

1. The hormone that increases the rate of heartbeat is –  
 1). Adrenalin                      2). Insulin                      3). Parathormone                      4). Estrogen

Ans:1

**Epinephrine.** Epinephrine, more commonly known as adrenaline, is a hormone secreted by the medulla of the adrenal glands. Strong emotions such as fear or anger cause epinephrine to be released into the bloodstream, which causes an increase in heart rate, muscle strength, blood pressure, and sugar metabolism.

2. The colour of cow's milk is slightly yellowish due to the presence of  
 1). Ribulose                      2). Xanthophyll                      3). Riboflavin                      4). Carotenoid

Ans:4

**Carotenoid** is a precursor of vitamin-A which gets converted into enterocytes and hepatocytes of animals. It is a fat-soluble pigment responsible for the yellow color of milk and milk products like cream, butter, ghee, etc)

3. The sex of a child is determined -  
 1) six to seven weeks after conception  
 2). in the third month of pregnancy  
 3). at the time of fertilisation of the ovum  
 4). at the time of the sperm entry

Ans:2

4. 'Homoeopathy' was invented by -  
 1). Samue Hahnemann                      2). Cokrell                      3). Lipman                      4). None of these

Ans:1

5. Anemia is caused in man due to the deficiency of –  
 1). Folic acid                      2). Vitamin B 12                      3). Iron                      4). Vitamin A

Ans:1, 2 and 3.

Anaemia is caused in man due to deficiency of **folic acid, vitamin B12 and iron.**

6. Which of the following is not a root vegetable?  
 1). Turnip                      2). Radish                      3). Carrot                      4). Tomato

Ans:4

7. Which animal remains blind for 11 weeks after birth?

- 1). Bear                      2). **Platypus**                      3). Hedgehog                      4). Armadillo

**Ans:2** (sometimes referred to as the **duck-billed platypus**, is a semiaquatic, egg-laying mammal endemic to eastern Australia, including Tasmania.)

8. How much blood does an average human have in his body

- 1). 2 litres                      2). 5 litres                      3). 4 litres                      4). 7 litres

**Ans:2** ( aults 4.5 to 5.7liter. Pregnant woman about 30 to 50 percent more blood volume than women who are not pregnant)

9. An object weighs a little less at the equator than at the poles because -

- 1). the equator has got severely hot atmosphere  
 2).Cyclones often occur in the equatorial regions  
 3). **the gravitational pull at the equator is less than that at the poles**  
 4) None

**Ans:3**

10. Phosphorus exists in nature –

- 1). In the free state                      2). **As phosphates**  
 3). As phosphoric acid                      4).As phosphorous pentoxide

**Ans: 2.**

Phosphorus always occurs as the phosphate ion. The principal combined forms in nature are the phosphate salts. Other important phosphorus-bearing minerals are wavellite and vivianite. The chief commercial source is phosphorite, or phosphate rock, an impure massive form of carbonate-bearing apatite. The principal technique for converting phosphate rock to usable materials involves acidulation of the crushed rock—with either sulfuric or phosphoric acids—to form crude calcium hydrogen phosphates that, being water-soluble, are valuable additions to fertilizer. Most of the output is burned to phosphoric anhydride and subsequently treated with water to form phosphoric acid,  $H_3PO_4$ .

**Britannica, The Editors of Encyclopaedia. "Phosphorus". *Encyclopedia Britannica*, 26 Mar. 2021, <https://www.britannica.com/science/phosphorus-chemical-element>. Accessed 11 September 2021.**

11. The ore used in the extraction of phosphorus by the modern electric process is –

- 1). Bone ash                      2). **Rock phosphate**  
 3). Phosphoric acid                      4). None of these

**Ans:2.**

12. How many blood-cells are there approximately in a human body?

- 1). 50 millions      2). One trillions      3). 30 trillions      4). 100 billions

Ans:3

There are about 200 different types of cells in the body. Here are just a few examples:

- red blood cells (erythrocytes)
- skin cells
- neurons (nerve cells)
- fat cells

<https://www.healthline.com/health/number-of-cells-in-body#human-cells>

13. What are corals?

- 1). A kind of salt water fish found in the seas of southern hemisphere
- 2). A variety of shells found near sea coasts
- 3). The remains of sea animals

4) None

Ans:4 (Corals are invertebrate animals belonging to a large group of colourful and fascinating animals called Cnidaria.)

