

D.PHARMA

1ST YEAR

HUMAN ANATOMY & PHYSIOLOGY

MODEL PAPER

ER20-12T



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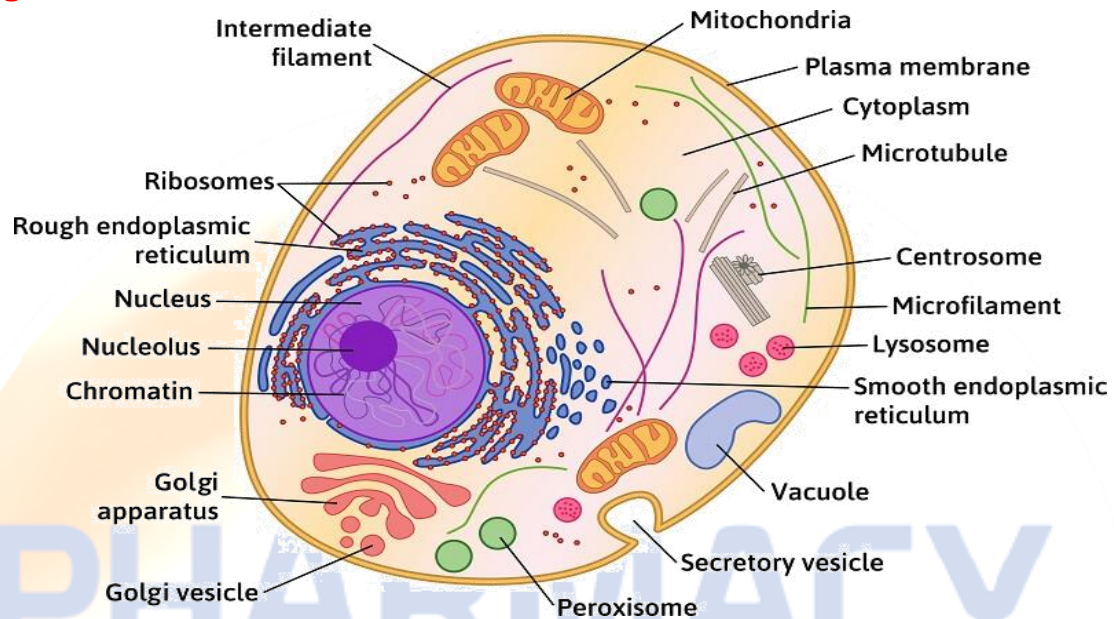


A. Each question carries equal marks (Any 6) 6×5 = 30 marks

1. Draw a neat and labelled diagram of cell. Describe the structure and functions of mitochondria.

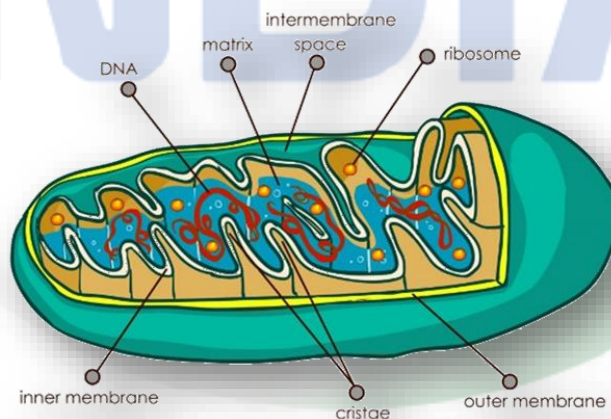
Answer

Diagram of cell



Structure of Mitochondria

- The mitochondria are round "tube-like" organelles that are surrounded by a double membrane, with the inner membrane being highly folded.
- The mitochondria are often referred to as the "powerhouse" of the cell.
- The mitochondrion releases food energy from food molecules to be used by the cell.
- This process is called respiration.



Function

- ✓ It is the main site of synthesis and storage of ATP.
- ✓ It is the site for citric acid cycle, beta oxidation and urea cycle.
- ✓ It performs the main function of conversion and transfer of cellular energy.
- ✓ It contains special DNA and is self-replicative.

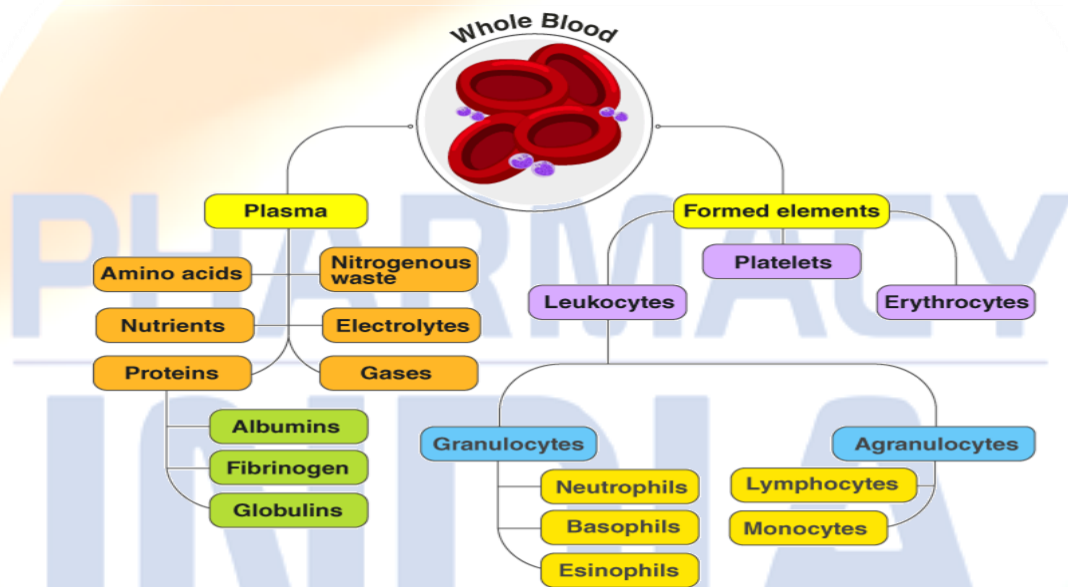
2. Describe the composition and functions of blood.

Answer

- Blood is a special type of fluid connective tissue derived from mesoderm.
- Blood is a body fluid in humans and other animals that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells.

