



## INDIAN SCHOOL AL WADI AL KABIR

<b>Class: VIII</b>	<b>Department: SCIENCE 2020 -2021</b>	<b>Date: 30.08.2020</b>
<b>Worksheet No. 9 with answers</b>	<b>Topic: MICROORGANISMS – FRIEND OR FOE</b>	<b>Note: A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### **I. MULTIPLE CHOICE QUESTIONS**

- In order to take precautionary steps to control dengue, we must take measures to stop the breeding of:
  - Aedes mosquito**
  - Fleas
  - Fire ants
  - Anopheles mosquito
- Some plants have nitrogen-fixing bacteria in their root nodules. What are these bacteria called?
  - Blue green algae
  - Nitrosomonas
  - Azotobacter
  - Rhizobium**
- Paheli dug two pits, A and B, in her garden. In pit A, she put a polythene bag packed with some agricultural waste. In pit B, she dumped the same kind of waste but without packing it in a polythene bag. She, then covered both the pits with soil. What did she observe after a month?
  - Waste in pit A degraded faster than that in pit B.
  - Waste in pit B degraded faster than that in pit A.**
  - Waste in both pits degraded almost equally.
  - Waste in both pits did not degrade at all.
- Which of the following only reproduces inside a host cell?
  - Bacteria
  - Viruses**
  - Amoeba
  - Fungus
- A disease in human beings caused by virus is \_\_\_\_\_.
  - typhoid
  - dysentery
  - influenza**
  - cholera

6. Which of the following cannot be used as a food preservative?
  - a) Sodium metabisulphite
  - b) Sodium hydroxide**
  - c) Sodium benzoate
  - d) Citric acid
  
7. Pathogenic micro-organisms present in host cells are killed by medicines called
  - a) Pain killer
  - b) Antibodies
  - c) Antibiotics**
  - d) Vaccines

For question numbers 8 to 10, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below

- i) Both A and R are true and R is 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

1. **Assertion-** While baking cakes, yeast reproduces rapidly and produces carbon dioxide gas.

**Reason-** This gas is responsible for the spongy texture of cake.

**Ans: i) Both assertion and reason are true and the reason is the correct explanation of assertion.**

2. **Assertion-** Partial sterilization of a product such as milk at a high temperature is known as pasteurisation.

**Reason-** It was discovered by Alexander Fleming in 1929.

**Ans: iii) A is true but R is false.**

3. **Assertion :** Bacteria and fungus are used to make medicines.

**Reason-** These medicines kill or stop the growth of disease-causing microorganisms.

**Ans: i) Both A and R are true and R is correct explanation of the assertion**

## **I. BASIC CONCEPT LEVEL:**

1. What is the role of microorganisms in cleaning the environment and in sewage treatment? (Hint: The **microorganisms** decompose dead organic wastes of plants and animals converting them into simple substances. These substances are again used by other plants and animals. Thus, **microorganisms** can be used to degrade the harmful and smelly substances and thereby **cleans up the environment**)
  
2. What are microbes? Name the four major groups of microbes. (Hint: **Microorganisms or microbes are microscopic organisms that exist as unicellular, multicellular, or cell clusters. Microorganisms are widespread in nature and are beneficial to life, but some can**

cause serious harm. They can be divided into five major types: bacteria, **fungi**, **protozoa**, **algae**, and **viruses**.)

3. How do viruses differ from other microorganisms such as bacteria? [Hint: They are smaller than bacteria, they can develop and multiply only inside living cells like plants, animals or bacteria]
4. What are antibiotics? Name any two antibiotics.[Hint: Medicines which kill or stop the growth of the disease-causing microorganisms. Eg: Streptomycin, Tetracycline]
5. Describe how curd is made from milk. Name the bacterium which converts milk to curd. (Hint: When a small amount of pre-made curd is added into warm milk, then lactobacillus bacterium present in curd multiplies in milk and converts it into curd. During this process, lactobacillus bacterium acts on lactose sugar present in milk and converts it into lactic acid. This lactic acid then converts milk into curd.)
6. What is meant by food poisoning? How is it caused? [Hint: Illness caused by eating contaminated food. Infectious organisms like bacteria, viruses, parasites or their toxins are major causes of food poisoning.]
7. What are communicable diseases? Explain with examples. [Hint: Diseases which can spread from a diseased person to a healthy person through air, water, food, clothes and carriers.]
8. Name the two organisms that help in fixing the atmospheric nitrogen. (Hint: Rhizobium and Azotobacter are two organisms which fix atmospheric nitrogen in soil.)
9. What is pathogen? How does it enter the body of living organisms? (Hint: Disease causing **microorganisms** are called pathogens. other name for them is germs. they gain entry in the body of living organism through air, food and water, direct contact with infected person, through insects, and by cuts and wounds.)
10. Name two chemical preservatives added to food. (Hint: potassium metabisulphite and sodium benzoate.)

