

8th Science Lesson 8 Questions in English

8] Organization Of Life

1. Which of the following statement is correct?

- 1) There are animals like amoeba which cannot be seen by our naked eye
 - 2) There are animals like blue whale and elephants which are of huge size
 - 3) The variations are not only seen size but also in the complexity of their, cells, tissues of the body structure.
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

There are **animals like amoeba which cannot be seen by our naked eye**. There are animals like blue whale and elephants which are of huge size. The variations are not only seen size but also in the complexity of their, cells, tissues of the body structure. This is called organization of life.

2. Arrange the following from lower to higher level:

- 1) Tissue
 - 2) Organ
 - 3) Organ system
 - 4) Organism
- a) 1, 2, 4, 3
 - b) 1, 2, 3, 4
 - c) 2, 3, 4, 1
 - d) 3, 2, 1, 4

Explanation

The biological organization are arranged from cellular level to organism level. It goes like **tissue, organ, organ system and organisms**.

3. How many levels of organizations are there?

- a) 3
- b) 2
- c) 5
- d) 4

Explanation

Each of this represents a level of organization and hierarchy. This **organizations are of two levels**, they are lower levels and higher levels of organism.

4. _____ is the smallest structural and functional unit of living organisms

- a) Tissue
- b) Cell**
- c) Organ
- d) Organ system

Explanation

Cell is the **smallest structural and functional unit of living organisms** and it is capable of performing specific function. It is also called the building blocks of life.

5. Which of the following statement is correct?

- 1) Single-celled organisms like Amoeba are able to carry out all the processes of life, like higher organisms
- 2) The body of Amoeba looks like a single cell, while higher animals are made up of billions of cells.
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2**
 - d) None

Explanation

Single-celled organisms like **Amoeba** are able to carry out all the processes of life, like higher organisms. The body of Amoeba looks like a single cell, while **higher animals are made up of billions of cells**. Bacteria, yeasts and Amoeba have a single cell body and are called as unicellular organisms.

6. _____ make up organs

- a) Cells**
- b) Tissue
- c) Organ system
- d) All the above

Explanation

Organisms such as human beings, cows and trees are made of a large number of cells and are called multicellular organisms. Thus, the body has different levels of organisation. **Cells make up tissues**, tissues make up organs, and organs make up organ systems.

7. Which of the following has no true nucleus?

- 1) Bacteria
- 2) Cyanobacteria
- 3) Mycoplasma
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Based on the structural organization, organism can be classified into prokaryotes and eukaryotes. In **some of the organism like bacteria, cyanobacteria and mycoplasma, no true nucleus is seen.** These organisms are called prokaryotes

8. Which of the following does not have well defined nucleus?

- a) Amoeba
- b) **Bacteria**
- c) Animals
- d) Plants

Explanation

In the **cells of amoeba, animals and plants, a well-defined nucleus**, covered by membrane is seen. These organisms are called eukaryotes. Bacteria does not have true nucleus

9. Which of the following statement is correct?

- 1) The biological organization shows the hierarchy in organization levels from simplest to more complex
- 2) Though atoms and molecules make up the cells, they are considered as non-living
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

The biological organization shows the hierarchy in organization levels from simplest to more complex: **atoms, to molecules, cells, tissues, organs, organ systems, organisms.** Though atoms and molecules make up the cells, they are considered as non-living.

10. Arrange the following in order:

- 1) Populations
 - 2) Communities
 - 3) Ecosystem
 - 4) Biosphere
- a) 1, 2, 4, 3
 - b) 1, 2, 3, 4**
 - c) 2, 3, 4, 1
 - d) 1, 3, 2, 4

Explanation

The biological organization shows atoms, to molecules, cells, tissues, organs, organ systems, organisms, **populations, communities, ecosystem and finally biosphere**. Whereas population, community, ecosystem and biosphere are of ecological importance.

11. What is the white part of egg made up of_____

- a) Albumin**
- b) Adenine
- c) Amalgam
- d) Anthrosine

Explanation

A white material surrounds the yellow part of the egg. **White material is albumin** which solidifies on boiling. The yellow part is yolk. It is a part of the single cell.