Composition of Blood

- Plasma
- Formed elements
 - Erythrocytes (RBCs)
 - Leukocytes (WBCs)
 - Thrombocytes (Platelets)



Plasma

- Plasma contains water (to the extent of 90%), proteins (albumin, globulin and fibrinogen), sodium chloride, iron, urea, uric acid and cholesterol.
- "Serum" is obtained from plasma after removing fibrinogen. (Serum = plasma - fibrinogen).
- Plasma proteins: Plasma proteins occur in blood to the extent of 7 to 8 %
- The plasma proteins are:

i. Albumin

- It is present in very high concentrations.
- It is responsible for osmotic pressure of blood.
- It is synthesised in the liver.

ii. Globulin:

- It is of three types: Alpha, beta and gamma.
- It is produced in the lymphoid tissues. It produces antibodies and immune substances.

iii. Fibrinogen:

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- It is responsible for coagulation of blood.
- It is synthesized in the liver.

2. Formed elements

- a. Red blood cells are the most common type of blood cell and the vertebrate's principal means of delivering oxygen to the body tissues — via blood flow through the circulatory system.
- b. White blood cell are a part of immune system that protects your body from infection and circulates through the bloodstream.
- c. Platelets, also known as thrombocytes, are formed in the bone marrow, a sponge-like tissue in your bones. Platelets play a major role in blood clotting.

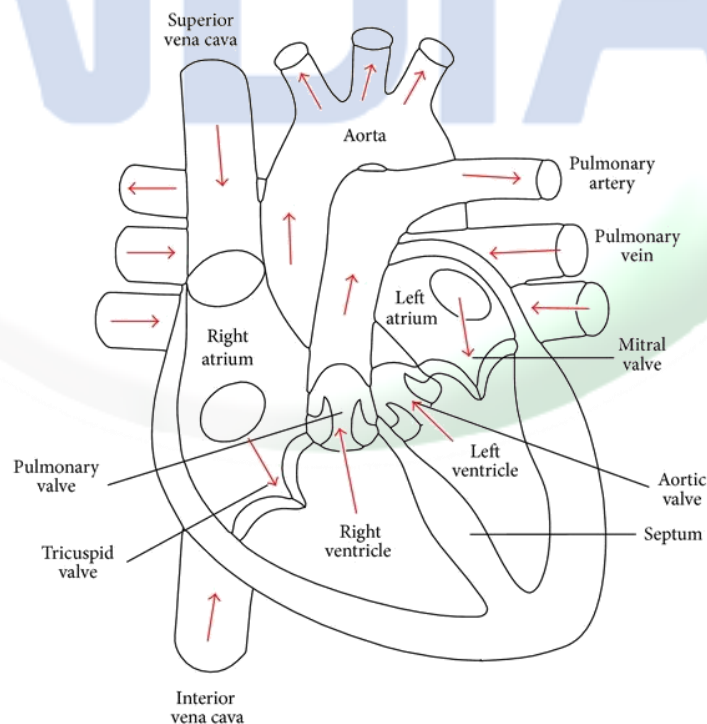
Functions of Blood

1. **Respiratory function:** It transports oxygen to various tissues and takes away the carbon dioxide from the tissues.
2. **Excretory function:** It carries waste products from the tissues to kidneys, lungs and skin.
3. **Nutritional function:** It carries nutritional substance to various tissues of the body.
4. It redistributes water and other important fluids of the body from one part or organ to the other.
5. It regulates the body temperature i.e., haemostasis.
6. It carries the hormones from endocrine glands to various tissues of the body.
7. It regulates pH of the body fluids.

3. Draw a neat and labelled diagram of L.S. of heart. Describe the structure and functions of heart.

Answer

Diagram of L.S. of Heart



Structure of Heart

1. Pericardium

- The heart sits within a fluid-filled cavity called the pericardial cavity.
- The walls and lining of the pericardial cavity are a special membrane known as the pericardium.
- Pericardium is a serous membrane that produces serous fluid to lubricate the heart and prevent friction between the ever beating heart and its surrounding organs.
- The pericardium has 2 layers
 - a. A visceral layer that covers the outside of the heart.
 - b. A parietal layer that forms a sac around the outside of the pericardial.

2. Myocardium

- Myocardium has 3 types of muscle fibers:
 - i. Muscle fibers which form contractile unit of heart.
 - ii. Muscle fibers which form pacemaker.
 - iii. Muscle fibers which form conductive system.

3. Endocardium

- Formed by a single layer of endothelial cells, lining the inner surface of the heart.

3. Chambers of Heart

1. Right atrium

- Made up of small thin-walled chamber
- The right atrium receives deoxygenated blood from the superior and inferior vena cava, and from the coronary veins.
- It pumps blood through the right atrioventricular orifice into the right ventricle.

2. Right ventricle

- Receive blood from the right atrium through the tricuspid valve
- Blood pumps it under low pressure into the lungs via the pulmonary artery.

3. Left atrium

- Located on the left posterior side.
- Receive oxygenated blood from four pulmonary veins.

4. Left ventricle

- The wall of the left ventricle is thicker than the right ventricle but the structure is similar.
- The thick wall is necessary to pump oxygenated blood at high pressure through the systemic circulation.

4. Valves of the Heart

- The heart functions by pumping blood both to the lungs and to the systems of the body.
- To prevent blood from flowing backwards or "regurgitating" back into the heart, a system of one-way valves are present in the heart.
- The heart valves can be following types:

Bicuspid valve or initial valve	Present in between the left atrium and left ventricle.
Tricuspid valves	Consist of three flaps or cusps and present between the right atrium and right ventricle

Mitral valve	The valve between the left atrium and the left ventricle of the heart, which has two tapered cusps.
Pulmonary valve	Lies between the right ventricle and the pulmonary artery and has three cusps.
Aorta valve	Between the left ventricle and the aorta.

4. What are endocrine glands? Describe the various secretions of pituitary gland.

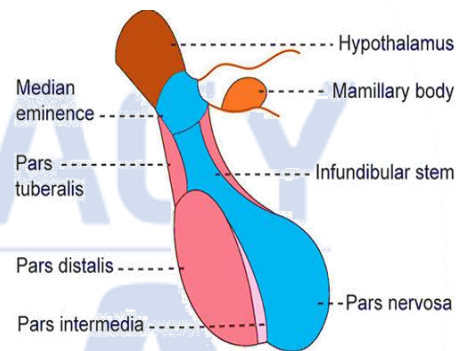
Answer

Endocrine Gland

- The endocrine system is the collection of glands that secrete hormones directly into the circulatory system to be carried to a distant target organ.
- The endocrine system consist of ductless glands which secrete hormones.
- Hormones regulate the metabolic processes of the body.
- The secretion of hormones by other endocrine glands is mostly controlled by the pituitary gland. Hence, it is called master gland of the body.