### **III. INTERMEDIATE LEVEL:**

1. Why does sugar solution with yeast powder become alcoholic in taste? (Hint: Sugar solution becomes alcoholic in taste because yeast synthesises an alcoholic compound (called as ethanol) from sugar substance present in the products. This process is known as fermentation. It is used for making wine. The substance on which yeast is grown for wine production are grapes, grains of wheat, barley etc.)

2. What is the role of yeast in baking industry? (Hint: Baker's **yeast** is the common name for the strains of **yeast** commonly used in **baking bread** and **bakery** products, serving as a leavening agent which causes the **bread** to rise (expand and become lighter and softer) by converting the fermentable sugars present in the dough into carbon dioxide and ethanol.)
3. What are vaccines? How does a vaccine work? [ Hint: Weak or dead microbes that are injected into body for protection from diseases. When a vaccine is injected into a healthy person, the person's body react by producing antibodies to attack the bacteria. The antibodies remain in the body and protects the body when the microbes enter again.]
4. Give reasons:
  - a) We should keep a handkerchief on the nose and mouth while sneezing. [Hint: When a person suffering from common cold sneezes, the fine droplets of moisture containing thousands of viruses are spread in the air, these viruses may enter the body of healthy person while breathing, thus we should keep handkerchief on the mouth and nose so that viruses may not spread in the air and enter into healthy person's body to make him sick.]
  - b) We should avoid consuming uncovered food items. [Hint: Houseflies sit on the garbage and animal excreta where pathogens stick to their bodies and these pathogens get transferred to uncovered food when these flies sit on uncovered food items and the person consuming these foods fall sick.]
  - c) A mango gets spoilt or rotten after few days but a mango pickle does not spoil for a long time. [Hint: Mango pickles contain salt which acts like a preservative. Oil prevents the entry of fungi and bacteria from attacking the pickle and spoiling it.]
  - d) Fresh milk is boiled before consumption, while processed milk stored in packets can be consumed without boiling. [Hint: Fresh milk is boiled before consumption to kill the microorganisms in it. But packed milk is pasteurised and does not contain any microorganisms can thus be consumed without boiling.]
5. While returning from the school, Boojho ate *chaat* from a street hawker. When he reached home, he felt ill and complained of stomach ache and fell ill. What could be the reason? [Hint: The probable reason is that the *chaat* was contaminated by pathogenic microbes due to unhygienic conditions near the shop or the utensil used for serving could have been contaminated.]
6. Megha, a class VIII student was asked to submit a project report on mosquito transmitted diseases. She visited a nearby hospital where her aunt was staffed as a nurse. Her aunt took her to a patient suffering from malaria. Megha talked to the patient and asked him about his health and also took some flowers for him.
  - (a) Name the mosquito that spreads malaria.
  - (b) What is the name given to such organisms that transmit the diseases from infected to

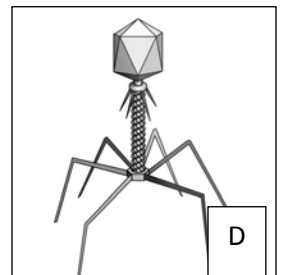
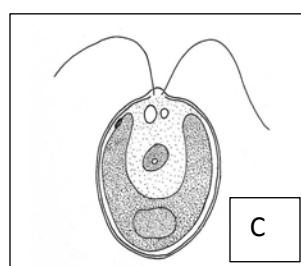
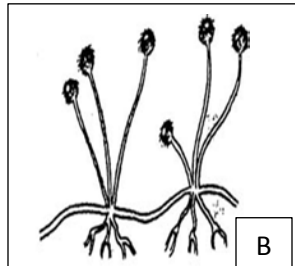
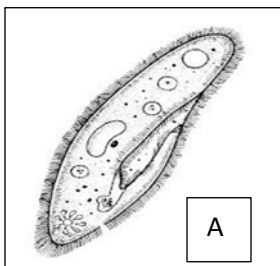
healthy persons?