14. Which one of the following types of food is produced directly by photosynthesis?

- 1) Fat                      2). Glucose                      3). Protein                      4). Vitamin

Ans:2.

Photosynthetic cells are quite diverse and include cells found in green plants, phytoplankton, and cyanobacteria. During the process of photosynthesis, cells use carbon dioxide and energy from the Sun to make sugar molecules and oxygen. These sugar molecules are the basis for more complex molecules made by the photosynthetic cell, such as glucose. Then, via respiration processes, cells use oxygen and glucose to synthesize energy-rich carrier molecules, such as ATP, and carbon dioxide is produced as a waste product.

Photosynthetic cells contain chlorophyll and other light-sensitive pigments that capture solar energy. In the presence of carbon dioxide, such cells are able to convert the solar energy into energy-rich organic molecules, such as glucose. These cells not only drive the global carbon cycle, but they also produce much of the oxygen present in atmosphere of the Earth. Essentially, nonphotosynthetic cells use the products of photosynthesis to do the *opposite* of photosynthesis: break down glucose and release carbon dioxide.

<https://www.nature.com/scitable/topicpage/photosynthetic-cells-14025371/>

15. What does phototropism mean?

- 1). movement of the plant towards water and moisture

- 2). Specialized protoplasm from which arises a cilia
- 3). union between unequal gametes
- 4). The growth or movement of a fixed organism toward or away from light.

Ans:4

16. The cerebellum -

- 1). contains the pons
- 2). controls the release of melatonin
- 3). controls coordination
- 4). controls the vital function of respiration and circulation

Ans:4

It controls thought, behavior, emotions, and memory, as well as basic life functions such as breathing and heart rate. The brain consists of the cortex, brainstem, and cerebellum. ... Primarily responsible for motor control, the cerebellum **controls balance and movement.**

Maintenance of balance and posture

Coordination of voluntary movements.

Motor learning.

Cognitive functions.

<https://nba.uth.tmc.edu/neuroscience/m/s3/chapter05.html>

17. The protein quality of food ingested by a person is determined by the –

- 1). Fibre content
- 2). Indispensible Amino acids
- 3). Blood sugar level
- 4). Red blood corpuscles

Ans:2

18. If a solution contains a known quantity of solute in a known volume of solvent, then it is called

- 1). Normal solution
- 2). Standard solution
- 3). Molar solution
- 4). Molal solution

Ans:2

Standard solutions

In analytical chemistry, a standard solution is a solution containing a precisely known concentration of an element or a substance. A known mass of solute is dissolved to make a specific volume. Standard solutions are used to determine the concentrations

of other substances, such as solutions in titration

**Concentration**

The **concentration** of a solution is a measure of the amount of solute that has been dissolved in a given amount of solvent or solution. A **concentrated solution** is one that has a relatively large amount of dissolved solute. A **dilute solution** is one that has a relatively small amount of dissolved solute.

**Molarity.** Molarity is defined as the number of moles of a solute dissolved per liter of solution

19. A nucleoprotein resembling eukaryotic chromosome is –  
 1. **Virus**                      2). Liprotein                      3). Permease                      4). Biloprotein

**Ans:1**

**Nucleoproteins** are any proteins that are structurally associated with nucleic acids, either DNA or RNA. Typical nucleoproteins include ribosomes, nucleosomes and viral nucleocapsid proteins.

**VIRUSES**

Virus genomes (either DNA or RNA) are extremely tightly packed into the viral capsid. Many viruses are therefore little more than an organised collection of nucleoproteins with their binding sites pointing inwards. Structurally characterised viral nucleoproteins include influenza, rabies, Ebola, Bunyamwera, Schmallenberg, Hazara, Crimean-Congo hemorrhagic fever, and Lassa.