Various secretions of Pituitary Gland

- It is also known as hypophysis is a small endocrine gland
- It is situated in a depression called 'Sella Turcica', present in the sphenoid bone at the base of skull.
- It is connected with the hypothalamus by a stalk like structure called the infundibulum.
- **Divisions of Pituitary Gland-** Two divisions:
 - ✓ **Anterior pituitary or Adenohypophysis**
 - ✓ **Posterior pituitary or Neurohypophysis.**



1. Anterior pituitary or Adenohypophysis

- Anterior pituitary is also known as the Master gland because it regulates many other endocrine glands through its hormones.
- **Parts-**It consists of **three** parts
 1. **Pars distalis**
 2. **Pars tuberalis**
 3. **Pars intermedia**

Classification on the basis of secretory nature:

- Chromophil cells are classified into five types:
 - i. Somatotrophs, which secrete growth hormone
 - ii. Corticotropes, which secrete adrenocorticotrophic hormone
 - iii. Thyrotropes, which secrete thyroid-stimulating hormone (TSH)
 - iv. Gonadotrophs, which secrete follicle-stimulating hormone (FSH) and luteinizing hormone (LH)
 - v. Lactotrophs, which secrete prolactin.

Hormones secreted by anterior pituitary and their functions

S. No.	Hormones	Functions
1.	Growth hormone (GH) or somatotrophic hormone (STH)	Important for normal growth and development of the body



2.	Thyroid-stimulating hormone (TSH) or thyrotropic hormone	Regulates the synthesis of thyroid hormone in thyroid gland
3.	Adrenocorticotrophic hormone (ACTH)	Stimulates the adrenal cortex to synthesis its hormones
4.	Follicle-stimulating hormone (FSH)	Stimulates: i. ovary in females to produce estrogen ii. Testis in males to produce spermatozoa
5.	Luteinizing hormone (LH) in females or interstitial cell-stimulating hormone (ICSH) in male	Stimulates: i. ovary in females to produce progesterone ii. Testis in males to produce testosterone
6.	Luteotropic hormone	Stimulates milk production in females

2. Posterior pituitary or Neurohypophysis

- Posterior pituitary does not synthesis hormones but it stores and releases two hormones which are synthesized by the hypothalamus.
- The axon terminals in the posterior pituitary are associated with specialized neuroglia called pituicytes .
- **Parts-** Three parts:
 1. Pars nervosa or infundibular process
 2. Neural stalk or infundibular stem
 3. Median eminence.

Hormones of posterior pituitary hormones are:

- i. Antidiuretic hormone (ADH) or vasopressin
- ii. Oxytocin

i. Antidiuretic hormone (ADH) or vasopressin

- Antidiuretic hormone has two actions:
 - a) Retention of water**
 - Major function of ADH is retention of water by acting on kidneys.
 - It increases the facultative reabsorption of water from distal convoluted tubule and collecting duct in the kidneys.
 - b) Vasopressor action**
 - In large amount, ADH shows vasoconstrictor action. it causes constriction of the arteries in all parts of the body.
 - Due to vasoconstriction, the blood pressure increases.

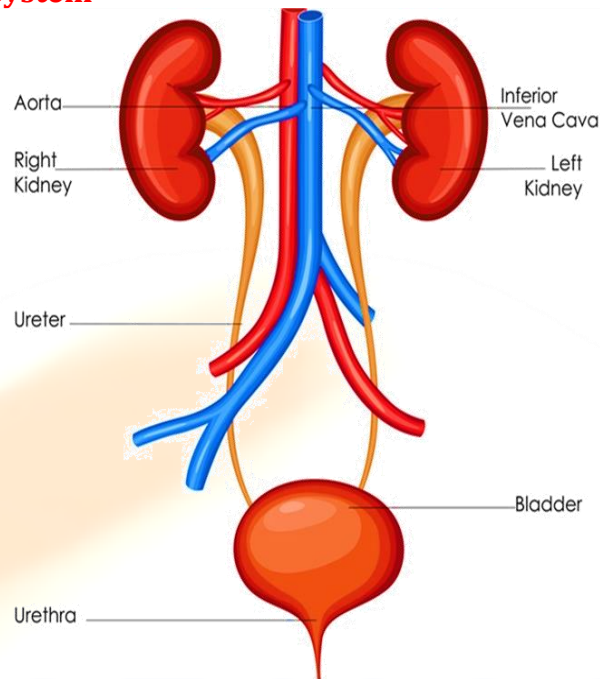
ii. Oxytocin

- It has **two** actions
 - a) **Contraction** off uterus during labour (delivery) and to bring about parturition.
 - b) **Ejection** of milk from the breast.

5. Draw a neat and labelled diagram of urinary system. Discuss the physiology of urine formation

Answer

Diagram of Urinary System



Physiology of Urine Formation

- Urine formation is a Blood Cleansing function.
- Normally, about 1,300 mL of Blood (26% of cardiac output) enters the kidneys.
- Kidneys excrete the unwanted substances along with water from the blood as urine.
- Normal urinary output is 1 L/day to 1.5 L/day.
- **Formation of Urine** – It involves Three processes:
 1. Glomerular filtration
 2. Tubular reabsorption
 3. Tubular secretion

1. Glomerular filtration

- It is the process by which the blood is filtered while passing through the glomerular capillaries by filtration membrane.
- It is the first process of urine formation.
- **Process of Glomerular Filtration**
 - ✓ When blood passes through glomerular capillaries, the plasma is filtered into the Bowman capsule.
- **Glomerular Filtration Rate (GFR)** - It is defined as the total quantity of filtrate formed in all the nephrons of both the kidneys in the given unit of time. Normal GFR is 125 mL/minute or about 180 L/day.
 1. Renal Blood Flow
 2. Tubuloglomerular Feedback
 3. Glomerular Capillary Pressure
 4. Colloidal Osmotic Pressure
 5. Hydrostatic Pressure in Bowman Capsule

2. Tubular reabsorption

- It is the process by which water and other substances are transported from
- renal tubules back to the blood.

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- When the glomerular filtrate flows through the tubular portion of nephron, Large quantity of water (more than 99%), electrolytes and other substances are reabsorbed by the tubular epithelial cells.
- The reabsorbed substances move into the interstitial fluid of renal medulla.
- And then, the substances move into the blood in Peritubular Capillaries.
- Since the substances are taken back into the blood from the glomerular filtrate.

3. Selective Reabsorption

- Tubular reabsorption is known as selective reabsorption because the tubular cells reabsorb only the substances necessary for the body.
- Essential substances gets reabsorbed from renal tubule.
- the unwanted substances like metabolic waste products are not reabsorbed and excreted through urine.

