

GENERAL SCIENCE NOTES FOR 7TH CLASS (FOR ISLAMABAD)

c. What sort conditions can decrease the rate of transpiration?

Ans: Darkness can decrease the rate of transpiration.

d. How does transpiration help in the water cycle?

Ans: Transpiration is the process in which plant roots absorb water and then release the water in the form of vapour through the leaves. Transpiration is an important factor in the water cycle as it is one of the major sources of water into the atmosphere.

F. Project Work

Make a poster on photosynthesis and respiration.

Ans: Practical work.

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HUMAN RESPIRATORY AND CIRCULATORY SYSTEM

Questions and Activities

A. MCQs (Choose the correct option)

1. A team of climbers was climbing a high mountain. When they reached near top they felt difficulty in breathing because at high altitude there is

- a. more oxygen
- b. less oxygen
- c. more carbon dioxide
- d. low temperature

Ans: b. less oxygen

2. The exchange of substances between blood and body cells can take place at the:

- a. Capillaries
- b. Veins
- c. Arteries
- d. Heart

Ans: a. Capillaries

3. A person affected with anaemia looks pale and feels tired. All his body cells are getting

- a. less food
- b. less oxygen
- c. less water
- d. less carbon dioxide

Ans: b. less oxygen

4. The exchange of gases between blood and air takes place at:

- a. Trachea
- b. Bronchi
- c. Bronchioles
- d. Alveoli

Ans: d. Alveoli

5. Cellular respiration always requires

- a. glucose and oxygen
- b. glucose
- c. glucose, oxygen and carbon dioxide
- d. alcohol, Lactic acid and carbon dioxide

Ans: a. glucose and oxygen

6. Valves are flaps that keep blood flowing in one direction. Valves are found in

- a. Artery and vein
- b. Artery, vein and capillary
- c. Vein and heart
- d. Artery, vein, capillary and heart

Ans: c. Vein and heart

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7. Oxygenated blood is found in two chambers of heart including

- Right and left atrium
- Right and left ventricle
- Right atrium and right ventricle
- Left atrium and left ventricle

Ans: d. Left atrium and left ventricle

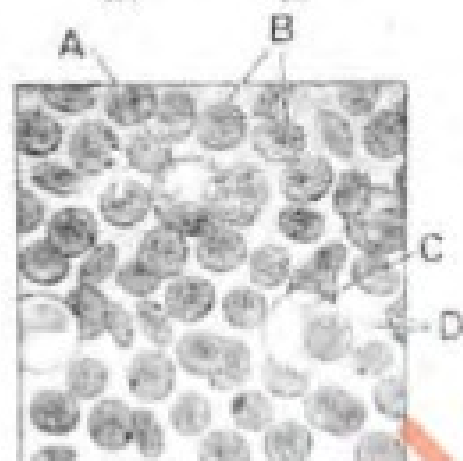
8. Which component of blood is liquid?

- Plasma
- Red blood cell
- White blood cell
- Platelets

Ans: a. Plasma

9. The diagram shows different types of blood cells Which cell is filled with hemoglobin?

- A
- B
- C
- D



Ans: b. B

10. The diagram shows blood flow through a human heart Which chamber pumps the blood to lungs?

- A
- B
- C
- D



Ans: a. A

B. True and False (correct the statement if it False)

1. Breathing is a chemical reaction and cellular respiration is a physical process.

Ans: False Breathing is a physical process and cellular respiration is a Chemical reaction.

2. Blood clotting requires platelets in the blood.

Ans: True

3. Anaerobic respiration releases large amount of energy.

Ans: False, Aerobic respiration release large amount of energy.

4. Thick walls of alveoli help in the exchange of gases.

Ans: False, Thin walls of alveoli help in the exchange of gases.

5. Most veins carry blood rich with oxygen and food.

Ans: False Most artery carry blood rich with oxygen and food.

C. Short questions.

1. Can cells survive without energy?

Ans: No, cells can not survive without energy.

2. Arrange these words in such a way as to show how oxygen from air reaches into your blood; nasal cavity, bronchioles, blood capillaries, air, alveoli, bronchi ,nostrils, trachea

Ans: Arrangement is like this
Air, Nostrils, Nasal cavity, Larynx Trachea, Bronchi, Bronchioles, Alveoli, blood capillaries.

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3. Which substances are transported by blood?

Ans Water, nutrients, gases, waste and chemicals (hormones, ions etc).are transported by blood.

4. Differentiate between
a. artery and vein b. atrium and ventricle.

Ans: a.

Artery	Vein
• They carry blood away from the heart to other Parts of the body.	They take blood from cells back to the heart.
• They have thick walls.	They have thin walls.
• Arteries carry oxygenated blood except pulmonary artery.	Veins carry deoxygenated blood except pulmonary vein.
• Artery can hold less blood.	Vein can hold more blood.
• Arteries have not valve.	Veins have valves
• Blood flow is fast.	Blood flow is slow

b.

Atrium	Ventricle
• The upper, blood receiving part of the heart is called an atrium.	The lower, blood distributing part of the heart is called a ventricle.
They are small, thin walled and less powerful.	They are large, thick walled and powerful.
• Atria receive blood into the heart.	Ventricles pump blood outside the heart.

5. How does the blood circulate around the body?

Ans: The circulatory system pumps blood form the heart to the lungs to get oxygen. The heart then sends oxygenated blood through arteries to the rest of the body the veins carry oxygen-poor blood back to the heart to start the circulation process over.

