


<b>INDIAN SCHOOL AL WADI AL KABIR</b>		
		
<b>DEPARTMENT OF SCIENCE (2020 – 2021)</b>		
<b>Class: X</b>	<b>SUBJECT: BIOLOGY</b>	<b>Date of completion:</b>  <b>15.11.2020</b>
<b>Worksheet No: 3 WITH ANSWERS</b>	<b>Topic: LIFE PROCESSES</b>	<b>A4 FILE FORMAT (PORTFOLIO)</b>
<b>CLASS &amp; SEC:</b> <b>X -.....</b>	<b>NAME OF THE STUDENT:</b>	<b>ROLL No.</b>

### **I OBJECTIVE TYPE QUESTIONS**

- Oxygen liberated during photosynthesis comes from
  - Water
  - carbon dioxide
  - Chlorophyll
  - Glucose
- Which is the first enzyme to mix with food
  - Pepsin
  - Trypsin
  - Lipase
  - Amylase
- The breakdown of pyruvate into carbon dioxide, water and energy takes place in
  - Cytoplasm
  - mitochondria
  - chloroplast
  - nucleus
- The blood entering the tissues is richer in
  - Carbon dioxide
  - oxygen
  - water
  - urea
- The correct sequence of urine formation in our body is
  - Kidney → ureter → urethra → urinary bladder
  - Kidney → urinary bladder → urethra → ureter
  - Kidney → ureter → urinary bladder → urethra
  - urinary bladder → Kidney → ureter → urethra
- Energy required to carry out the different life processes, is obtained from carbon-based food sources through nutrition. [True/False]
- The gastric glands are present in the wall of the small intestine which release gastric juices. [true/False]
- Nephrons are the basic ..... units of the kidneys.

9. The correct sequence of parts in human alimentary canal is -
- A) Mouth → stomach → small intestine → oesophagus → Large intestine
  - B) Mouth → oesophagus → stomach → small intestine → Large intestine
  - C) Mouth → oesophagus → small intestine → stomach → Large intestine
  - D) Mouth → small intestine → stomach → oesophagus → Large intestine

#### Assertion & Reasoning

- A) If both, Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- B) If both, Assertion and Reason are true but Reason is not a correct explanation of the Assertion.
- C) If Assertion is true but the Reason is false.
- D) If both, Assertion and Reason are false.

10.a. Assertion: In humans, there is a complex respiration.

Reason: Human skin is impermeable to gases.

10.b. Assertion: Plants have low energy needs.

Reason: Plant bodies have large proportion of dead cells.

## **II. VERY SHORT ANSWER TYPE QUESTIONS CARRYING 1 MARK EACH**

- 11. What is the role of acid in our stomach?
- 12. Name the energy currency in the living organisms. When and where is it produced?
- 13. What process in plants is known as transpiration?
- 14. Name the excretory unit of lungs and excretory of kidney?
- 15. What is the role of saliva in digestion of food?

## **III. SHORT ANSWER TYPE QUESTIONS CARRYING 3 MARKS EACH**

- 16. The inner lining of the walls of the small intestine has numerous finger- like projections. What are they called and what is their function?
- 17. List the three kinds of blood vessels of human circulatory system and write their functions in tabular form.
- 18. (i) Name the site of exchange of material between the blood and surrounding cells.  
(ii) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide.
- 19. Name one nitrogenous waste present in urine. What is the basic filtration unit of kidney called? How is the amount of urine produced regulated?

20 Write an experiment with diagram to prove that carbon dioxide is necessary for photosynthesis.

#### IV. LONG ANSWER TYPE QUESTIONS CARRYING 5 MARKS EACH

21.(i) Draw a section of a leaf and label the following parts:

(a) chloroplast (b) guard cells

(ii) A gas is released during photosynthesis. Name the gas and also state the way in which the gas is evolved.

(iii) In certain group of plants, stomata remain closed during the day. How is food synthesized by such plants? Also name them.

22. (a) Draw a diagram of cross-section of the human heart and label the following parts:

(i) Left ventricle (ii) Aorta (iii) Right atrium (iv) Pulmonary vein

(b) Give reasons for the following:

(i) The muscular walls of ventricles are thicker than the walls of atria.

(ii) Arteries have thick elastic walls.

23. (i) Draw a diagram of an excretory unit of a human kidney and label the following:

Bowman's capsule, Glomerulus, collecting duct, renal vein.

(ii) Write the important function of the structural and functional unit of kidney.

(iii) Write any one function of an artificial kidney.

24. (i) Draw the human respiratory system and label the following: Larynx, bronchioles, rings of cartilage.