4. Tubular Secretion (Tubular excretion)

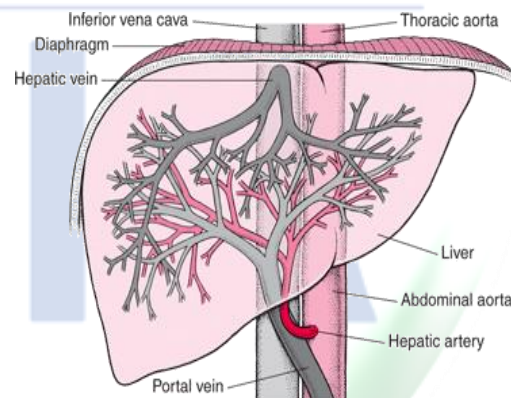
- It is the process by which the substances are transported from blood into renal tubules.
- Along with reabsorption from renal tubules, some substances are also secreted into the lumen from the peritubular capillaries through the Tubular epithelial cells.

6. Discuss the structure and functions of liver. How the digestion of carbohydrates, proteins and fats takes place in our body?

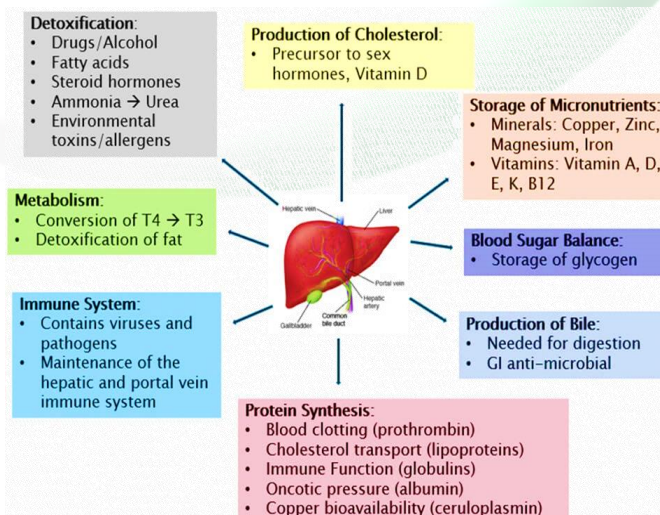
Answer

Structure of Liver

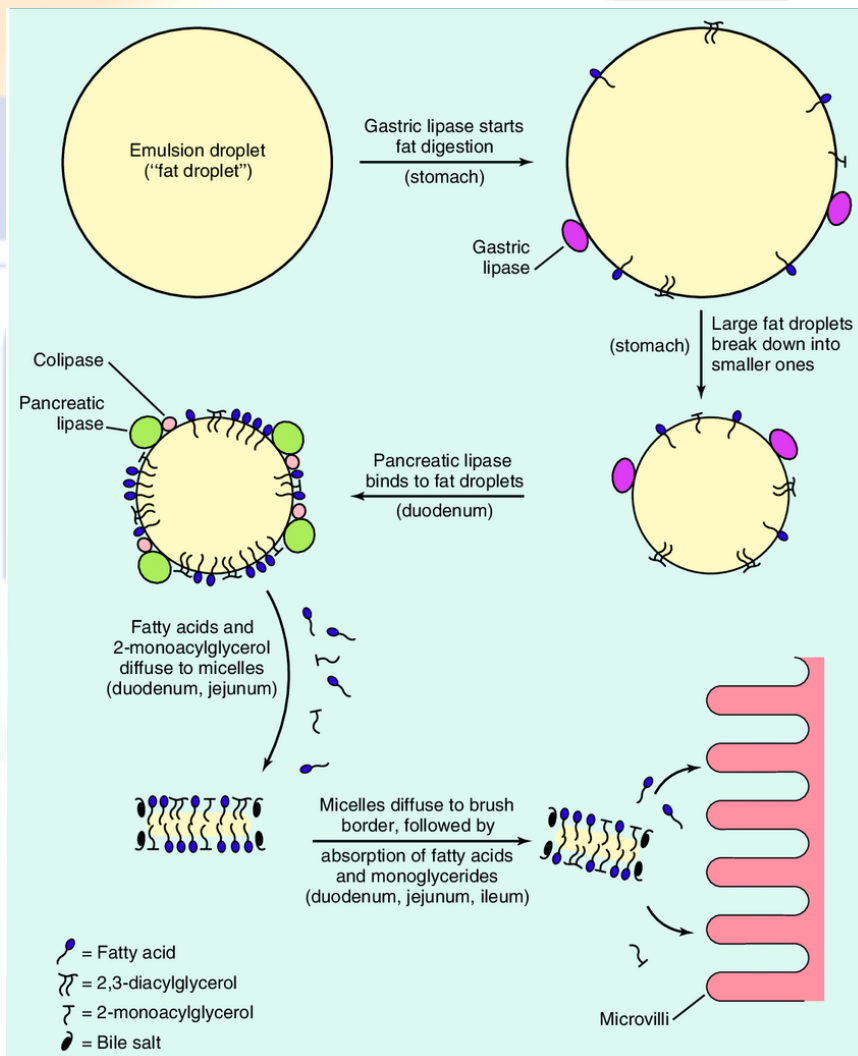
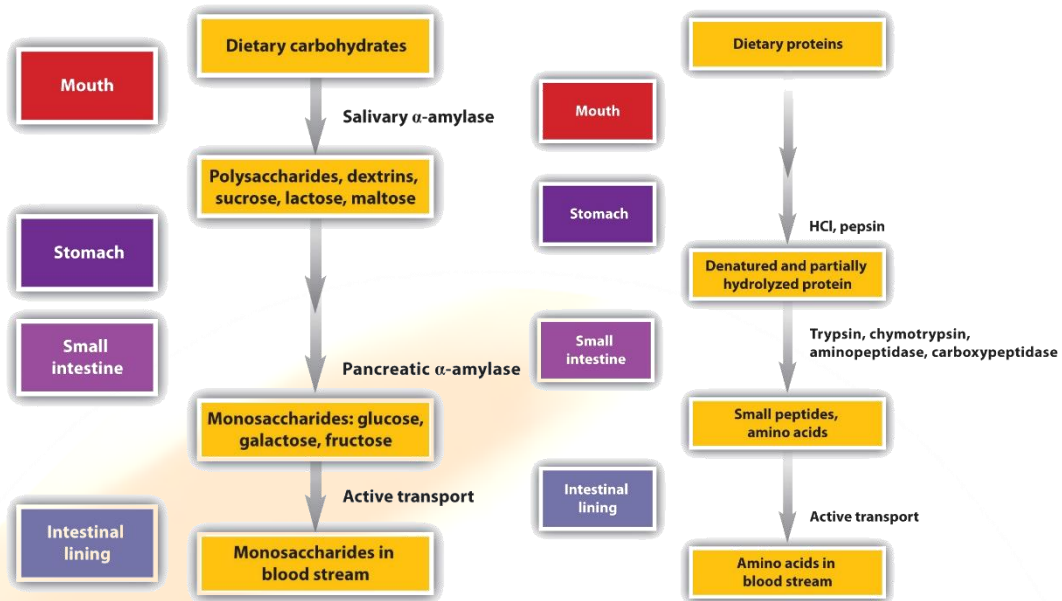
- The liver made up of a small hexagonal units present in large number called Lobules.
- Each lobule has a Central vein or Intralobular vein surrounded by several Portal triads.
- The portal triads consists of:
 1. Portal vein
 2. Bile duct
 3. Hepatic artery