12. The study of cells is called_____

- a) Cellology
- b) Cell Biology**
- c) Cell zoology
- d) Micrology

Explanation

Cell is the structural and functional unit of life. Cells are often called as "building blocks of life". The **study of cells** is called **cell biology**.

13. Which of the following biomolecule is/are contained in cytoplasm of cell?

- a) HCl
- b) Nucleic acid
- c) Protein
- d) Both b and c**

Explanation

Cells consist of cytoplasm enclosed within a membrane, which contains many **biomolecules** such as **proteins and nucleic acids**.

14. Which of the following are cytoplasmic living cell organelles?

- 1) Mitochondria
- 2) Golgi bodies
- 3) Lysosomes
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Cells vary widely in shape and size. There is a central spherical nucleus and a variety of cytoplasmic **living cell organelles** like the **endoplasmic reticulum, mitochondria, Golgi-bodies, centrioles, ribosomes, lysosomes**, etc., present in an animal cell.

15. The size of cells varies in different animals which are measured in units of ____

- a) Cm
- b) Mm
- c) mm
- d) **Micron**

Explanation

The size of cells varies in different animals which are measured in **units of micron (μm)**. (1cm =10 mm: 1 mm = 1000 microns.)

16. Match the following cells with their size:

- | | |
|-----------------------|----------------------|
| I. RBC | 1. 100 μm |
| II. Nerve cell | 2. 7 μm |
| III. Ovum | 3. 1-2 μm |
| IV. Cells of bacteria | 4. 90 -100 cm |
- a) 2, 1, 3, 4
 - b) 1, 3, 4, 2
 - c) **2, 4, 1, 3**
 - d) 3, 1, 2, 4

Explanation

The average cell size varies from 0.5 to 20 μm in diameter. The **cells of bacteria** are the smallest in size (**1-2 μm**). In human body, the smallest cell is **RBC (7 μm in diameter)**, the longest one is the **nerve cell** which reaches a length of about **90 -100 cm** and the human egg (**ovum**) is **100 μm** in size.

17. Among multicellular animals, the largest cell is, egg of_____

- a) Hen
- b) Peahen
- c) **Ostrich**
- d) Eagle

Explanation

Among multicellular animals, the largest cell is, egg of an ostrich. It measures about 170 mm $\times$ 180mm in diameter. It is about 25,000 times bigger than a red blood cell. Mycoplasma with a diameter of 0.0001 mm is the smallest bacterium.

18. Which of the following cells can be obtained from stem cells?

- 1) Skin cell
- 2) Muscle cell
- 3) Nerve cell
- a) 1, 2
- b) 1, 3
- c) 2, 3
- d) **All the above**

Explanation

A stem cell is essentially a 'blank' cell, capable of becoming another more differentiated cell type in the body, such as a **skin cell, a muscle cell, or a nerve cell**. They are microscopic in size.

19. Which of the following statement is correct?

- 1) Stem cells can be used to replace or even heal the damaged tissues in the body
- 2) They can serve as a built-in repair system for the human body
- a) 1 alone
- b) 2 alone
- c) **1, 2**
- d) None

Explanation

Stem cells **can be used to replace or even heal the damaged tissues in the body**. They can serve as a **built-in repair system for the human body**, replenishing other cells as long as a person is still alive.

20. Which of the following are the possibilities of cell shape?

- 1) Round
- 2) Oval
- 3) Elongated
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Cells are of different shapes. Normally they are correlated with their functions. Some cells are oval or round, while certain others are elongated.

21. Which of the following cells are Amoeba like with irregular boundaries?

- a) RBC
- b) **WBC**
- c) Nerve cells
- d) Stem cells

Explanation

Cells are sometimes quite long. Some are branched like the nerve cell or a neuron. Some of our **WBC cells are Amoeba like with irregular boundaries.**

22. Which of the following statement is correct?

- 1) Our body is developed from a single cell called zygote.
- 2) The zygote undergoes continuous Amitotic division and forms the foetus
- 3) Foetal cells gradually attain change in structure and function
 - a) 1, 2
 - b) **1, 3**
 - c) 2, 3
 - d) All the above

Explanation

Our **body is developed from a single cell called zygote.** The **zygote** undergoes **continuous mitotic division** and forms the foetus consisting multitude of cells of different shape, size and content. Foetal cells gradually attain change in structure and function. This process is known as cell differentiation.

