

2. Fill in the following blanks with suitable words:

- (a) communicable
- (b) vectors
- (c) AIDS
- (d) bacteria
- (e) liver
- (f) night blindness

3. Match the pathogen to the disease it causes:

- (a) (iii)
- (b) (iv)
- (c) (i)
- (d) (v)
- (e) (ii)

Subjective Type Questions

Short Answer Type Questions

1. Health is a state of complete physical, mental, and social well-being and not merely the absence of disease. We know that we are unwell when we experience symptoms such as fever, weakness, pain, tiredness, loss of appetite, or any discomfort that prevents us from doing our normal daily activities.
2. (a) Disease is defined as the deviation from the normal functioning of the body with the appearance of certain signs and symptoms or malfunctioning of the normal state of the living organism that disturbs or modifies the performance of the vital functions. Examples of pathogens include: Bacteria, Viruses, Fungi, Protozoa.

(b)

Communicable diseases	Non-communicable diseases
Diphtheria	High blood pressure
Swine flu	Diabetes
Measles	Hypertension
Typhoid	
Chickenpox	
Giardia	

3. Two diseases caused by the following microorganisms are:

Microorganisms	Diseases
Fungi	Ringworm, Athlete's foot
Bacteria	Tuberculosis, Whooping cough
Protozoa	Malaria, Sleeping sickness
Virus	Common cold, Influenza

4. Antibiotics are effective only against bacterial infections. Viral infections such as cold, cough, and flu are caused by viruses, and antibiotics have no effect on viruses. Unnecessary use of antibiotics can also lead to antibiotic resistance, making them ineffective against bacterial diseases in the future.
5. Among the list provided, the following diseases spread if drinking water is contaminated by the excreta of an infected person: Hepatitis A, Poliomyelitis, and Cholera. These diseases are caused by pathogens that enter the body through the mouth along with contaminated food or water. Poor sanitation and unsafe drinking water allow these germs to spread easily among people.
6. (a) A deficiency disease is caused due to the lack of essential nutrients in the diet, such as vitamins or minerals.
Example: Night blindness due to a deficiency of Vitamin A.
A chronic disease is a disease that lasts for a long period of time or develops slowly.
Example: Diabetes.
- (b) Diabetes can be controlled by certain lifestyle modifications such as limiting the intake of carbohydrates, exercising regularly, monitoring blood sugar levels, managing stress, and taking medication as advised by a doctor.

Long Answer Type Questions

1. To maintain good health, the following conditions are necessary:
 - **Balanced diet:** Our food should contain all nutrients such as carbohydrates, proteins, fats, vitamins, and minerals in proper amounts.
 - **Personal hygiene:** Cleanliness of body, clothes, and surroundings helps prevent diseases.
 - **Clean environment:** Safe drinking water, proper sanitation, and clean surroundings reduce the spread of infections.
 - **Regular exercise:** Physical activity keeps the body fit and improves immunity.
 - **Adequate rest and sleep:** Proper rest helps the body recover and function normally.
 - **Mental well-being:** Freedom from stress, tension, and anxiety is important for good health.
 - **Immunisation:** Vaccination protects us from many infectious diseases.
2. The differences between communicable and non-communicable diseases are:

Communicable Diseases	Non-communicable Diseases
Spread from one person to another	Do not spread from person to person
Caused by microorganisms	Caused by lifestyle, deficiency, or genetic factors
Spread by air, water, food, or vectors	Not spread by infection
Examples: Tuberculosis, Measles	Examples: Diabetes, Hypertension

3. (a) Many human diseases are caused by microorganisms. Tuberculosis is caused by bacteria and spreads through the air when an infected person coughs or sneezes. Cholera is a bacterial disease that spreads through contaminated food and water. Malaria is caused by a protozoan and is transmitted through the bite of an infected female Anopheles mosquito. Measles is caused by a virus and spreads through the air by droplets from an infected person. Ringworm is caused by a fungus and spreads through direct contact with an infected person or contaminated objects.

(b) Communicable diseases can be prevented by:

- Maintaining personal hygiene
- Drinking boiled or purified water
- Eating fresh and covered food
- Keeping surroundings clean
- Controlling vectors like mosquitoes and flies
- Vaccination and immunisation
- Avoiding close contact with infected persons

4. A vaccine is a special kind of preparation (or medicine) which provides immunity (or protection) against a particular disease. Vaccines are made from dead or weakened but alive microorganisms such as bacteria or viruses, which are harmless and do not cause the disease. When a vaccine is introduced into the body by mouth or by injection, the body produces special substances called antibodies. These antibodies destroy the disease-causing microorganisms. Some antibodies remain in the blood for a long time and protect the person if the same microorganisms enter the body again in the future. In this way, a vaccine helps in developing immunity against a disease.

5. (a) Antibiotics are medicines used to kill or stop the growth of disease-causing microorganisms, especially bacteria. They help us recover from many communicable diseases.

The source of antibiotics is microorganisms. Many antibiotics are produced from fungi and bacteria. Some common antibiotics obtained from microorganisms are Penicillin, Streptomycin, Erythromycin, and Tetracycline. Nowadays, several antibiotics are also made synthetically in laboratories.

(b) Antibiotic resistance spreads in a community when antibiotics are used unnecessarily or incorrectly. This leads to the development of resistant bacteria in humans and animals. These resistant bacteria can spread through contaminated food, water, soil, and animal products. They also spread from person to person through direct contact, poor hygiene, dirty surfaces, and in hospitals through infected patients or healthcare workers. In this way, resistant bacteria move from animals, plants, and hospitals into the wider community, making infections harder to treat.

6. (a) The school should:

- Advise sick students to stay at home
- Ensure cleanliness and sanitisation of classrooms
- Promote mask usage
- Conduct health awareness sessions
- Inform parents and monitor students' health

(b) We should:

- Politely suggest them to consult a doctor
- Encourage them to rest at home
- Avoid being rude or making them feel embarrassed
- Show care and concern for their health

(c) Protect myself and others by:

- Washing hands regularly with soap
- Covering mouth and nose while coughing or sneezing
- Avoiding close contact with sick people
- Maintaining personal hygiene
- Eating nutritious food to boost immunity

Multiple Choice Questions (MCQ)

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|----------------------------------|-----------------------------|-------------------|----------------------|
| 1. (a) Mosquito | 2. (b) Cholera | 3. (a) Mosquito | 4. (b) Edward Jenner |
| 5. (c) A fungus | 6. (b) Cancer | 7. (c) Skin | 8. (d) Yellow fever |
| 9. (d) Measles | 10. (b) Asthma and Diabetes | 11. (c) Beri-beri | |
| 12. (c) Heart attack and Obesity | 13. (b) Typhoid | 14. (b) Immunity | |
| 15. (d) BCG | | | |

21st Century Skills

- (a) He is suffering from food poisoning.

(b) This disease is caused by harmful bacteria present in contaminated or improperly cooked food.
- (a) He is suffering from dengue fever, which is a communicable disease. The causative agent is a virus (dengue virus).

(b) The carrier of this disease is the Aedes mosquito.

(c) Two preventive measures are:

 - Prevent breeding of mosquitoes by keeping surroundings clean and avoiding stagnant water
 - Use mosquito nets and repellents
- When a pathogen enters the body for the first time, the immune system takes time to recognise it and produces antibodies slowly. Some of these antibodies and memory cells remain in the body for a long time. When the same pathogen enters again, these memory cells recognise it immediately and produce antibodies very quickly and in larger amounts, resulting in a stronger immune response. This is the basis of immunity and vaccination.