<https://en.wikipedia.org/wiki/Nucleoprotein>

20. Dyphtheria affects the –  
 1). **Throat**                      2). Lungs                      3). Ears                      4). None of these

**Ans:1**

21. What did William Horlick invent?  
 1). Ice Cream                      2). **Malted Milk Food**  
 3). Soda                      4). Beer

**Ans:2**

22. A solenoid carrying a current behaves like a –  
 1). Bar magnet                      2). Horse-shoe magnet  
 3). Circular magnet                      4) **Electromagnet**

**Ans:4**

23. Which is the longest railway platform in India?

- 1). Mumbai  
 2). Calcutta  
 3). Gorakhpur, Uttar Pradesh  
 4). Kharagpur  
 Ans:3(Gorakhpur, Uttar Pradesh)

24. The nerves that convey impulses from the brain are known as –  
 1). Sensory nerves.  
 2). Motor nerves.  
 3). Translatory nerves.  
 4). Reflex nerves.  
 Ans:2

### Efferent and Afferent Nerves

#### Afferent neurons are sensory nerves

These are sensory neurons carrying nerve impulses from sensory stimuli toward the central nervous system and brain. Afferent neurons carry signals to the brain and spinal cord as sensory data. The main cell bodies of afferent neurons are located near the brain and spinal column, which comprise the central nervous system. The main cell bodies of afferent neurons are located near the brain and spinal column, which comprise the central nervous system.

#### Efferent neurons are motor nerves

These are motor neurons carrying neural impulses away from the central nervous system and toward muscles to cause movement. Efferent neurons send signals from the brain to the muscles, glands, and organs of the body in response to sensory input. The cell bodies of efferent neurons are located within the central nervous system. Their purpose is to take signals from the central nervous system to: 1. The peripheral nervous system, 2. Muscles, and 3. Glands

These signals initiate a response to stimulus. The efferent neuron cause muscles to contract and reflex to move the body away from the heat.

Skin has sensory receptors for: Heat, Cold, Pleasure, Pain, Pressure, etc.

### Efferent and Afferent Nerves

Afferent and efferent neurons pairs traveling through the spinal column govern reflexes

<https://www.spineandsports.com/conditions/efferent-and-afferent-nerves/>

25. How can  $(0.756) \times \frac{3}{4}$  be written in the form of percentage?  
 1). 56.1%                      2). 56.7%                      3). 56.3%                      4). 58.7%

Ans:2

26. Brass is an alloy of –

- 1). Cu & Zn                      2). Cu & Sn                      3). Cu, Sn & Zn                      4). Cu, Sn & Ni

Ans:1

27. Which one of these is not a breed of horse?

- 1). Shetland                      2). Thoroughbred                      3). Dartmoor                      4). Merino

Ans: Meriono is sheep.

28. Which is the longest bone in the human body?

- 1). Fore arm bone                      2). Thigh Bone                      3). Hip bone                      4). Rib

Ans:2

29. Which of the following glands controls the rate of energy release

- 1). Parathyroid                      2). Pancreas                      3). Thyroid                      4). Pineal

Ans:

### Anatomy of the Endocrine System

The endocrine system is a complex network of glands and organs. It uses hormones to control and coordinate your body's metabolism, energy level, reproduction, growth and development, and response to injury, stress, and mood. The following are integral parts of the endocrine system:



- **Hypothalamus.** The hypothalamus is located at the base of the brain. The

hypothalamus secretes hormones that stimulate or suppress the release of hormones in the pituitary gland, in addition to controlling water balance, sleep, temperature, appetite, and blood pressure.

- **Pineal body.** The pineal body is located below the corpus callosum, in the middle of the brain. It produces the hormone melatonin, which helps the body know when it's time to sleep.
- **Pituitary.** The pituitary gland is located below the brain. The gland controls many functions of the other endocrine glands.
- **Thyroid and parathyroid.** The thyroid gland and parathyroid glands are located in front of the neck, below the larynx (voice box). The thyroid plays an important role in the body's metabolism. The parathyroid glands play an important role in the regulation of the body's calcium balance.
- **Thymus.** The thymus is located in the upper part of the chest and produces white blood cells that fight infections and destroy abnormal cells.
- **Adrenal gland.** An adrenal gland is located on top of each kidney. Like many glands, the adrenal glands work hand-in-hand with the hypothalamus and pituitary gland. The adrenal glands make and release corticosteroid hormones and epinephrine that maintain blood pressure and regulate metabolism.
- **Pancreas.** The pancreas is located across the back of the abdomen, behind the stomach. The pancreas plays a role in digestion, as well as hormone production. Hormones produced by the pancreas include insulin and glucagon, which regulate levels of blood sugar.
- **Ovary.** A woman's ovaries are located on both sides of the uterus, below the opening of the fallopian tubes (tubes that extend from the uterus to the ovaries). In addition to containing the egg cells necessary for reproduction, the ovaries also produce estrogen and progesterone.
- **Testis.** A man's testes are located in a pouch that hangs suspended outside the male body. The testes produce testosterone and sperm.

