



INDIAN SCHOOL AL WADI AL KABIR



Class: X	DEPARTMENT OF SCIENCE -2021-22 SUBJECT: BIOLOGY	DATE OF COMPLETION: 10/05/21
WORKSHEET NO:1 WITH ANSWERS	TOPIC: LIFE PROCESSES (Nutrition and Respiration)	A4 FILE FORMAT (PORTFOLIO)
CLASS & SEC:	NAME OF THE STUDENT:	ROLL NO.

I OBJECTIVE TYPE QUESTIONS

Ia. Fill in the blanks:

1. An important criteria to decide whether something is alive is _____.
2. The process by which living organisms can synthesize or procure their food is known as_____.
3. The energy released during respiration is stored as _____and is utilized to maintain the bodily functions.
4. Aerobic respiration takes place inside the _____.
5. Muscle cramps are caused due to the accumulation _____in the muscles.

Ib. Multiple choice questions:

6. The breakdown of pyruvate to give ethanol, carbon dioxide and energy takes place in:
a) Mitochondria b) Yeast c) Chloroplast d) Nucleus
7. The enzyme which digests protein in the stomach is:
a) Pepsin b) Trypsin c) streptomycin d) Penicillin
8. Nitrogen, needed by plants, is taken up in the form of:
a) Nitrate b) nitrogen gas c) nitrous oxide d) nitrogen dioxide
9. Which of the following acids is produced by muscle cells if there is lack of oxygen?
a) Hydrochloric acid b) lactic acid c) nitric acid d) citric acid
10. Exchange of gases in human respiratory system takes place in
a) Trachea b) bronchi c) bronchioles d) alveoli

Ic. ASSERTION AND REASONING:

For the questions 11to 13,two statements are given-one labelled Assertion (A) and the other labelled Reason(R).Select the correct answer to these questions from the options (i) , (ii) ,(iii) and (iv)as given below:

- (i)Both A and R are true and R is the correct explanation of the assertion.
- (ii)Both A and R are true but R is not the correct explanation of the assertion.
- (iii)A is true but R is false.
- (iv)A is false but R is true.
- (v) Both A and R are false

11. **Assertion:** Lungs always contain a residual volume of air.
Reason: It is so to ensure enough time for the release of CO₂ and for the absorption of O₂.
12. **Assertion:** Respiration is opposite of Photosynthesis
Reason: In Photosynthesis food is made from energy and in Respiration food is converted to energy.
13. **Assertion:** aerobic respiration requires less energy as compared to anaerobic respiration.
Reason: mitochondria is the power house of the cell. .
14. **Assertion:** Walls of the intestine has numerous villi.
Reason: These villi decrease the surface area of digestion.
15. **Assertion:** All proteins in our food are digested in small intestine only.
Reason: The protein digesting enzymes are released into small intestine.

16. **Id. PASSAGE BASED QUESTIONS:**

At the bottom of the pharynx, this pathway divides in two, one for food — the oesophagus, which leads to the stomach — and the other for air. The epiglottis, a small flap of tissue, covers the air-only passage when we swallow, keeping food and liquid from going into the lungs. The larynx, or voice box, is the top part of the air-only pipe. This short tube contains a pair of vocal cords, which vibrate to make sounds. The trachea, or windpipe, is the continuation of the airway below the larynx. The walls of the trachea are strengthened by stiff rings of cartilage to keep it open. The trachea is also lined with cilia, which sweep fluids and foreign particles out of the airway so that they stay out of the lungs. At its bottom end, the trachea divides into left and right air tubes called bronchi, which connect to the lungs. Within the lungs, the bronchi branch into smaller bronchi and even smaller tubes called bronchioles. Bronchioles end in tiny air sacs called alveoli, where the exchange of oxygen and carbon dioxide actually takes place. Each person has hundreds of millions of alveoli in their lungs. This network of alveoli, bronchioles, and bronchi is known as the bronchial tree. The lungs also contain elastic tissues that allow them to inflate and deflate without losing shape and are covered by a thin lining called the pleura.

- i. The function of epiglottis is to-
- a) Help swallow food
 - b) cover the food pipe
 - c) cover the wind pipe
 - d) vibrate to make sound
- ii. The sound is produced by the vibration of –
- a) Vocal cords
 - b) Trachea
 - c) Pharynx
 - d) Larynx

- iii. The trachea divides into two –
 - a) Alveoli
 - b) Bronchioles
 - c) Bronchi
 - d) Larynx

- iv. The bronchial tree comprises of a network of –
 - a) alveoli, bronchioles and bronchi
 - b) bronchioles, bronchi and trachea
 - c) bronchi, trachea and larynx
 - d) alveoli, bronchi and bronchioles

II. VERY SHORT ANSWERS TYPE QUESTIONS CARRYING 1 MARK EACH

- 17. Name the form in which the energy derived from the food is stored in humans.
- 18. Define photosynthesis.
- 19. Mention how organisms like bread mould and mushroom obtain their food.
- 20. Identify the category in which organisms using carbon dioxide and water prepare their food are placed.
- 21. Which pancreatic enzyme is effective in digesting protein?