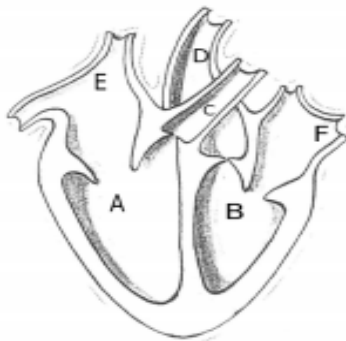
(ii) During the breathing cycle, what is the advantage of residue volume of air in lungs? Explain.

#### V. BOARD BASED QUESTIONS:

25. Explain the processes of aerobic respiration in mitochondria of a cell and anaerobic respiration in yeast and muscle with the help of word equations. (3marks) (2019-20)

26.

(5marks) (2019-20)



(i) Identify any two parts from the above diagram which carry oxygenated and deoxygenated blood.

(ii) Explain the process of double circulation with the help of a flow chart.

### Answers for the worksheet 3

#### I OBJECTIVE TYPE QUESTIONS

1. (a), 2. (d), 3. (a), 4. (b), 5 (c), 6 (T) 7. (F), 8. Functional, 9. (B), 10. a. (B), 10. b. (A)

#### II. VERY SHORT ANSWER TYPE QUESTIONS CARRYING 1 MARK EACH

11. The acid HCl is a part of gastric juice, it kills the germs in the food and acidifies it. This activates the protein digesting enzyme pepsin.

12. ATP (Adenosine triphosphate) is the **energy currency** in **living organisms**. It is **produced** at the end of respiration and is **produced** in the mitochondria.

13. The loss of water in the form of water vapour from the aerial parts of the plant is called transpiration.

14. Lungs – alveolus, Kidney - Nephron

15. The saliva moistens the food with mucus, sterilises it with lysozyme and the enzyme salivary amylase (ptyalin) present in the saliva partially digests starch into sugar(maltose).

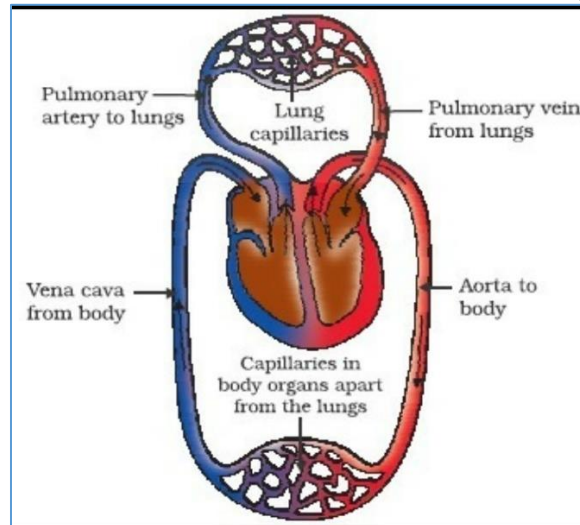
#### III. SHORT ANSWER TYPE QUESTIONS CARRYING 3 MARKS EACH

16. Villi. It increases the surface area of the small intestine. This will lead to **the** increase of **the** surface area of absorption as it is **the** main function of **the** small intestine.

17.

S.No.	Arteries	Veins	Capillaries
i	Carry oxygenated blood from heart to various parts of the body.	Carry deoxygenated blood to heart from various parts of the body.	Exchanges of materials between blood and the surrounding cells takes place through the capillaries.
ii	They are thick walled	They are thin walled	Extremely narrow thin walled tubules connecting arteries to the veins

18. The site of exchange of material between the blood and surrounding cells are capillaries.

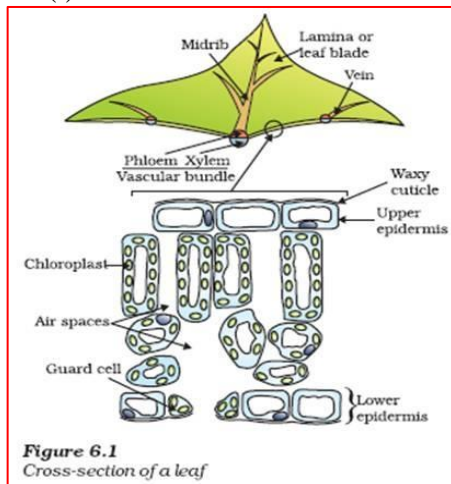


**Schematic representation of transport and exchange of oxygen and carbon dioxide**

19. "Urea". the **basic filtration unit** of **kidney** is called as nephron. The amount of water reabsorbed depends on how much excess water there is in the body, and on how much of dissolved waste there is to be excreted.