<https://www.hopkinsmedicine.org/health/wellness-and-prevention/anatomy-of-the-endocrine-system>

#### WHAT ARE THE PARTS OF THE ENDOCRINE SYSTEM?

While many parts of the body make hormones, the major glands that make up the endocrine system are the:

hypothalamus  
 pituitary  
 thyroid  
 parathyroids  
 adrenals  
 pineal body  
 the ovaries  
 the testes

The pancreas is part of the endocrine system **and** the digestive system. That's because it secretes hormones into the bloodstream, and makes and secretes enzymes into the digestive tract.



<https://kidshealth.org/en/parents/endocrine.html>

30. Which one of the following wave lengths of light is most effective ..in photosynthesis?

- 1). Orange                      2). Green                      3). Yellow                      4). Blue

**Ans:4** (The best wavelengths of visible light for photosynthesis fall within the blue range (425–450 nm) and **red range (600–700 nm)**. Therefore, the best light sources for photosynthesis should ideally emit light in the blue and red ranges.)

31. Which element is used for making filament of electric bulb?

- 1). Iron                      2). Copper                      3). Lead                      4). Tungsten

**Ans:4** (Now electric bulb is phased out.)

32. The functional group of an organic acid is -

- 1). ---OH                      2). -----COOH                      3). ----CHO                      4). ----C=O

**Ans:2**

### Nervous system

#### OVERVIEW OF THE NERVOUS SYSTEM

, MD, National Heart, Lung, and Blood Institute

Last full review/revision Mar 2021 | Content last modified Mar 2021

The nervous system has two distinct parts: the central nervous system (the brain and spinal cord) and the peripheral nervous system (the nerves outside the brain and spinal cord)

The basic unit of the nervous system is the nerve cell (neuron). Nerve cells consist of a large cell body and two types of nerve fibers:

- **Axon:** A long, slender nerve fiber that projects from a nerve cell and can send messages as electrical impulses to other nerve cells and muscles
- **Dendrites:** Branches of nerve cells that receive electrical impulses

The brain and spinal cord also contain support cells called **glial cells**. These cells are different from nerve cells and do not produce electrical impulses. There are several types, including the following:

- **Astrocytes:** These cells provide nutrients to nerve cells and control the chemical composition of fluids around nerve cells, enabling them to thrive.
- **Ependymal cells:** These cells form along open areas in the brain and spinal cord to create and release cerebrospinal fluid, which bathes cells of the nervous system.
- **Glial progenitor cells:** These cells can produce new astrocytes and

oligodendrocytes to replace those destroyed by injuries or disorders. Glial progenitor cells are present throughout the brain in adults.

- **Microglia:** These cells help protect the brain against injury and help remove debris from dead cells. These cells can move around in the nervous system and can multiply to protect the brain during an injury.
- **Oligodendrocytes:** These cells form a coating around nerve cell axons and make a specialized membrane called myelin, a fatty substance that insulates nerve axons and speeds the conduction of impulses along nerve fibers.

**Schwann cells** are also glial cells. However, these cells are in the peripheral nervous system rather than in the brain and spinal cord. These cells are similar to oligodendrocytes and make myelin to insulate axons in the peripheral nervous system.

The brain and spinal cord consist of **gray** and **white matter**.

**Gray matter** consists of nerve cell bodies, dendrites and axons, glial cells, and capillaries (the smallest of the body's blood vessels).

**White matter** contains relatively very few neurons and consists mainly of axons that are wrapped with many layers of myelin and of the oligodendrocytes that make the myelin.