III. SHORT ANSWER TYPE QUESTIONS CARRYING 3 MARKS EACH

- 22. Write the three events which occur during photosynthesis.
- 23. Sweet tooth may lead to tooth decay. Explain why?
- 24. Explain the activity with diagram to show that carbon dioxide is necessary for photosynthesis.
- 25. How does aerobic respiration differ from anaerobic respiration?
- 26. The rate of breathing in aquatic organisms is much faster than that seen in terrestrial organisms. Give reason.

IV. LONG ANSWER TYPE QUESTIONS CARRYING 5 MARKS EACH

- 27. (a) Draw a neat labelled diagram of human alimentary canal, and label the following parts:
 - (i) Liver
 - (ii) Pancreas
 - (iii) Small intestine
 - (iv) Large intestine.(b) What is peristaltic movement?

- 28. (a) Draw a diagram to show open stomatal pore and label on it:

- (i) Guard cells
- (ii) chloroplast
- (b) State two functions of stomata.
- (c) How do guard cells regulate the opening and closing of stomatal pore?

29. (a) Draw a diagram of human respiratory system and label the following:

- (i) part where air is filtered by fine hair and mucus
- (ii) part which terminates in balloon – like structures
- (iii) balloon – like structures where exchange of gases takes place. (iv) Part which separates chest cavity from abdominal cavity.
- (b) Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?

30. (a) Draw a diagram to show the nutrition in Amoeba and label the parts used for this purpose. Mention any other purpose served by this part other than nutrition.

- (b) Name the glands associated with digestion of starch in human digestive tract and mention their role.
- (c) How is required pH maintained in the stomach and small intestine?

V. BOARD BASED QUESTIONS.

31. Bile juice does not have any digestive enzyme but still plays a significant role in the process of digestion. Justify the statement.

32. State the events occurring during the process of photosynthesis. Is it essential that these steps take place one after the other immediately?

33. List two different functions performed by pancreas in our body.

34. Write two different ways in which glucose is oxidized to provide energy in the human body. Write the products formed in each case. [2]

35. What is photosynthesis? Explain its mechanism. [3]

ANSWERS

1.	Movement
2.	Autotrophic Nutrition
3.	ATP
4.	Mitochondria
5.	Lactic acid
6.	Yeast
7.	Pepsin
8.	Nitrate
9.	Lactic acid
10.	Alveoli
11.	(i)
12.	(i)
13.	(iv)
14.	(iii)
15.	(v)
16.	<ul style="list-style-type: none"> i. c)cover the wind pipe ii. a) Vocal cords iii. c) Bronchi iv. a) alveoli, bronchioles and bronchi
17.	ATP
18.	The process by which plant cells prepare food (carbohydrates) from inorganic raw materials like carbon dioxide (CO ₂) and water in (H ₂ O) in presence of sunlight and chlorophyll .
19.	They break down the complex organic molecules of dead and decaying organic matter by releasing enzymes into simpler substances before absorption and assimilation.
20.	Autotrophs
21.	Trypsin
22.	The three events that occur during the process of photosynthesis are: <ul style="list-style-type: none"> (i) Absorption of light energy by chlorophyll. (ii) Conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen. (iii) Reduction of carbon dioxide to carbohydrates.
23.	Dental caries or tooth decay causes gradual softening of enamel and dentine. It begins when bacteria acting on sugars produce acids that softens or demineralises the enamel. Masses of bacterial cells together with food particles stick to the teeth to form dental plaque. Saliva cannot reach the tooth surface to neutralise the acid as plaque covers the teeth. Brushing the teeth after eating removes the plaque before the bacteria produce acids. If untreated, microorganisms may invade the pulp, causing inflammation and infection
24.	Activity 6.2 page 97 (ncert text book)

25.	Aerobic respiration	Anaerobic respiration
	(i) Takes place in presence of oxygen.	(i) Takes place in absence of oxygen
	(ii) Complete oxidation of glucose occurs.	(ii) Incomplete oxidation of glucose occurs.
	(iii) More energy is produced.	(iii) Less energy is produced

26. Terrestrial animals can breathe the oxygen in the atmosphere, but animals that live in water need to use the oxygen dissolved in water. Since the amount of dissolved oxygen is fairly low compared to the amount of oxygen in the air, the rate of breathing in aquatic organisms is much faster than that seen in terrestrial organisms.