23. Which of the following statement is incorrect?

- 1) Tissues are groups of cells that have a similar structure and act together to perform a specific function.
- 2) They are of two type's simple and complex tissues.
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) **None**

Explanation

Tissues are groups of cells that have a similar structure and act together to perform a specific function. They are of two type's simple and complex tissues.

24. Which of the following statement is correct?

- 1) Simple tissues are made up of cells of same type or kind
- 2) Simple tissue is heterogeneous
- 3) Complex tissues are made up of different kind of tissues
 - a) 1, 2
 - b) **1, 3**
 - c) 2, 3
 - d) All the above

Explanation

Simple tissues are made up of cells of same type or kind e.g. glandular tissue and complex tissues are made up of different kind of tissues e.g. tissues of dry skin. Hence, **simple tissue is homogeneous** and complex tissue is heterogeneous.

25. Depending on the basis of their structure and function, tissues can be classified into_____

- a) Three
- b) Five
- c) **Four**
- d) Six

Explanation

Depending on the basis of their structure and function, tissues can be classified into four types – Epithelial, Muscular, Connective, Nervous tissue.

26. Match the following

- | | |
|-----------------|---------------------------------|
| I. Epithelial | 1. Conduction of nerve impulses |
| II. Muscular | 2. Covering |
| III. Connective | 3. Contractile |

IV. Nervous 4. Supporting

- a) 3, 1, 2, 4
- b) 2, 4, 1, 3
- c) **2, 3, 4, 1**
- d) 4, 1, 2, 3

Explanation

Epithelial (covering) tissue for protection, **Muscular (contractile)** tissue for movements and locomotion, **Connective (supporting)** tissue for binding different structures of body and **Nervous** tissue for **conduction of nerve impulses**

27. Which of the following statement is correct?

- 1) Organs are structures made up of two or more types of tissues, organized to carry out a particular function
 - 2) Brain, heart, lungs, kidney, liver etc., each of which has specific functions.
 - 3) Most organs are made of all four types of tissue
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Organs are structures made up of two or more types of tissues, organized to carry out a particular function. Example: Brain, heart, lungs, kidney, liver etc., each of which has specific functions. **Most organs are made of all four types of tissue.**

28. Which tissue is the inner lining of intestine?

- a) Muscular
- b) **Epithelial**
- c) Connective
- d) Nervous

Explanation

The **intestine**, for example, is **made of epithelial tissue as the inner lining**, which helps in enzyme secretion and nutrient absorption.

29. _____ tissue covered by layers of muscle tissue helps in muscular tissue.

- a) Muscular
- b) **Epithelial**
- c) Connective

d) Nervous

Explanation

Epithelial tissue is covered by layers of muscle tissue, which help in peristaltic movements to move the food.

30. Blood is a_____ tissue

- a) Muscular
- b) Epithelial
- c) **Connective**
- d) Nervous

Explanation

The **intestine** is also supplied by blood tissue (connective tissue) which helps in transporting nutrients absorbed by the intestine, and is connected to the brain through the nerve tissue, which conveys instructions from the brain.

31. Which of the following tissue are responsible for vision and differentiation of colour?

- 1) Muscular
 - 2) Epithelial
 - 3) Connective
 - 4) Nervous
- a) 1, 2, 3
 - b) 1, 2, 4
 - c) 2, 3, 4
 - d) **1, 3, 4**

Explanation

The eye is one of the important sensory organs in the human body. It is composed of **muscular tissue, connective tissue, neural tissue** and mainly responsible for **vision, differentiation of colour**.

32. Human eye can differentiate___ million colours

- a) 3- 4
- b) 7- 8
- c) **10- 12**
- d) 15 – 20

Explanation

The human eye can differentiate approximately **10 – 12 million colours** and maintaining the **biological clock of the human body**.

33. Which of the following process of human eye can be compared to a camera?

- 1) Gathering
- 2) Focusing
- 3) Transmitting
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

The human eye can be compared to a camera as both functions by **gathering, focusing, and transmitting the light** through the lens for creating an image of an object.