<https://www.msmanuals.com/en-in/home/brain,-spinal-cord,-and-nerve-disorders/biology-of-the-nervous-system/overview-of-the-nervous-system>

33. The equivalent weight of an acid is 49. Its molecular weight is 98. The number of replaceable hydrogen atoms is

- 1). 1                      2). 2                      3). 3                      4). 4

Ans: 2

**Equivalent weight**, in chemistry, the quantity of a substance that exactly reacts with, or is equal to the combining value of, an arbitrarily fixed quantity of another substance in a particular reaction. Substances react with each other in stoichiometric, or chemically equivalent, proportions, and a common standard has been adopted. The concept of equivalent weight has been displaced by that of molar mass, which is the mass of one mole of a substance.

The equivalent weight of an element is its gram atomic weight divided by its valence (combining power). Some equivalent weights are: silver (Ag), 107.868 gram (g); magnesium (Mg), 24.312/2 g; aluminum (Al), 26.9815/3 g; and sulfur (S, in forming a sulfide), 32.064/2 g.

For an element, the equivalent weight is the quantity that combines with or replaces 1.008 g of hydrogen or 7.9997 g of oxygen; or, the weight of an element that is

liberated in an electrolysis (chemical reaction caused by an electric current) by the passage of 1 faraday (96,485.3321233 coulombs) of electricity.

For compounds that function as oxidizing or reducing agents (compounds that act as acceptors or donors of electrons), the equivalent weight is the gram molecular weight divided by the number of electrons lost or gained by each molecule.

Britannica, The Editors of Encyclopaedia. "Equivalent weight". *Encyclopedia Britannica*, 26 Mar. 2021, <https://www.britannica.com/science/equivalent-weight>. Accessed 12 September 2021.

34. Haemophilia is a hereditary disease caused by -

- 1). Males and expressed by females
- 2). Males and expressed by males
- 3). Females and expressed by females
- 4). Females and expressed by males

Ans:4

Hemophilia is a bleeding disorder in which the blood does not clot properly. It is caused by a lack of clotting factor proteins in the blood. As a result, people with hemophilia may experience excessive and longer-than-usual bleeding after physical injury or trauma, but they can also experience bleeding without injury or any obvious trigger. Hemophilia is caused by a mutation (change) in one of the genes that provides instructions within cells for making clotting factor proteins in the blood. This mutation results in hemophilia by preventing the clotting factor protein from working properly or causing it to be missing altogether. These genes are located on the X chromosome. Males have one X and one Y chromosome (XY) and females have two X chromosomes (XX). Males inherit the X chromosome from their mothers and the Y chromosome from their fathers. Females inherit one X chromosome from each parent. A female with one affected X chromosome is a "carrier" of hemophilia. Sometimes a female who is a carrier can have symptoms of hemophilia. In addition, she can pass the affected X chromosome with the clotting factor gene mutation on to her children.

<https://www.cdc.gov/ncbddd/hemophilia/facts.html>

35. Agar-agar is a substance used very commonly to -

- 1). Grow bacteria
- 2). Preserve good
- 3). Grow uterus
- 4). Kill bacteria

Ans:1

36. DNA differs from RNA in having -

- 1). Uracil
- 2). Adenine
- 3). Thymine
- 4). Cytosine

Ans:3

There are two differences that distinguish DNA from RNA: (a) RNA contains the sugar ribose, while DNA contains the slightly different sugar deoxyribose (a type of

ribose that lacks one oxygen atom), and (b) RNA has the nucleobase uracil while DNA contains thymine

<https://cm.jefferson.edu/learn/dna-and-rna/#:~:text=There%20are%20two%20differences%20that,uracil%20while%20DNA%20contains%20thymine.>

37. Which one among the following is the characteristic feature of virus?

- 1) Virus breeds fast on dead animals only
- 2). Virus does not need any medium to grow
- 3). **Virus multiplies only on hosts**
- 4). Virus comprises fat

Ans:3

38. Insufficient dietary iodine causes a/an –

- 1). Small thyroid
- 2). Giant
- 3). Cretin
- 4). **Enlarged thyroid**

Ans:4.

**er (GOI-tur)** is an abnormal enlargement of your thyroid gland. A lack of iodine can cause **an abnormal enlargement of the thyroid gland, known as a goiter**, and other thyroid problems. In children, it can cause mental disabilities

Hypothyroidism, also called underactive thyroid, is when the thyroid gland doesn't make enough thyroid hormones to meet your body's needs Women are much more likely than men to develop hypothyroidism

Hypothyroidism can contribute to high cholesterol.