Function of liver



Digestion of carbohydrates, proteins and fats



7. Describe the physiology of muscle contraction. What is Rh factor?

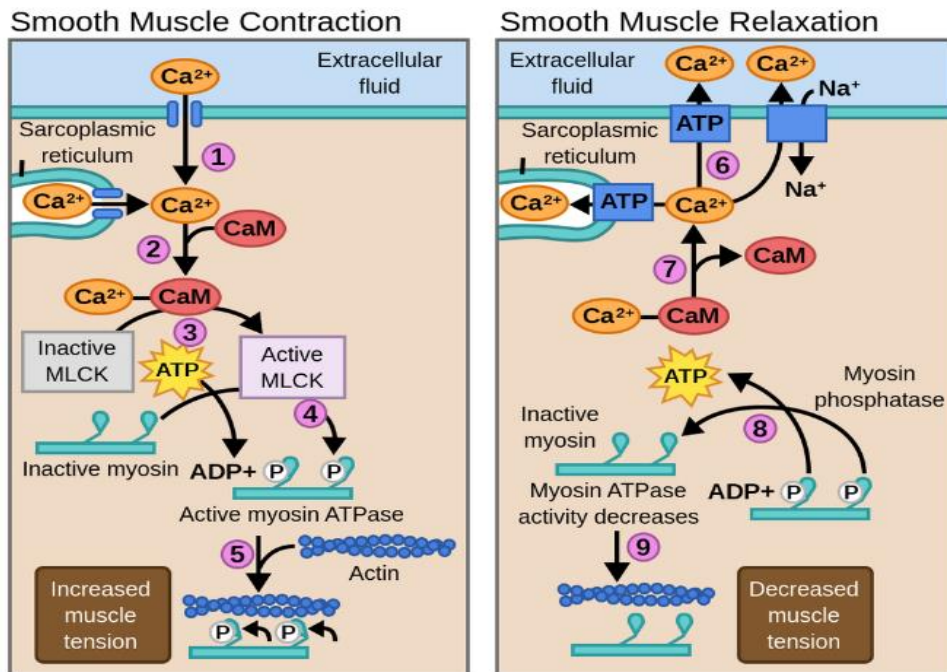
Answer

Physiology of Muscle Contraction

Steps physiology of muscles contraction

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1. Motor neuron sends message to muscle to contract
2. Muscle depolarizes
3. Release of calcium by the sarcoplasmic reticulum
4. Calcium binds troponin on the actin
5. Myosin pulls actin

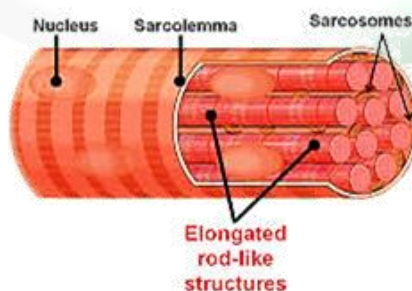


1. Motor neuron sends message to muscle to contract

- During normal resting stage of a muscle, the muscle membrane is in a polarized state because
 - i. The interior of a muscle is negatively charged. It contains a large concentration of potassium ions.
 - ii. The exterior of the muscle cell is positively charged. It contains a large concentration of sodium ions.

2. Muscle depolarizes

- When a nerve is stimulated, Acetylcholine is liberated at a neuromuscular junction.
- The permeability of a muscle cell increases due to release of acetylcholine.
- Due to increase in permeability of a cell, sodium ions enter into the cell and potassium ions come out of the cell. This change in electrical charge makes the interior and exterior of the cell positively charged.
- Now, the membrane becomes depolarized.



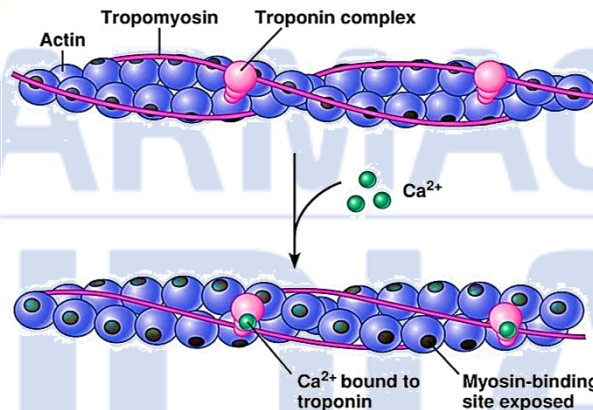
3. Release of calcium by the sarcoplasmic reticulum

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- The sarcolemma contains tube like structures called T-tubules.
- The T-tubules reach into the muscle fiber and surrounds the Sarcomere.
- The sarcolemma contains tube like structures called T-tubules.
- The T-tubules reach into the muscle fiber and surrounds the Sarcomere.
- Calcium concentration is very high inside the sarcoplasmic reticulum than the muscle cell. When a cell depolarizes the sarcoplasmic reticulum responds by opening the calcium channels in the terminal cisternae of the sarcoplasmic reticulum.
- The opening of calcium channels results in rushing of calcium into the sarcoplasm of the cell.
- This process is known as Excitation Contraction Coupling.

4. Calcium binds troponin on the actin

- Calcium present in the sarcoplasm of the muscle cell attaches to the troponin tropomyosin complex wrapped around the actin.
- The myosin can now bind the actin and forms the crossbridge.



5. Myosin pulls actin

- Myosin can now move at its hinge region and subsequently move the actin along
- It causes actin and myosin to slide past each other
- The cycle of movements ends when the myosin releases from actin and return to its original position.
- The energy required for one cross bridging cycle is one ATP
- ATP binds with the myosin head that has ATPase activity the ATP decomposes into ADP and a phosphate.

Rh factor

- Rh factor is an antigen present in RBC.
- This antigen was discovered by Landsteiner and Wiener.
- It was first discovered in Rhesus monkey and hence the name 'Rh factor'.
- The persons having D antigen are called 'Rh positive' and those without D antigen are called 'Rh negative'.

B. Each question carries equal marks (Any 10) 10×3 = 30 marks

1. Discuss the scope of Anatomy and physiology.

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Answer

1. Helpful in the study of human evolution and development.
2. Helpful in the structure and function of the human body.
3. Helpful in mass therapy and athletics health-related field training.
4. May be used as a foundation for advanced scientific studies.
5. Helpful to understand the pathology of disease and pathological changes.
6. Helpful to determine the techniques of surgeries.
7. Helpful to know the parameters of normal health.
8. Helpful in overall effective maintenance of individual and community.