34. Which of the following statement is correct?

- 1) The human eyes are the most complicated sense organ in the human body, with several parts fixed together form a spherical structure.
- 2) Every part of the human eye is mainly responsible for a certain action.
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

The **human eyes are the most complicated sense organ** in the human body, with several parts fixed together form a spherical structure. **Every part of the human eye is mainly responsible** for a certain action. The structure of a human eye can be broadly classified into the external structure and internal structure.

35. _____ is known as the 'White of the eye'

- a) Cornea
- b) Sclera
- c) Iris
- d) Pupil

Explanation

Sclera is a tough and thick white sheath that protects the inner parts of the eye. We know it as the '**White of the eye**'.

36. _____ keeps the eyes moist and clear by secreting small amounts of mucus and tear

- a) Cornea
- b) Iris
- c) Pupil
- d) **Conjunctiva**

Explanation

Conjunctiva is a thin transparent membrane that is spread across the sclera. It **keeps the eyes moist** and clear by **secreting small amounts of mucus and tears**.

37. The main role of the cornea is to_____ the light that enters the eyes

- a) Reflect
- b) **Refract**
- c) Scatter
- d) All the above

Explanation

Cornea is the transparent layer of membrane that is spread over the pupil and the iris. The **main role of the cornea is to refract the light** that enters the eyes.

38. Which of the following's primary function is to control the size of the pupil?

- a) Cornea
- b) **Iris**
- c) Conjunctiva
- d) Sclera

Explanation

Iris is a pigmented layer of tissues that make up the coloured portion of the eye. **Its primary function is to control the size of the pupil**, depending on the amount of light entering it.

39. _____ is the small opening located at the middle of the Iris

- a) Cornea
- b) **Pupil**
- c) Sclera
- d) Conjunctiva

Explanation

Pupil is the small opening located at the middle of the Iris. It allows light to come in. Iris primary function is to control the size of the pupil.

40. What type of lens does human eye lens is?

- a) Concave
- b) Concave
- c) Biconcave
- d) **Biconvex**

Explanation

Lens is a transparent, **biconvex**, and an adjustable part of an eye, made up of protein. The lens with the help of the cornea refracts light focused on the retina, therefore creating images on it.

41. In which of the following Image is formed?

- a) Pupil
- b) Lens
- c) Sclera
- d) **Retina**

Explanation

Retina is the layer present at the **back of the eye where all the images are formed**. It is the third and inner most coat of the eye.

42. Which of the cells are called as Photoreceptors?

- a) Nerve cells
- b) Nephron cells
- c) **Rods and cones**
- d) All the above

Explanation

Retina is the third and inner most coat of the eye which is very sensitive to light because of the presence of **Photoreceptors (rods and cone cells)**

43. ____ functions by converting the light rays into impulses and sending the signals to the brain

- a) Pupil
- b) Lens
- c) **Retina**
- d) Optic nerve

Explanation

The retina functions by converting the light rays into impulses and sending the signals to the brain through the optic nerve.

44. Which of the following statement about optic nerve is correct?

- 1) It is located at the end of the eyes, behind the retina
- 2) Without optic nerve, vision would not be possible
- 3) The optic nerve is mainly responsible for carrying all the nerve impulses
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Optic nerve is located at the end of the eyes, behind the retina. The optic nerve is mainly responsible for carrying all the nerve impulses from the photoreceptors to the human brain, without which vision would not be possible.

45. ____ is responsible for the nourishment of both the lens and the cornea.

- a) Optic nerve
- b) **Aqueous Humour**
- c) Vitreous Humour
- d) Retina

Explanation

Aqueous Humour is a watery fluid that is present in the area between the lens and the cornea. It is responsible for the nourishment of both the lens and the cornea

46. Which of the following statement about Vitreous Humour is incorrect?

- 1) It is a semi-solid, transparent, jelly-like substance that covers the interior portion of the eyes
- 2) It plays an important role in maintaining the shape of the eye
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) **None**

Explanation

Vitreous Humour is a **semi-solid, transparent, jelly-like substance** that covers the interior portion of the eyes. It plays an important role in **maintaining the shape of the eye** and also causes refraction of light before it reaches the retina.

47. Which of the following statement is incorrect?

- 1) A group of organs form the organ system, and together they perform a particular function
- 2) The heart and the blood vessels together make the cardiovascular system
 - a) 1 alone

- b) 2 alone
- c) 1, 2
- d) **None**

Explanation

A group of organs form the organ system, and together they perform a particular function. The heart and the blood vessels together make the cardiovascular system.