27. a)

Human digestive system

Draw it neat

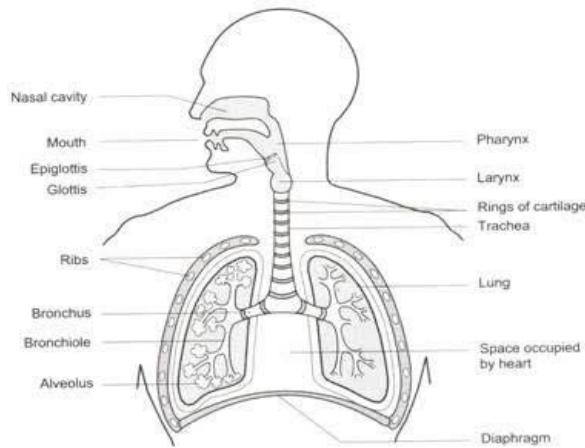
b) The lining of canal has muscles that contract rhythmically in order to push the forward. This movement is called peristaltic movement.

28. a)

open stomatal pore of a leaf and label ...

- b) Functions of the stomata
 - i. They allow the exchange of gases (CO₂ and O₂) with the atmosphere.
 - ii. Evaporation of **water** from the **leaf** surface occurs through the stomata. Thus, the stomata help in the process of transpiration.
- c) The opening and closing of the stomata is the function of guard cells. When the concentration of water is more in the neighbouring cells than the guard cells, then the water from the neighbouring cell enter the guard cells which leads to the guard cell becoming turgid and thereby opening the stomata. Similarly when the concentration of water inside the guard cells becomes more than the neighbouring cells then water leaves the guard cells into the neighbouring cells causing the guard cells to become flaccid thereby leading the stomata to close.

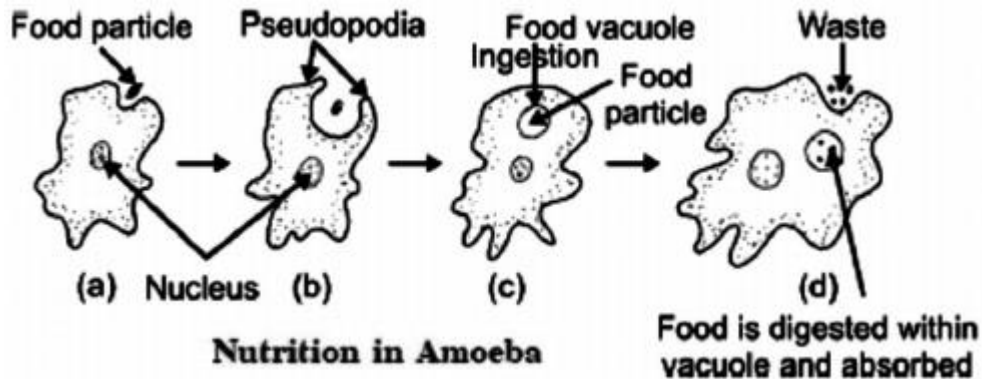
29. (a)



Human respiratory system

- (i) Nostril (external nares) (ii) Bronchioles (iii) Alveoli (iv) Diaphragm
- (b) Refer answer 26

30. (a)



Pseudopodia serves the purpose of locomotion apart from nutrition.

	<p>(b) The salivary gland is associated with digestion of starch in human digestive tract. It secretes saliva which contains enzyme salivary amylase. This enzyme converts starch into maltose (sugar).</p> <p>(c) Gastric glands present on the walls of the stomach release hydrochloric acid. HCl creates an acidic medium, which facilitates the action of enzyme pepsin. Bile juice from liver makes the food alkaline in small intestine for the pancreatic enzymes to act.</p>
31.	Bile juice contains no digestive enzymes, yet it is important for digestion because Bile juice has bile pigments and salts. These break down large fat globules into smaller globules so that the pancreatic enzymes can easily act on them. This process is known as emulsification of fats.
32.	<p>(a) Refer answer no. 22</p> <p>It is not essential that these steps take place one after the other immediately. For example, desert plants take up carbon dioxide at night and prepare an intermediate which is acted upon by the energy absorbed by the chlorophyll during the day.</p>
33.	<p>Functions of pancreas: The pancreas has two regions -</p> <ol style="list-style-type: none"> Exocrine region – secretes enzymes for the digestion of food. Endocrine region – secretes hormones for the maintaining sugar level in the blood.
34.	<p>i.</p> $\text{Glucose (6-carbon molecule)} \xrightarrow{\text{In cytoplasm}} \text{Pyruvate (3-carbon molecule)} \begin{cases} \xrightarrow[\text{(In mitochondrial)}]{\text{Presence of oxygen}} \text{Co}_2 + \text{water} + \text{Energy} \\ \xrightarrow{\text{Lack of oxygen}} \text{Lactic acid} + \text{Energy} \end{cases}$ <p>ii.</p> $\text{Glucose (6-carbon molecule)} \xrightarrow{\text{In cytoplasm}} \text{Pyruvate (3-carbon molecule)} \begin{cases} \xrightarrow[\text{(In human muscle cells)}]{\text{Lack of oxygen}} \text{Lactic acid} + \text{Energy} \end{cases}$
35.	Refer answer no. 18 and answer no. 22

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