2. Describe the disorders of joints.

Answer

Disorders of Joints

1. Synovitis

- Synovitis is the medical term for inflammation of the synovial membrane
- Synovitis resulting in pain, swelling and inflammation of joints.

2. Arthritis

- Inflammation of a joint.
- Arthritis is the swelling and tenderness of one or more of joints.
- Main symptoms of arthritis are joint pain and stiffness, which typically worsen with age.

3. Osteoarthritis or Degenerative Joint Disease

- It is a progressive disorder of the joints caused by gradual loss of cartilage and resulting in the development of bony spurs and cysts at the margins of the joints.

4. Rheumatoid Arthritis

- Rheumatoid arthritis (RA) is an autoimmune disease that can cause joint pain and damage throughout the connective tissue in the body by mistake, causing inflammation.

3. Describe the mechanism of blood coagulation.

Answer

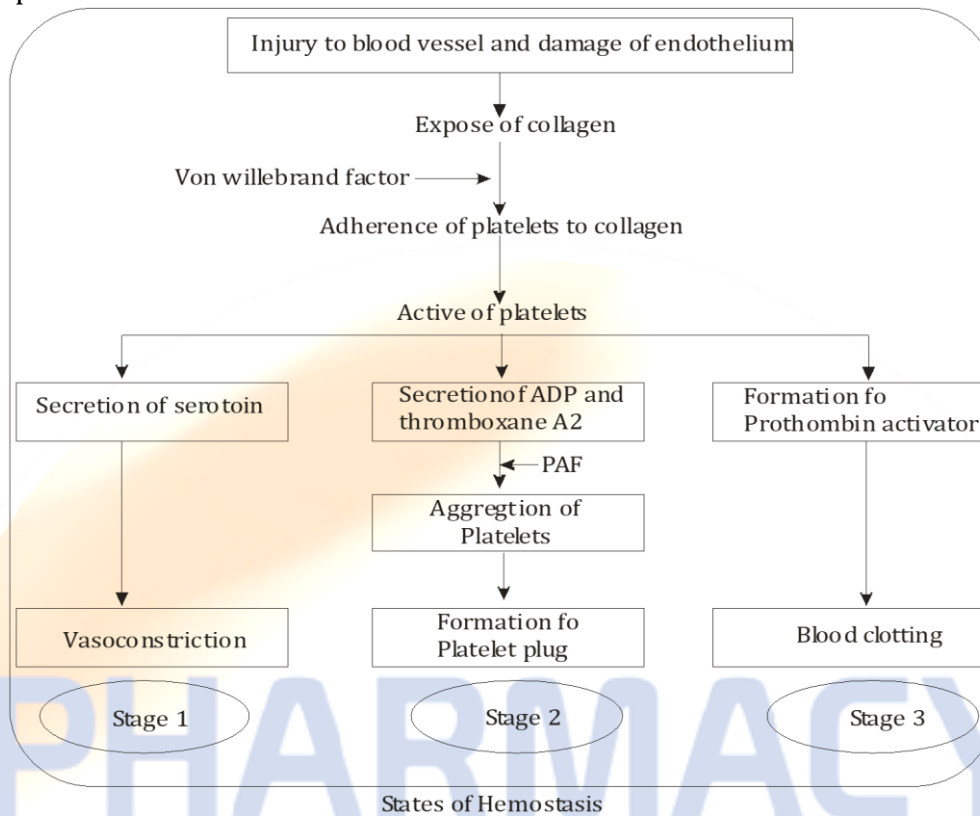
Mechanism of Blood Coagulation

1. Vasoconstriction (Activation)
2. Platelet plug formation (Aggregation & Adhesion)
3. Coagulation of blood

1. **Vasoconstriction:** The smooth muscle in blood vessel walls contracts immediately the blood vessel is broken. This response reduces blood loss for some time, while the other haemostatic mechanisms become active.
2. **Platelet Plug Formation:** When blood platelets encounter a damaged blood vessel they form a "platelet plug" to help to close the gap in the broken blood vessel. (The key stages of this process are called platelet adhesion, platelet release reaction, and platelet aggregation)
3. **Blood clotting or Coagulation-** It is the process in which blood loses its fluidity and become a jelly like mass few minutes after it is shed out or collected in a container. It

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results in hemostasis, the cessation of blood loss from a damaged vessel, followed by repair.

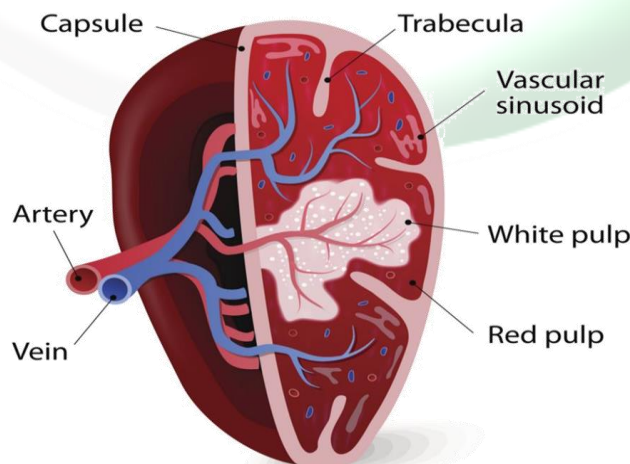


4. Write a note on spleen.

Answer

Spleen

- Spleen is the largest lymphoid organ in the body and it is highly vascular.
- It is the largest organ in the body's lymphatic system.
- Spleen is dark purple colored lymphoid structure.
- The parenchyma of spleen is divided into red and white pulp.
- Highly vascular and bean shaped.
- Its length is 12 cm
- It is situated in left hypochondrial region
- The spleen's external surface can be divided into two portions: the diaphragmatic surface and the visceral surface.