48. Which of the following is not involved in respiratory system?

- a) Pharynx
- b) Diaphragm
- c) **Duodenum**
- d) Lungs

Explanation

Organs such as **nose, pharynx, trachea, lungs and diaphragm work together** as the respiratory system.

49. Which of the following is not an organ system?

- a) Endocrine system
- b) Reproductive system
- c) **Stomach**
- d) Muscular system

Explanation

Other examples of organ system include the endocrine system, integumentary system, muscular system, reproductive system, skeletal system, urinary system, immune system, etc. **Stomach is an organ.**

50. Which of the following statement is correct?

- 1) Our respiratory system consists of organs like trachea, bronchus and lungs
 - 2) They are responsible for exchange of air between the atmosphere and the blood
 - 3) Together, these organ form what is called the respiratory tract.
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Our **respiratory system** consists of **organs like trachea, bronchus and lungs** which are responsible for **exchange of air between the atmosphere and the blood**. Together, these organ form what is called the respiratory tract.

51. We inhale air through the_____

- a) Nasal cavity
- b) Pharynx
- c) **Nostrils**
- d) Bronchi

Explanation

We **inhale air through the nostrils, which lead to the nasal cavity**. The inner surface of this cavity is lined with cilia and mucus producing cells, which make it sticky and moist.

52. _____ in the nose help to warm the inhaled air.

- a) Nostrils
- b) **Blood vessels**
- c) Cilia
- d) Bronchi

Explanation

The cilia and mucus trap dust and germs and prevent them from going deeper into the respiratory tract. The **blood vessels in the nose help to warm the inhaled air**.

53. After passing through the nasal cavity, the air enters_____

- a) Larynx
- b) **Pharynx**
- c) Bronchi
- d) Nostrils

Explanation

After passing through the nasal cavity, the air enters the pharynx. Then it goes into the trachea or the windpipe which is an elastic tube extending down the length of the neck and partly into the chest cavity.

54. Small air passage between_____ and_____ is called as voice box

- 1) Pharynx
- 2) Trachea
- 3) Larynx
- 4) Bronchi

- a) 1, 2
- b) 1, 3
- c) 2, 3
- d) 2, 4

Explanation

Between the **pharynx** and the **trachea** lies a small air passage called the **larynx** commonly known as the **"voice box"**. The larynx has fold of tissue which vibrate with the passage of air to produce sound.

55. The trachea divides into two branches called_____

- a) Larynx
- b) Pharynx
- c) **Bronchi**
- d) Lungs

Explanation

The **trachea** divides into two branches called **bronchi** (singular: bronchus). Each bronchus leads to a lung, where it divides and redivides to finally form air passages called bronchioles.

56. _____ are organs in the chest cavity that allow our body to take in oxygen from the air

- a) Kidney
- b) **Lungs**
- c) Heart
- d) Spleen

Explanation

The **lungs** are organs in the chest cavity that allow our body to take in oxygen from the air. They also help to remove carbon dioxide from the body. The lungs lie on either side of the breast bone and fill the inside of the chest cavity.

57. Which of the following statement is correct?

- 1) The right lung is slightly smaller than the left lung to allow room for the heart.
 - 2) Within the lungs, each bronchiole leads to a bunch of air sacs called alveoli
- a) 1 alone
 - b) **2 alone**
 - c) 1, 2
 - d) None

Explanation

The left lung is slightly smaller than the right lung to allow room for the heart. Within the lungs, each bronchiole leads to a bunch of air sacs called alveoli (singular: alveolus).

58. Which of the following statement is correct?

- 1) The lungs are two spongy elastic bags, on each side of the thoracic cavity
- 2) The thoracic cavity is bound dorsally by the vertebral column and ventrally by the sternum
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

The lungs are two spongy elastic bags, on each side of the thoracic cavity. The thoracic cavity is bound dorsally by the vertebral column and ventrally by the sternum, laterally by the ribs and on the lower side by the dome shaped diaphragm.

59. ____ are tiny air sacs in the lungs

- a) Bronchi
- b) Bronchus
- c) **Alveoli**
- d) None

Explanation

Alveoli are **tiny air sacs in the lungs** that take up the oxygen we breathe in and keep your body going. Although they are microscopic, alveoli are the workhorses of your respiratory system.