20. Activity 6.2 and figure 6.4 a and b

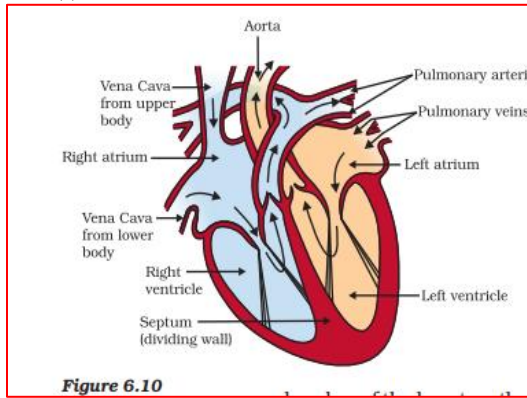
21. (i)



(ii) Oxygen( $O_2$ ) is released during photosynthesis. During photosynthesis, plants absorb carbon dioxide and sunlight to produce carbohydrates.

The solar energy trapped **by** chlorophyll breaks down water molecules **by** the process of photolysis.

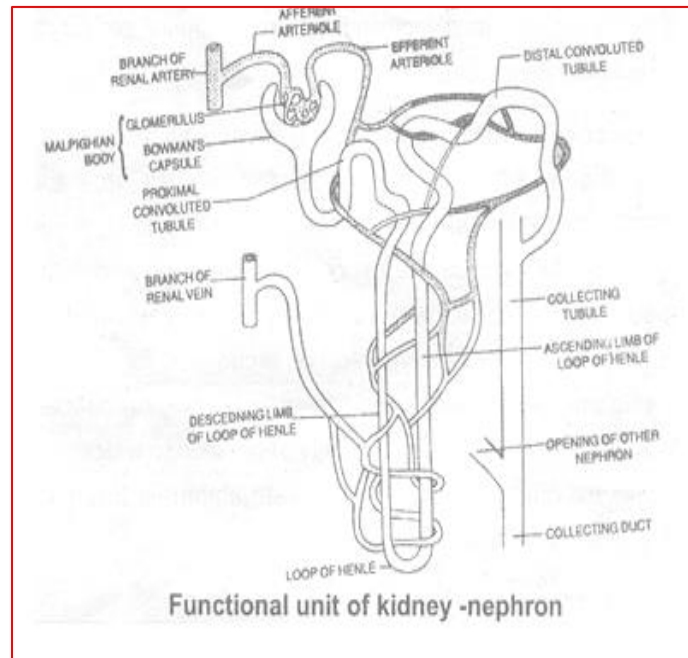
22. (i)



(ii) **Muscular walls of ventricles are thicker than walls of atrium** because **ventricles** are pumping chambers hence they must be flexible and they must exert more pressure on the oxygenated blood so that it reaches all parts of the body.

Arteries carry oxygenated blood from the heart to the different body parts. Blood emerges from the heart under high pressure. In order to withstand this pressure, arteries have thick and elastic walls.

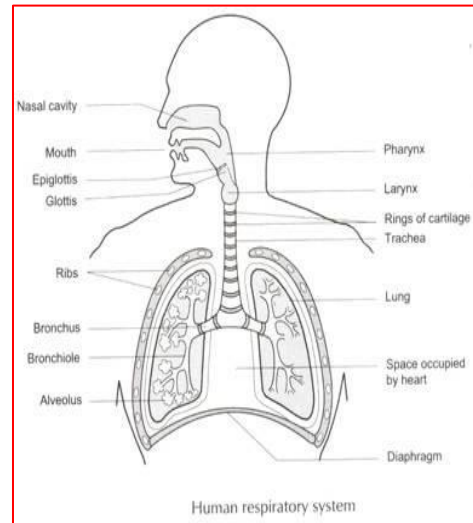
23. (i)



(ii) The structural and functional unit of kidney is nephron. The chief functions of nephron are to purifying blood, reabsorption of water and urine formation.

(iii) The function of artificial kidney is the same as function of kidney in humans that is to purify blood.

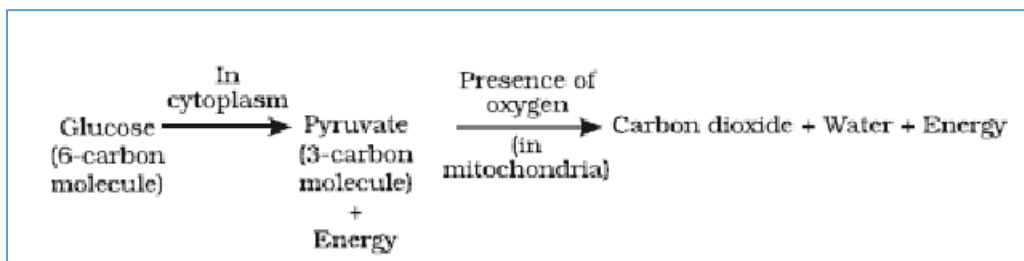
24(i)