5. Describe the mechanism of respiration.

Answer

Mechanism of Respiration

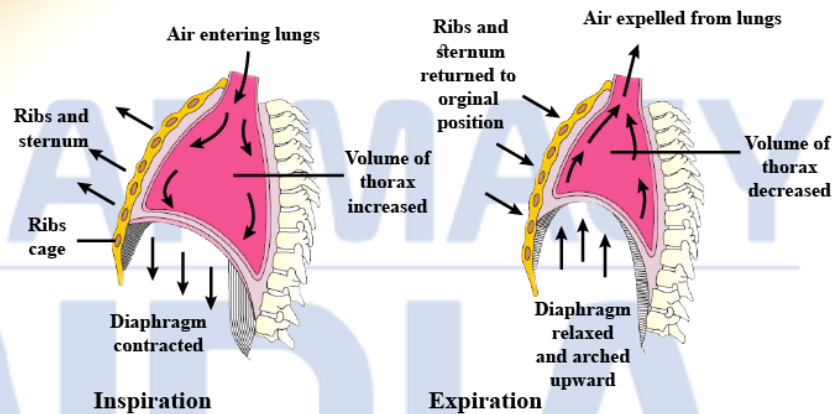
- Respiration involves two stages:

1. **Inspiration**
2. **Expiration**

1. Inspiration (or breathing in) is an active process

➤ It is produced by the contraction of the following muscles:

1. The contraction of the diaphragm enlarges the chest cavity (i.e. from above downwards).
2. Intercostal muscles when contract produce elevation of ribs and sternum. This enlarges the chest cavity in all the other four sides.
3. The lungs expand at this stage and fill this increased space. Now, the pressure in the lungs is less than atmospheric pressure. So, air flows into the lungs.



2. Expiration (or breathing out) is a passive process.

- It is produced by the relaxation of diaphragm and inter costal muscles.
- This produces reduction in the size of chest cavity.
- So, the pressure in the lungs increases which forces the air out.
- The rate of respiration is 16 to 18 per minute in adults.
- The rate is higher in children.

6. Write about blood groups.

Answer

Blood Groups

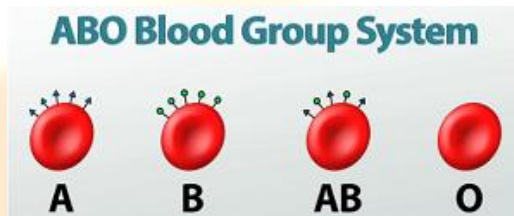
- Blood group is discovered by the Austrian Scientist Karl Landsteiner, in 1901.
- He was honored with Nobel Prize in 1930 for this discovery.

Blood Group Systems

- These two blood group systems are the most important ones that are determined before blood transfusions.
- There are four main blood groups types - A, B, AB and O. Blood group is determined by the genes you inherit from your parents.
- Each group can be either Rh positive or Rh negative, which means in total there are eight main blood groups.

ABO System

- Based on the presence or absence of antigen A and antigen B, blood is divided into four groups:
 - **Blood group A** - has A antigens on the red blood cells with anti-B antibodies in the plasma
 - **Blood group B** - has B antigens with anti-A antibodies
 - **Blood group O** has no antigens, but both anti-A and anti-B antibodies in the plasma.
 - **Blood group AB** has both A and B antigens, but no antibodies in the plasma



Summary of ABO blood grouping system

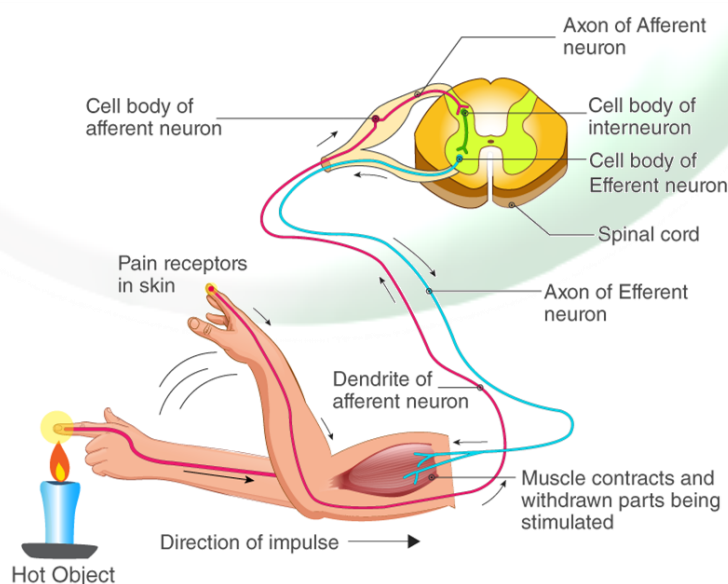
Blood Type	Antigen on RBC	Antibody in Plasma	Can Donate To	Can Receive From
A	A	Anti-B	A, AB	A, O
B	B	Anti-A	B, AB	B, O
AB	A and B	None	AB	A, B, AB, O
O	None (zero)	Anti-A & Anti-B	A, B, AB, O	O

7. Discuss on reflex actions.

Answer

Reflex Action

- Reflex action is a sudden and involuntary response to stimuli. It helps organisms to quickly adapt to an adverse circumstance that could have the potential to cause bodily harm or even death.
- Pulling our hands away immediately after touching a hot or cold object is a classic example of a reflex action.



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Steps Involved

- The first event begins with the receptor detecting a stimulus from a sensory organ. The stimulus could be in the form of pressure, temperature or chemicals.
- This is followed by the sensory neuron sending a signal to the relay neuron.
- The relay neuron then sends the signal to the motor neuron.
- The motor neuron sends a signal to the organ or a cell that acts to the stimuli called the effector.
- Finally, the effector produces an instantaneous response, such as a knee-jerk reaction.

8. Write in short about any three of the following:

a) Glaucoma

Answer

Glaucoma is a group of eye diseases that can cause vision loss and blindness by damaging a nerve in the back of your eye called the optic nerve.

b) Hemopoiesis

Answer

Haemopoiesis means formation of the blood cells which include RBC, WBC (Granulocytes and Agranulocytes) and platelets.

c) Micturition

Answer

Micturition is a process where urine is expelled from the body.

d) Menopause

Answer

Menopause is the time that marks the end of your menstrual cycles. It's diagnosed after you've gone 12 months without a menstrual period.

e) Hypertension

Answer

Hypertension (high blood pressure) is when the pressure in your blood vessels is too high (140/90 mmHg or higher).

9. Write the fullform of any three of the following

a) RBC

Answer – Red blood Cell

b) ANS.