60. You have about ____ million alveoli, located at the end of bronchial tubes.

- a) 800
- b) **480**
- c) 680
- d) 700

Explanation

You have about **480 million alveoli, located at the end of bronchial tubes**. The total area of the air-sacs in the lungs above 2000 square feet or more than one hundred times the body's surface area. Alveoli, is meant for the exchange of oxygen and carbon dioxide.

61. On an average, an adult human being at rest breathes in and out ____ times in a minute

- a) **15 – 18**
- b) 19 – 20

- c) 30 – 39
- d) 14 – 17

Explanation

On an average, an adult human being at rest breathes in and out **15 – 18 times in a minute**. During heavy exercise, the breathing rate can increase up to 25 times per minute.

62. The process of taking air into the lungs is called_____

- a) Inspiration
- b) Expiration
- c) Inhalation
- d) **Either a or c**

Explanation

The **process of taking air into the lungs is called inspiration or inhalation**. The process of expelling air from the lungs is called expiration or exhalation.

63. Which of the following is true during inspiration?

- a) Sternum is pushed up
- b) Sternum is pushed outward
- c) Diaphragm is pulled down
- d) **All the above**

Explanation

During inspiration, the sternum is pushed up and outward and the diaphragm is pulled down. Here exchange of gases takes place between the air and the blood.

64. The process of expelling air from the lungs is called_____

- a) Inspiration
- b) Expiration
- c) Exhalation
- d) **Either b or c**

Explanation

The process of expelling air from the lungs is called expiration or exhalation. Upon exhalation, the lungs recoil to force the air out of the lungs.

65. Movement of air out of the lungs is a_____ event

- a) Active

- b) **Passive**
- c) Dynamic
- d) Static

Explanation

During exhalation, the diaphragm also relaxes, moving higher into the thoracic cavity. This increases the pressure within the thoracic cavity relative to the environment. Air rushes out of the lungs due to the pressure gradient. This **movement of air out of the lungs is a passive event.**

66. The content of oxygen in the inhaled air in_____

- a) **Alveoli is more than the blood flowing through the capillaries**
- b) Alveoli is more than the blood flowing through the veins
- c) Veins is more than the blood flowing through the capillaries
- d) Capillaries is more than the blood flowing through the veins

Explanation

The content of oxygen in the inhaled air in alveoli is more than the blood flowing through the capillaries. So, the oxygen moves into the blood by simple diffusion.

67. _____ in the blood combines with oxygen to form oxyhaemoglobin

- a) WBC
- b) RBC
- c) **Haemoglobin**
- d) Erythrocytes

Explanation

Haemoglobin in the blood combines with oxygen to form oxyhaemoglobin. The blood carrying oxygen reaches the heart through blood vessels. The heart pumps it to all the tissue in the body.

68. Which of the following statement is correct?

- 1) Homeostasis is a property of a human biological system where the self-regulating process tends to maintain the balance for the survival
 - 2) Mammals are capable of maintaining a constant body temperature despite the changes in the external temperature
 - 3) Behavioural and physiological responses are two important regulating mechanisms that maintain the stability of Homeostasis.
- a) 1, 2
 - b) 2, 3
 - c) 1, 3
 - d) **All the above**

Explanation

Homeostasis is a **property of a human biological system where the self-regulating process** tends to maintain the balance for the survival. The regulation takes place in a defined internal environment. **Mammals are capable of maintaining a constant body temperature despite the changes in the external temperature.** Behavioural and physiological responses are two important regulating mechanisms that maintain the stability of Homeostasis.

69. Which of the following statement is correct?

- 1) If the homeostasis regulates successfully, life continues
 - 2) If unsuccessful, death or disaster occurs
- a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

In simple terms, it could be referred as a balance in a system to maintain a stable internal environment for the survival of the animal. **If the homeostasis regulates successfully, life continues or if unsuccessful, death or disaster occurs.**

70. Which of the following are involved in homeostasis?

- 1) Liver
 - 2) Kidney
 - 3) Brain
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

All the processes of integration and coordination of function are mediated by nervous and hormonal system. The **liver, kidneys, and brain (hypothalamus), autonomic nervous system** and the **endocrine system help to maintain homeostasis.**

71. Which of the following are the examples of homeostasis?

- a) Control of blood glucose level
- b) Muscular work by shivering
- c) When the body temperature raises sweat is produced
- d) All the above

Explanation

When the **body temperature raises** sweat is produced to bring the temperature down. When the **body temperature lower** heat is produced by the muscular work by shivering. This is an example for homeostasis. The **control of blood glucose level is another example in which insulin** hormone is secreted whenever the blood glucose level raises and glucagon hormone is secreted whenever the blood glucose level reduces.