6. Compare respiration and breathing.

Respiration	Breathing
1) It is a complex process.	It is a mechical process.
2) Enzymes are involved.	No enzyme is involved
3) Energy is released and stored in the form of ATP.	No energy is released.
4) It takes place inside the cell.	It takes place outside the cell
5) Oxidation of glucose takes place.	Exchange of oxygen and carbon dioxide take place.

D. Long Questions

1. Differentiate between aerobic and anaerobic respiration.

Ans:

Aerobic Respiration	Anaerobic Respiration
• If occurs in the presence of oxygen. It oxygen is not available then some cells temporanly shift to anaerobic respiration	It occurs in the absence of oxygen.
• Most plants and animals respire aerobically.	This occurs in yeast and some bacteria.

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• Complete oxidation of glucose takes place.	The oxidation of glucose is not complete.
• More energy is released	Less energy is released as compared to aerobic respiration.

2. How do the respiratory and circulatory system work together to provide body cells with the materials they need?

Ans: The respiratory system and the circulatory system work closely together to deliver oxygen to cells and to get rid of the carbon dioxide the cells produce. The circulatory system picks up oxygen in the lungs and drop it off in the tissues, then perform the reverse for carbon dioxide

D. Structured Questions

1. The tables shows how the composition of the air changes when you inhale and exhale

Gas	Amount in inhaled air	Amount in exhaled air
Oxygen	21%	16%
Carbon dioxide	0.04%	4%
Nitrogen	78%	78%
Water vapour	Variable	saturated

a. Why oxygen percentage is reduced in the air that is breathed out?

Ans: The amount of inhaled air contains 21% of oxygen and 0.04% of carbon dioxide, while the air we breathe out contains 16.4% of oxygen and 4.4% of carbon dioxide this is because

our cells use oxygen from the inhaled air to release energy and give out carbon dioxide as a byproduct.

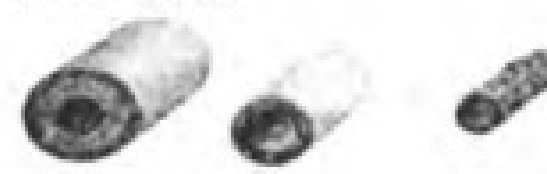
b. Amount of which gas is unchanged and why?

Ans: Amount of nitrogen gas is unchanged because nitrogen is not used by the body for any of the physiological processes.

c. Why carbon dioxide percentage is increased in the exhaled air?

Ans: Carbon dioxide percentage is increased in the exhaled air because during oxidation of glucose carbon dioxide is produced as waste product. Hence the concentration of carbon dioxide increased in exhaled air.

2. The following diagram shows structure of artery, capillary and vein



a. Which blood vessels can be seen only through microscope?

Ans: Capillaries can be seen only through microscope.

b. Which blood vessel will hold more blood than the other two?

Ans: The blood vessel vein will hold more blood than the other two.

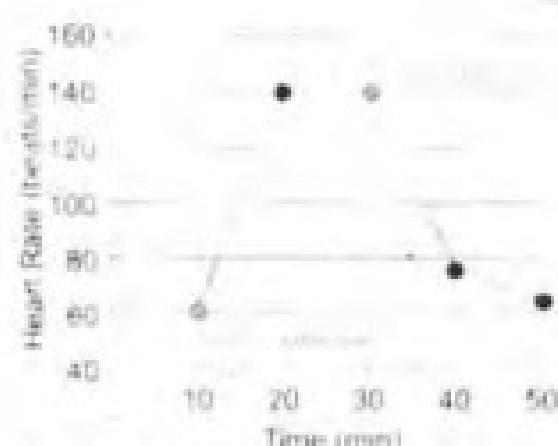
c. Why pulse is produced only in arteries?

Ans: Pules is produced only in arteries because when heart Pushes blood into arteries creates a pressure that continues along the arteries. This is the pulse.

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3. Anum measures her pulse rate before the exercises. It is 60 beats per minute. She exercises for twenty minutes and measures her pulse rate again. She then measures it every minute for several minutes. She draws a graph to show her results.

Ans:



- a. Why does her pulse rate keep on increasing during exercise?

Ans: Because her heart starts pumping faster, which makes for a quicker pulse. Meanwhile her lungs are also taking in more air, hence the harder breathing.

- b. After how many minutes does her pulse rate return to normal?

Ans: If heart rate decreases 20 beats per minutes (bpm) or more within one minute post exercise she doing well.

- c. What can be concluded from her results?

Ans: During exercise heart rate increased and return to normal if heart rate decrease 20 (bpm).

E. Project Work

With the help of recycled material make the model of the circulatory system or respiratory system.

Ans: Practical work.

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IMMUNITY AND DISEASES

Questions and Activities

- A. MCQs (Choose the correct option)

1. When the skin is damaged, bacteria enter in our body. Which line of defence is crossed by these bacteria?

- First line of defence
- Second line of defence
- Third line of defence
- Fourth line of defence

Ans: a. First line of defence

2. A new born baby has less immunity as compared to other people. The baby has only:

- innate immunity
- Adaptive immunity
- Passive immunity
- Innate and natural passive immunity

Ans: a. innate immunity

3. The Army of your body has special bullets which can identify the enemy and kill it. These bullets are small proteins called:

- Pathogens
- Antibodies
- Virus
- Bacteria

Ans: b. Antibodies

4. Third line of defence learns about the enemy and adapts accordingly. It is also called

- adaptive/ learned immunity
- innate immunity