Answer – Autonomic Nervous System

c) TSH

Answer – Thyroid Stimulating Hormone

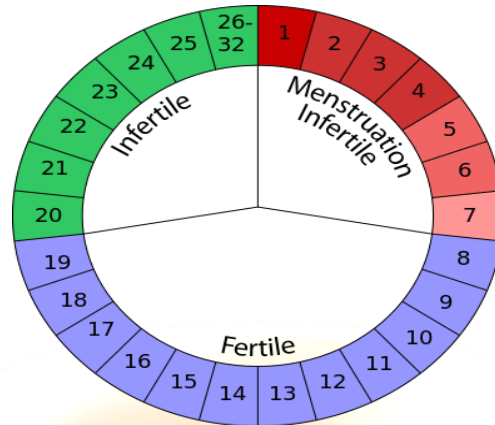
d) GIT

Answer – Gastrointestinal Tract

10. Discuss the physiology of menstruation.

Answer

- Menstrual cycle is defined as cyclic events that take place in a rhythmic fashion during the reproductive period of a woman's life.
- It starts at the age of 12 to 15 years, which marks the onset of puberty.
- The commencement of menstrual cycle is called menarche.
- Menstrual cycle ceases at the age of 45 to 50 years.
- Permanent cessation of menstrual cycle in old age is called Menopause



• **The menstrual cycle consists of following four phases**

1. Menstrual Phase (Bleeding phase or menses)
2. Follicular phase (Proliferative phase)
3. Ovulatory phase
4. Luteal phase (Secretary phase)

1. Menstrual phase (bleeding phase)

- In a 28 day menstrual cycle, the menses takes place on cycle days 3-5.
- The production of LH from the anterior lobe of the pituitary gland is considerably reduced.
- The withdrawal of this hormone causes degeneration of the corpus luteum and, therefore, progesterone production reduced.
- Production of estrogen is also reduced in this phase.
- The endometrium of the uterus breaks down and menstruation begins.
- The cells of endometrium secretions, blood and the unfertilized ovum constitute the menstrual flow.

2. Follicular phase (Proliferative phase)

- This phase usually includes cycle days 6-13 or 14 in a 28 day cycle.
- The follicle stimulating hormone (FSH) secreted by the anterior lobe of the pituitary gland stimulate the ovarian follicle to secrete estrogen.
- Estrogen stimulate the proliferation of the endometrium of the uterine wall.
- The endometrium becomes thicker by rapid cell multiplication and this is accompanied by an increase of uterine glands and blood vessels.

3. Ovulatory phase

- Both LH and FSH attain a peak level in the middle of cycle about 14th day).
- Rapid secretion of LH induces rupturing of Graafian follicle and thereby the release of ovum in human beings secondary oocyte is released.
- This is called ovulation in fact LH causes ovulation.

4. Luteal phase (Secretary phase)

- It is the phase lasting for the next 14 days.
- During this phase, the endometrium becomes thick and vascular to receive the fertilized ovum.
- Now, the corpus luteum secretes progesterone.
- If conception occurs by implantation of the fertilized ovum, the secretion of progesterone continues throughout pregnancy. Otherwise the corpus luteum begins to degenerate and does not produce progesterone.
- Later, the capillaries of endometrium burst and menstruation occurs

11. Write about ball and socket joint with example.

Answer

Ball and socket joints

- Articular end of one bone is ball like.
- It fits into the socket like cavity of another bone.
- Movements in all directions is possible in this type.
- Ball-and-socket joint, also called spheroidal joint. **Ex.: Shoulder joint and hip joint.**

➤ **Functions**

- ✓ The ball and socket joint provides swinging and rotating movements.
- ✓ The ball and socket joint allows rotation of a limbs.

C. MCQs/ Fill in the blanks (Answer all questions) 20×1 = 20 marks

- Human skeleton is made of a total of
a) 201 bones **b) 206 bones**
c) 126 bones d) 198 bones
- Which one of the following blood groups is considered a universal donor?
a) A b) B c) AB **d) O**
- In human body the blood Circulation was discovered by:
a) Karl Landsteiner **b) William Harvey**
c) Gasparo Aselli d) Charles Darwin
- In an ECG graph; the period of relaxation in heart heat is denoted by:
a) P b) Q c) S **d) T**
- Henle's loop is:
a) L-shaped b) S-shaped
c) U-shaped d) V-shaped
- The largest part of human brain is:
a) Cerebrum b) Cerebellum
c) Diencephalon d) Medulla oblongata
- From outside to inside the arrangement of bones of middle ear is.
a) Incus → Malleus → Stapes b) Stapes → Malleus → Incus
c) Incus → Stapes Malleus **d) Malleus → Incus → Stapes**
- Islets of langerhans produce.
a) Bile b) Amylase c) Trypsin **d) Insulin**
- Menstrual cycle is of:
a) 26 days **b) 28 days** c) 30 days d) 29 days
- A tendon joins:
a) Muscle with bone b) Muscle with muscle
c) Muscle with ligament d) Bone with bone
- Power house of the cells are _____

Answer - Mitochondria

- A muscle is called fatigued when there is accumulation of _____ in it.

Answer - Lactic acid

- The regulation of heart beat and blood pressure are under control of _____.

Answer - Autonomic nervous system

- Generally, a sudden fatal heart attack may take place due to complete blockade of _____ artery.

Answer - Coronary artery

- The pulse of a person can be felt by placing a finger on _____ artery in the wrist.

Answer - Radial artery

- Gustatory cells are found is the _____.

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Answer – Tongue

17. Bile is stored in the _____ of body.

Answer – Gallbladder

18. The loss of transparency of the lens causes a defect in the eyes is called _____

Answer – Cataract

19. Estrogen and progesterone are secreted by _____.

Answer – Ovaries

20. Exchange of gases in the lungs is called, _____ respiration.

Answer – External

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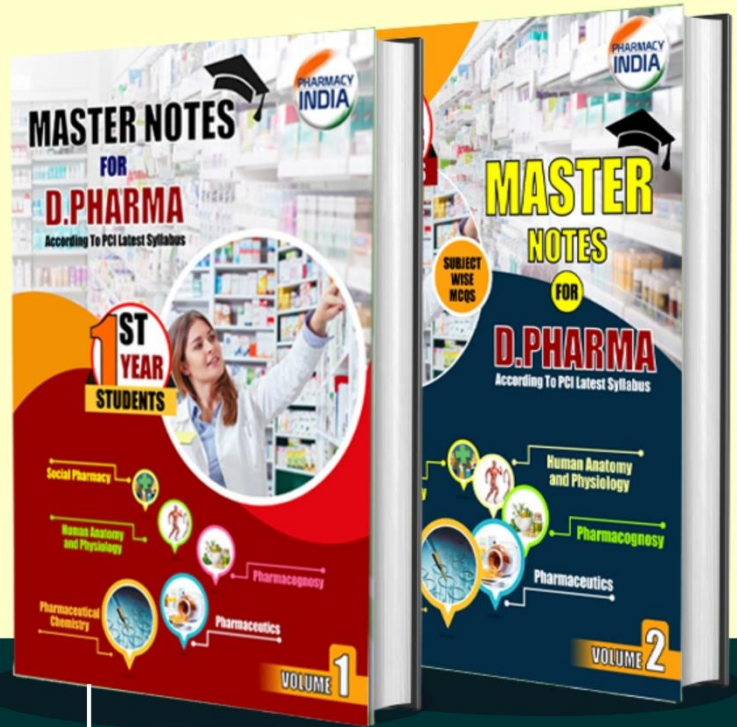


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