<https://www.niddk.nih.gov/health-information/endocrine-diseases/hypothyroidism#causes>

An insufficient supply of thyroid hormones to the developing brain may result in **mental retardation**. Brain damage and irreversible mental retardation are the most important disorders induced by iodine deficiency

Iodine is an element that is needed for the production of thyroid hormone. The body does not make iodine, so it is an essential part of your diet. Iodine is found in various foods (see Table 1). If you do not have enough iodine in your body, you cannot make enough thyroid hormone. Thus, iodine deficiency can lead to enlargement of the thyroid, hypothyroidism and to intellectual disabilities in infants and children whose mothers were iodine deficient during pregnancy.

<https://www.thyroid.org/iodine-deficiency/>

39. The smallest living cell is that of a

- 1). Bacterium
- 2). Bread mold
- 3). **Mycoplasma**
- 4). Virus

**Ans:3.** **Mycoplasma** is known as the smallest living cell but it does not have a cell wall. These are the unicellular organisms that can survive without the oxygen.

40. Covalent compounds are more soluble in -

- 1). Water  
 2). **Organic solvents**  
 3). Both  
 4). None of these

**Ans:2**

Covalent compounds are soluble in organic solvents (non-polar) but insoluble in water (polar).

This is because organic solvents (non-polar) like benzene, alcohol dissolve non-polar covalent compounds. (Like dissolves like).

Water is a polar solvent and cannot dissolve non-polar covalent compounds, but dissolves polar

Covalent compounds are less-polar so they are soluble in **non-polar substances like ether.**

Polar species are soluble in water, while nonpolar species are soluble in oils and fats. Covalent solubility uses the like dissolves like rule. This means that substances with the same type of polarity will be soluble in one another. Moreover, compounds with differing polarities will be insoluble in one another.

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[https://chem.libretexts.org/Courses/Furman\\_University/CHM101%3A\\_Chemistry\\_and\\_Global\\_Awareness\\_\(Gordon\)/04%3A\\_Valence\\_Electrons\\_and\\_Bonding/4.11%3A\\_Applications\\_and\\_Solubility\\_of\\_Covalent\\_Compounds](https://chem.libretexts.org/Courses/Furman_University/CHM101%3A_Chemistry_and_Global_Awareness_(Gordon)/04%3A_Valence_Electrons_and_Bonding/4.11%3A_Applications_and_Solubility_of_Covalent_Compounds)

41. In a normal human body, the total number of red blood cells is –

- 1). 15 trillion      2). 20 trillion      3). **25 trillion**      4). 30 trillion

**Ans:3**

There are three types of blood cells: red blood cells, white blood cells, and platelets. Red blood cells (RBCs) are by far the most abundant type of cell in the human body, accounting for over 80 percent of all cells.

Adult humans have somewhere around 25 trillion RBCs in their body, on average. Women usually have fewer RBCs than men, while people living at higher altitudes will usually have more.

There are also about 147 million platelets and another 45 million lymphocytes (a type of white blood cell) in the body, based on recent calculations.

<https://www.healthline.com/health/number-of-cells-in-body#blood-cells>

42. In a female human being the average volume of blood is about -  
 1). 2.5 litres                      2). 3.5 litres                      3). 4.5 litres                      4). 5.5 litres

Ans:3

The average quantities of blood are:

- about 9 pints (4.3 liters) of blood in an average-sized female (5 feet 5 inches tall and weighing 165 pounds)
- about 12.2 pints (5.7 l) in an average-sized male (6 feet in height and weighing 200 pounds)
- in an infant, about 1.2 fluid ounces (fl oz) for every pound of body weight (75 – 80 milliliters (ml) of blood per kilogram).
- in a child, about 1–1.2 fl oz for every pound of body weight (70–75 ml of blood per kg)

<https://www.medicalnewstoday.com/articles/321122#blood-volume>

43. Starch is digested by -  
 1). Ptyalin                      2). Blood                      3). Hormones                      4). None of these

Ans:1.

Starch provides a large proportion of the dietary energy consumed worldwide. The breakdown of dietary starch is driven by  $\alpha$ -amylase produced by the salivary glands and pancreatic acini and is completed by a range of enzymes. This enzymatic digestion is aided by mechanical and secretory actions of the gastrointestinal tract. Ptyalin is a **starch** hydrolyzing enzyme produced by human salivary glands. It hydrolyzes starch into maltose and isomaltose, as well as other small dextrins known as the limit dextrins.