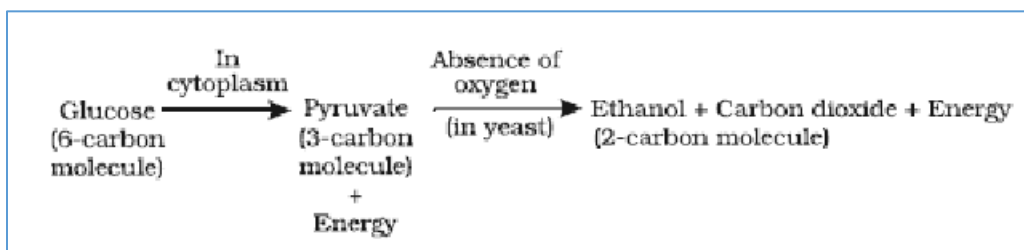
(ii) During the breathing cycle, when air is taken in and let out, the lungs always contain a residual volume of air so that there is sufficient time for oxygen to be absorbed and for the carbon dioxide to be released.

The residual volume functions to keep the alveoli open even after maximum expiration. In healthy lungs, the air that makes up the residual volume is utilized for continual gas exchange to occur between breaths.

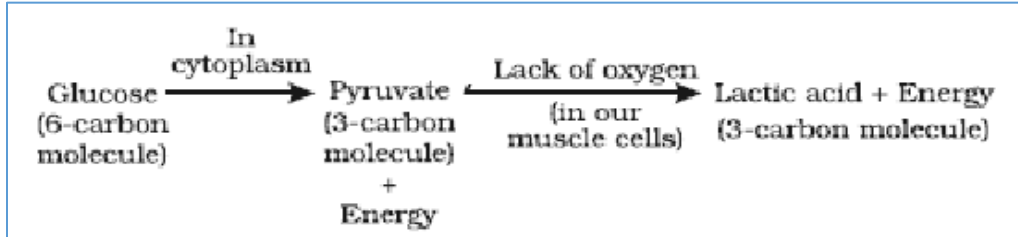
25. Breakdown of pyruvate using oxygen takes place in the mitochondria. This process breaks up the three-carbon pyruvate molecule to give three molecules of carbon dioxide. The other product is water. Since this process takes place in the presence of air (oxygen), it is called aerobic respiration.



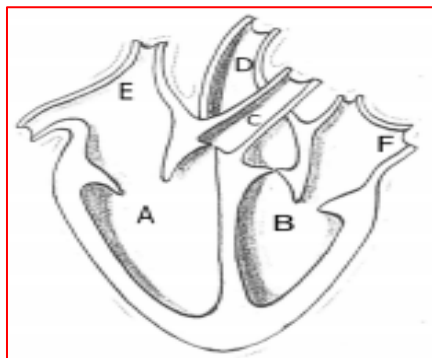
The pyruvate may be converted into ethanol and carbon dioxide. This process takes place in yeast during fermentation. Since this process takes place in the absence of air (oxygen), it is called anaerobic respiration.



Sometimes, when there is a lack of oxygen in our muscle cells, another pathway for the break-down of pyruvate is taken. Here the pyruvate is converted into lactic acid which is also a three-carbon molecule. This build-up of lactic acid in our muscles during sudden activity causes cramps.



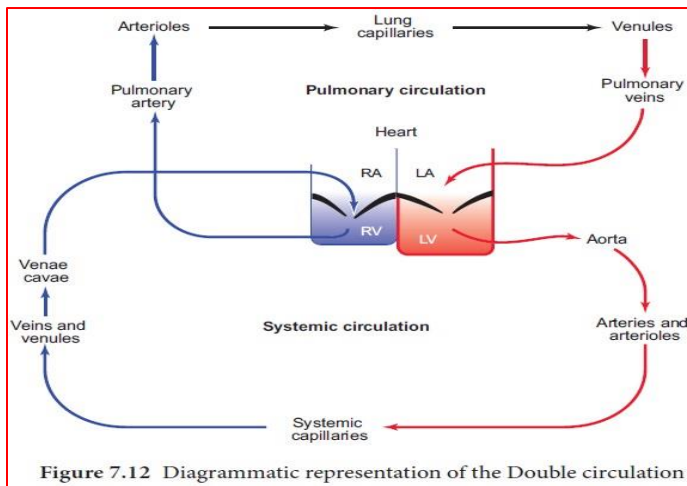
26.



C= pulmonary artery – deoxygenated blood

F= pulmonary vein – oxygenated blood

The human circulatory system is a double circulatory system. It has two separate circuits and blood passes through the heart twice: the pulmonary circuit is between the heart and lungs, the systemic circuit is between the heart and the other organs.



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