72. Human beings are_____ blooded in nature

- a) Cold
- b) Warm**
- c) Either a or b
- d) None

Explanation

Maintenance of body fluid concentrations, body temperature are done by various bio- physical and bio-chemical methods. **Human beings are warm blooded in nature** i.e. they maintain their body temperature as constant.

73. _____ is the movement of particles from an area of higher concentration to lower concentration

- a) Diffusion**
- b) Inhalation
- c) Exhalation
- d) Osmosis

Explanation

Diffusion is the **movement of particles from an area of higher concentration to lower concentration**. The overall effect is to equalize concentration throughout the medium.

74. Which of the following statement is correct?

- 1) The movement of molecules (ions) from a region of higher concentration to lower concentration.
 - 2) You can smell incense stick after lighting because the smoke diffuses in the air and makes its way to your nose is an example of diffusion
- a) 1 alone
 - b) 2 alone
 - c) 1, 2**
 - d) None

Explanation

The movement of molecules (ions) from a region of higher concentration to lower concentration is called diffusion. E.g. You can smell incense stick after lighting because the smoke diffuses in the air and makes its way to your nose.

75. Which of the following statement is correct?

- 1) Osmosis is the movement of solvent particles across a semipermeable membrane from a dilute solution into a concentrated solution.
- 2) The solvent moves to dilute the concentrated solution and equalize the concentration on both sides of the membrane
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

Osmosis is the **movement of solvent particles across a semipermeable membrane from a dilute solution into a concentrated solution**. The solvent moves to dilute the concentrated solution and equalize the concentration on both sides of the membrane.

76. How many types of solutions are there based on concentration?

- a) 2
- b) 3**
- c) 4
- d) 5

Explanation

The movement of liquids in and out cells is dependent on the concentration of the solution surrounding it. **There are 3 types of situations** in which this could vary.

77. Match the following

- | | |
|----------------|--|
| I. Isotonic | 1. external solution concentration is less compared to the concentration of the inner solution |
| II. Hypertonic | 2. concentration of external and internal solution are same |
| III. Hypotonic | 3. external solution concentration is greater than the concentration of the inner solution |

- a) 2, 1, 3
- b) 2, 3, 1**
- c) 3, 1, 2

d) 3, 2, 1

Explanation

- Isotonic: Here the **concentration of external and internal solution** of the organism are the **same**.
- Here the **external solution concentration is less compared to the concentration of the inner solution** of an organism. In this case water will rush into the organism.
- Hypertonic: Here the **external solution concentration is greater than the concentration of the inner solution** of an organism. In this case the water will rush out of the organism.

78. The term osmoregulation was coined by_____

- a) Robert Hook
- b) Robert Cook
- c) **HOBBER**
- d) Einstein

Explanation

The term **osmoregulation** was coined by **HOBBER** in 1902. It ensures that the fluids in the body do not get too diluted or concentrated.

79. _____ is the process by which an organism regulates the water balance in its body and maintains

the homeostasis of the body

- a) Homeostasis
- b) Osmosis
- c) **Osmoregulation**
- d) Diffusion

Explanation

Osmoregulation is the process by which an organism regulates the water balance in its body and maintains the homeostasis of the body. It includes controlling excess water loss or gain and maintaining the fluid balance and the osmotic concentration, that is, the concentration of electrolytes.

80. Which of the following statement is correct?

- a) **There are two major types of Osmoregulation**
- b) Osmoconformers organisms maintain their internal osmolality, which can be extremely different from that of the surrounding environment
- c) Osmoregulators organisms try to maintain the osmolality of their body matching with their surroundings
- d) None

Explanation

There are **two major types of Osmoregulation**:

- **Osmoconformers**: These organisms try to maintain the osmolality of their body matching with their surroundings. Most of the invertebrates, marine organisms are osmoconformers.
- **Osmoregulators**: These organisms maintain their internal osmolality, which can be extremely different from that of the surrounding environment, through physiological processes.

