the weight of the baby and the incomplete development, the lack of folic acid Results in the incomplete growth of the brain and head.



103 **A part of the male reproductive system that produces sperm…**

CH 6
A Urethra **B** Epididymis
C Vas deferens **D** Testis

Testis: produce sperms. →D

104 **There was a delayed reproduction for a couple and when the semen was examined it was found that there was nothing wrong with it and slow sperm movement in the female's vagina was later discovered. Which of these glands was causing this problem due to lack of secretion?**

CH 6
A Prostate **B** Seminal vesicles
C Seminiferous tubules **D** Ovary

Seminal vesicles: contribute over half of the semen and secrete sugar into the fluid, which provides energy, other nutrients, proteins, and enzymes for the sperm. →B

105 **The part in the female reproductive system where oocytes is formed….**

CH 6
A Ovary **B** Oviduct
C Uterus **D** Vagina

Ovaries: have two main reproductive functions in the body. They produce oocytes (eggs) for fertilization and they produce the reproductive hormones, estrogen, and progesterone. →A

106 **Which one of the following hormones doesn't have a role in the regulation of pregnancy and giving birth for women?**

CH 6
A Progesterone **B** Estrogen
C Relaxing **D** Testosterone

Testosterone: made in the testes, a steroid hormone that is necessary for the production of sperm. →D

107 **What is the function of the epididymis?**

CH 6
A Storage and maturity of sperm
B Production of sperms
C Secretion of glucose
D Production of a hormone that activated the vesicles

Epididymis: a structure located on top of each testis where sperm mature and are stored. →A

108 **The hormone that is produced by the testis…**

CH 6
A Testosterone **B** Progesterone
C Estrogen **D** Insulin

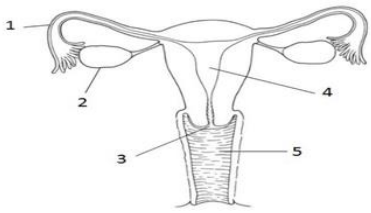
Testosterone: made in the testes, a steroid hormone that is necessary for the production of sperm. →A

109 **Fertilization takes place in the female reproductive system in….**

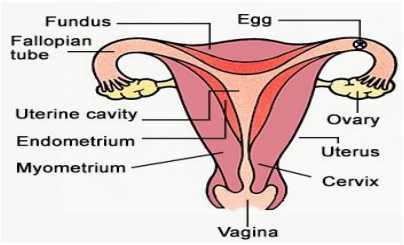
CH 6 **A** Ovary **B** Uterus **C** Oviduct **D** Vagina

Fertilization: occurs in the upper portion of an oviduct. →C

110 **The part that refers to the ovary in the figure is**



CH 6 **A** 1 **B** 2 **C** 3 **D** 4



→B

111 **On the fifth day after fertilization morula grows making…**

CH 6 **A** Egg **B** Blastocyst **C** Fingerprints appear **D** Zygote

Egg, zygote, morula, blastocyst that is made on the fifth day after fertilization →B

112 **In a human female, the placenta is completed in a week**

CH 6 **A** The sixth **B** The fourth **C** The eighth **D** The tenth

In a human female, the placenta is fully developed in the tenth week →D

113 **Which is the correct order of development of the fertilized egg?**

CH 6 **A** Blastocyst, morula, zygote **B** Zygote, morula, blastocyst **C** Oocyte, zygote, blastocyst **D** Morula, zygote, blastocyst

Early development: egg, zygote, morula, blastocyst →B

114 **Which of the following may cause birth defects**

CH 6 **A** Alcohol **B** Exercise **C** High-fat foods **D** Lack of rest

Alcohol causes birth defects →A

5 **What is the name of the fluid that contains sperm?**

Do It? **A** Amniotic fluid **B** Semen **C** Seminiferous fluid **D** Urine

Part 11: Immune System

Nonspecific immunity: the first of defense, including the skin barrier and chemical barriers like tears.
Phagocytosis: the process by which phagocytic cells surround and internalize foreign microorganisms Interferon: an antiviral protein
Specific Immunity Lymphatic organs: lymph nodes, tonsils, spleen, thymus gland,
Lymph nodes: filter the lymph and removes foreign material from the lymph.
Tonsils: forms a protective ring of lymphatic tissue between the nasal and oral cavities.
Lymphocytes: are a type of white blood cell that is produced in red bone marrow, which has two types B cells and T cells.
B-lymphocytes (B cells): can be thought of as antibody factories.
Cytotoxic T cells (T killer cells): destroy pathogens
T helper cells: activates B cells.
AIDS: is a result of the HIV virus infecting T helper cells.
- **Passive immunity:** occurs when antibodies are made by other people or animals and are transferred or injected into the body.
Ex: Antibodies produced by the mother are passed through the placenta to the developing fetus
- **Active immunity**: result from having an infectious disease or immunization.
- **Immunization** (also called vaccination): the deliberate exposure of the body to an antigen so that a primary response and immune memory cells will develop.
- **Polio Vaccination**: the body is injected with weakened or inactive strains of poliovirus.
- **Antibiotic:** a substance that can kill or inhibit the growth of microorganisms.
Severe allergic reactions to particular allergens can result in anaphylactic shock which causes a massive release of histamine.
In anaphylactic shock, the smooth muscles in the bronchioles contract

115 **The first line of defense in the body against infectious disease….**

CH 6 **A** T helper cells **B** The skin **C** An antibody **D** Phagocytosis

the first of defense, including the skin barrier and chemical barriers like tears. →B

116 **Which one of the following is from the nonspecific immunity in the human body?**

CH 6 **A** Tears **B** Antibodies **C** T killer cells **D** B cells

Nonspecific immunity: the first of defense, including the skin barrier and chemical barriers like tears. →A

117 **The type of lymphocytes that produces antibodies is …**

CH 6 **A** T helper cells **B** Antibodies **C** T killer cells **D** B cells

B-lymphocytes (B cells): can be thought of as antibody factories. →D

118 **The role of lymph nodes is…**

CH 6 **A** Regenerates Red Blood Cells **B** Defend the body **C** Blood clotting **D** Filters the lymph from foreign material

Lymph nodes: filter the lymph and removes foreign material from the lymph. →D

119 **AIDS is the result of HIV infecting…**

CH 6
A T helper cells **B** Red blood cells
C Phagocytes **D** B cells

AIDS: is a result of the HIV virus infecting T helper cells. →A

120 **The immunity that is produced when antibodies are passed to the fetus form the mother through the placenta…**

CH 6
A Active **B** Passive
C Immunization **D** Vaccination

Passive immunity: occurs when antibodies are made by other people or animals and are transferred or injected into the body.→B

121 **The vaccine for polio is…**

CH 6
A Inactivated bacteria **B** Bacterial toxins
C Fungal toxins **D** B Inactivated virus

Polio Vaccination: the body is injected with weakened or inactive strains of poliovirus. →D

6 **The substance that can kill or inhibit the growth of microorganisms is called…**

Do It?
A Antibiotic **B** Antigen
C Antiviral **D** Antibacterial

Chapter 6: Do It Answer key					
1	2	3	4	5	6
B	C	B	A	B	A