.....

Starch is a polysaccharide composed of glucose monomers and accounts for ~ 60% of the carbohydrates consumed by humans

Starch can exist in one of two forms – linear chains (amylose) or branched chains (amylopectin)

The digestion of starch is initiated by salivary amylase in the mouth and continued by pancreatic amylase in the intestines

**Role of Pancreas**

The pancreas serves two functions in the breakdown of starch:

It produces the enzyme amylase which is released from exocrine glands (acinar cells) into the intestinal tract

It produces the hormones insulin and glucagon which are released from endocrine glands (islets of Langerhans) into the blood.

The hormones insulin and glucagon regulate the concentration of glucose in the bloodstream (controls availability to cells)

Insulin lowers blood glucose levels by increasing glycogen synthesis and storage in the liver and adipose tissues

Glucagon increases blood glucose levels by limiting the synthesis and storage of glycogen by the liver and adipose tissues

<https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/61-digestion-and-absorption/starch-digestion.html>

44. The centre for regulation of food intake in man is located in the

1). Cerebral cortex      2). **Hypothalamus**

3). Medulla

4). Cerebellum

**Ans:2** (The **hypothalamus** is the center of food intake regulation, but the higher levels of the brain also contribute to the behavioral outcome. Physical activity increases energy consumption and thus the need for food )

45. Chromosomes not related to sex inheritance are called –

1). Centrosomes

2). Mesosomes

3). **Autosomes**

4). Allosomes

**Ans:3**

46. Hormones are normally absent in -

1). Monkey

2). Rat

3). Cat

4). **Bacteria**

**Ans:4**

47. What joins bone and muscle?

1). Ligament

2). Sinew

3). **Tendon**

4). Nerve

**Ans:3.**

**Tendon** is a fibrous connective tissue which attaches muscle to bone. Tendons may also attach muscles to structures such as the eyeball. A tendon serves to move the bone or structure.

Bones, muscles and joints make up the musculoskeletal system. They all grow and change throughout life. Injuries and various illnesses can damage bones, muscles and joints.

**Musculoskeletal system structure**

The adult human skeleton is made up of 206 bones. There are five main shapes of bones: long (such as the upper arm), short (such as the hand), flat (such as the ribs), irregular (such as the vertebrae) and sesamoid (such as the kneecap).

A joint is an area where 2 or more bones are in contact with each other. Cartilage provides cushioning inside joints (such as in the knee joint), or connects one bone to another (as in cartilaginous joints).

Ligaments join bones to other bones to strengthen joints.

Skeletal muscles run from one bone to another, usually passing at least one joint. They are connected to bones by tendons, which are the long thin ends of the muscles.

<https://www.healthdirect.gov.au/bones-muscles-and-joints>

48. Weakest acid among the following is \_\_\_\_\_

- 1). Acetic acid      2). Phenol      3). Water      4). Acetylene

Ans:1

**Phenol** (also called **carbolic acid**) is an aromatic organic compound with the molecular formula  $C_6H_5OH$

Acetic acid is **the second simplest carboxylic acid (after formic acid)**. It is an important chemical reagent and industrial chemical, used primarily in the production of cellulose acetate for photographic film, polyvinyl acetate for wood glue, and synthetic fibres and fabrics.

Acetic acid has been prepared on an industrial scale by air oxidation of acetaldehyde, by oxidation of ethanol (ethyl alcohol), and by oxidation of butane and butene. Today acetic acid is manufactured by a process developed by the chemical company Monsanto in the 1960s; it involves a rhodium-iodine catalyzed carbonylation of methanol (methyl alcohol).

Brown, William H.. "Acetic acid". *Encyclopedia Britannica*, 5 Feb. 2020, <https://www.britannica.com/science/acetic-acid>. Accessed 11 September 2021.

49. Turpentine oil is obtained from the wood of –

- 1). Gnetum      2). Mycas      3). Pine oleoresin      4). Cedrus

Ans:3

50. The first person to conduct heart transplantation in India was –

- 1). Dr. P Venugopal    2). Dr. Valiathan  
3). Dr. Cherian      4). Dr. P.K.K. Ayyangar

Ans: 1.