81. Which of the following statement is correct?

- 1) Cellular respiration is the process by which organisms break down glucose into a form that the cell can use as energy
 - 2) This energy is then made available to living cells in the form of ATP.
 - 3) The Cellular respiration is classified into two types: aerobic respiration and anaerobic respiration
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Cellular respiration is the process by **which organisms break down glucose into a form that the cell can use as energy**. This **energy is then made available to living cells in the form of ATP**. Cellular respiration takes place in the cytoplasm and mitochondria of the cells. The Cellular respiration is classified into two types: **aerobic respiration and anaerobic respiration**.

82. In Aerobic respiration, food substances are completely oxidized into_____

- 1) O_2
 - 2) CO_2
 - 3) H_2O
- a) 1, 2
 - b) 1, 3
 - c) **2, 3**
 - d) All the above

Explanation

In this type of respiration, the **food substances are completely oxidized into H_2O and CO_2** with the release of energy. It requires atmospheric oxygen and all higher organisms respire aerobically.

83. Which of the following are the by-products of Anaerobic respiration?

- 1) O_2

- 2) CO₂
- 3) Ethanol
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

In Anaerobic respiration, **partial oxidation of food takes place and the organisms release energy in the absence of oxygen**. This type of respiration occurs in organisms like yeast. **Ethyl alcohol and carbon dioxide** are the by-products of this process.

84. _____ releases 19 times more energy than_____ from the same amount of glucose

- 1) Aerobic respiration
- 2) Anaerobic respiration
- 3) Anabolism
 - a) 1, 2
 - b) 2, 1
 - c) 1, 3
 - d) 2, 3

Explanation

Aerobic respiration releases 19 times more energy than anaerobic respiration from the same amount of glucose. In aerobic respiration each glucose molecules produce 36 ATPs.

85. Which of the following statement is correct?

- 1) Anabolism is destructive metabolism
- 2) During anabolism, small molecules are changed into larger, more complex molecules of carbohydrate, protein, and fat
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

Anabolism or constructive metabolism, is all about building and storing: It supports the growth of new cells, the maintenance of body tissues, and the storage of energy for use in the future. During anabolism, **small molecules are changed into larger, more complex molecules of carbohydrate, protein, and fat**.

86. Which of the following statement is correct?

- 1) Catabolism is a destructive metabolism
 - 2) In this process, cells break down large molecules (mostly carbohydrates and fats) to release energy
 - 3) As complex chemical units are broken down into more simple substances, the waste products released in the process of catabolism are removed from the body through the skin, kidneys, lungs, and intestines
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Catabolism or destructive metabolism, is the process that produces the energy required for all activity in the cells. In this process, cells break down large molecules (mostly carbohydrates and fats) to release energy. This energy release provides fuel for anabolism, heats the body, and enables the muscles to contract and the body to move. As complex chemical units are broken down into more simple substances, the **waste products released in the process of catabolism are removed** from the body through the **skin, kidneys, lungs, and intestines**.

87. Which of the following statement is correct?

- 1) The repeated anabolism and catabolism reactions maintain the homeostatic condition in the organism.
 - 2) The metabolic process is the cause for maintaining ionic balance in the body
 - 3) These metabolic reactions occur in different organs of living species.
- a) 1, 2
 - b) 2, 3
 - c) 1, 3
 - d) All the above

Explanation

The repeated anabolism and catabolism reactions maintain the homeostatic condition in the organism. The metabolic process is the cause for maintaining ionic balance in the body. It is also **responsible for movement, growth, development, maintenance and repair of the cells, tissues and the human body**. These metabolic reactions occur in different organs of living species.

88. ____ refers to the minimum energy required to maintain the normal activities of the body during complete rest in a warm atmosphere

- a) Anabolism
- b) Catabolism
- c) Basal metabolism

d) None

Explanation

Basal metabolism refers to the **minimum energy required to maintain the normal activities of the body during complete rest in a warm atmosphere 12 – 18 hours after the intake of food.**