(c) How can we control the spread of diseases by mosquitoes? [ Hint: Female *Anopheles* mosquito, Carriers, by not letting water collect anywhere, in coolers, tyres etc. By keeping the surroundings neat and clean, spraying kerosene to destroy mosquito larvae]

- Describe the role of Rhizobium in maintaining soil fertility. (Hint: It forms symbiotic association with the roots of leguminous plants and fix the elemental nitrogen (N<sub>2</sub>) into ammonia (NH<sub>3</sub>) which is utilised by the host plant. The ammonia is also released from the root nodules of leguminous plants to soil thus raising the fertility status of the soil).
- What is pasteurization? How is it done? (Hint-pasturisation is the process in which microorganisms are destroyed by subjecting them first to high temperature and the sudden cooling. Milk is heated at 70°C temperature for about half a minute, and suddenly cooled.)
- What precautions must be taken while taking antibiotics? (Hint: Antibiotics should be taken only on the advice of the doctor, and one must complete the course the doctor prescribes. Antibiotics taken in wrong doses may make the body resistant to the drug and it may not be effective in the future. Moreover, antibiotics may also kill the beneficial bacteria in the body.)
- Explain the different methods of preserving food items. (Hint: Among the oldest methods of preservation are **drying**, refrigeration, and **fermentation**. Modern methods include **canning**, **pasteurisation**, **freezing**, irradiation, and the addition of chemicals. Advances in packaging materials have played an important role in modern food preservation)

#### IV. ADVANCED LEVEL:

- Identify the given organisms:



(Hint: A- Paramecium, B- Rhizopus, C- Chlamydomonas, D- Bacteriophage)

- Kushal's family is happy as he became a proud father to a baby girl. Upon a routine visit to the hospital, the doctor advised him not to skip the vaccination schedule. While discussing the same at home, one of the family members suggested that vaccination is not necessary for a girl child. Kushal opposed this suggestion.
  - What is vaccination?
  - Name the scientist who prepared the first vaccine?

(c) Critically comment upon Kushal's viewpoint. [Hint: Treatment with vaccines to produce immunity against a disease, Edward Jenner, vaccination is a very important part of family and public health. Vaccines prevent the spread of contagious, dangerous, and even deadly diseases.]

3. What is nitrogen fixation? Draw a neat and labelled diagram of nitrogen cycle in nature. (Hint: Nitrogen fixation is the process by which atmospheric nitrogen is converted by either a natural or an industrial means to a form of nitrogen such as ammonia. In nature, most nitrogen is harvested from the atmosphere by microorganisms to form ammonia, nitrites, and nitrates that can be used by plants.)

4. Complete the following table.

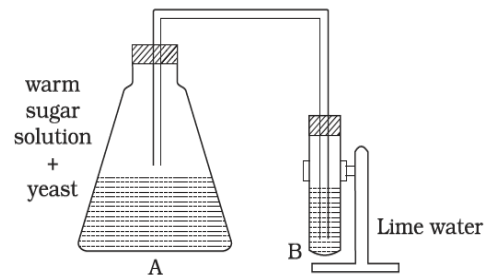
Diseases	Causative organisms	Preventive measures
Tuberculosis	Bacteria	Keep the patient isolated
Cholera	Bacteria	Boiled water
Typhoid	Bacteria	Consume properly cooked food
Chicken pox	Virus	Keep the patient isolated

Plant diseases	Causative organisms
Citrus canker	Bacteria
Rust of wheat	Fungi
Yellow vein mosaic of bhindi (okra)	Virus

### V. EXEMPLAR QUESTIONS

1. Observe the set up given in figure and answer the following questions.

- What happens to the sugar solution in A?
- Which gas is released in A?
- What changes will you observe in B when the released gas passes through it? [Hint: a)Yeast causes fermentation converting sugar into alcohol and carbon dioxide. b)Carbon dioxide c)Lime water turns milky.]



2. What will happen to 'pooris' and 'unused kneaded flour' if they are left in the open for a day or two? [Hint: The 'unused kneaded flour', if left in warm conditions, gets infected by microbes which cause fermentation and spoils the flour. The *pooris* would remain in relatively good condition because they were deep fried in heated oil that kills microbes.]

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