

1. What is meant by analogous organs? Taking a suitable example, explain how they List any three reasons why you would think that you are sick and ought to see a doctor. If only one of these symptoms were present, would you still go to the doctor? Why or why not?

Ans: The 3 reasons why one would think that he is sick are—

- (i) Headache,
- (ii) Cold and Cough,
- (iii) Loose-motions.

This indicates that there may be a disease but does not indicate what the disease is. So one would still visit the doctor for the treatment and to know the cause of the above symptom.

Even in the case of a single symptom, one needs to go to the doctor to get proper treatment.

2. What are the different means by which infectious diseases are spread? **Ans:** The different means by which infectious diseases spread are:

- (a) **Through air:** They are also called air-borne diseases. The air carries bacteria, virus and the diseases that can be caused are common cold, influenza, tuberculosis, etc.
- (b) **Through food and water:** When one eats/drinks contaminated food/water, that contains bacteria, viruses, worms, etc. it can cause diseases like cholera typhoid, hepatitis.
- (c) **Through contact:** Many diseases spread by contact of an infected person with a healthy person.
Example: fungal infections, skin diseases, scabies, etc.
- (d) **By sexual contact:** Many diseases can be transmitted, for example, syphilis, AIDS.

(e) **By body fluids:** Fluids like blood, semen, mother's milk, when infected, can also cause diseases.

Example: AIDS.

(f) **Vectors:** Organisms that spreads disease by carrying pathogens from one place to another is called a vector.

Example: mosquitoes are vectors that carry pathogens like protozoa.

3. Why we are normally advised to take bland and nourishing food when we are sick?

Ans: We are advised to take bland and nourishing food when we are sick because our body needs the energy to release cells to overcome the infection, the wear, and tear of the body organ. The nourishing food provides nutrients to our body that will further provide energy and make new cells. No spices in the food make its digestion process faster, do not release acids in the body that can interfere in the treatment and cure.

4. What precautions can you take in your school to reduce the incidence of infectious diseases?

Ans: The precautions that one can take in school to reduce the incidence of infectious diseases are

(a) By using a handkerchief while coughing sneezing.

(b) Washing hands before eating tiffins.

(c) Staying at home if anyone suffers from infectious diseases.

(d) Getting vaccinated before the infection affects.

(e) Keeping the school surroundings clean, checking for stagnant water.

5. State two main causes of disease.

Ans: Two main causes of disease are immediate cause and contributory cause.

Immediate cause: This is due to the organisms that enter our body and cause disease. For Example, viruses, protozoa, bacteria.

Contributory cause: These are the secondary factors that lead these organisms to enter our bodies.

Example: dirty water, unclean surroundings, contaminated food, etc.

6. How cholera does become an epidemic in a locality?

Ans: Cholera is an infectious disease that spreads due to unsafe water. It can spread in a locality; if a person suffering from cholera lives in the locality and the excreta of this person get mixed with the drinking water used by people living nearby. The cholera-causing microbe enters the new hosts through the water they drink and cause disease in them.

7. How do we kill microbes that enter our bodies and cause diseases?

Ans: Microbes can be killed by using medicines. These microbes are of different categories— viruses, bacteria, fungi, or protozoa. Each of these groups of organisms has some essential biochemical life processes which are peculiar to a particular group and is not shared by others. These pathways are not used by us. By using drugs that block the microbial synthesis pathway without affecting us can kill the microbes.

8. Write a short note on malaria as a disease, its symptoms, and control.

Ans: Malaria is caused by protozoa that live in blood. This parasite enters our body through a female Anopheles mosquito bite which is the vector, visits water to lay eggs, the protozoa enter our bloodstream when a female mosquito bites us. This protozoan affects our liver and red blood cells.

Symptoms: Very high fever with periodic shivering, headache, and muscular pain. –

Control: Use of quinine drug, keeping the surroundings clean with no stagnant water, use of mosquito repellent creams, nets, can control the spread of this disease.

9. What is AIDS? How does a person get affected by HIV?

Ans: AIDS is Acquired Immuno Deficiency Syndrome, which is caused due by HIV— human immunodeficiency virus. This virus reduces the immunity of the human body.

Therefore, if any microbe enters the body of a person it causes disease killing the person.

The virus is transmitted from an infected person to another person in any of the following ways:

- (a) Blood transfusion.
- (b) From mother (infected) to baby in the womb.
- (c) From mother's milk to lactating baby.
- (d) By sexual contact.
- (e) Sharing of the needle with an infected person.

10. If someone in the family gets an infectious disease, what precautions will you advise the other family members?

Ans: For an infectious disease person in the family following precautions should be taken:

- (1) The surroundings and the house should be clean.
- (2) The infected person should be kept isolated in a separate room.
- (3) The clothes and utensils of the patient should be sanitized regularly.
- (4) Separate towels and handkerchiefs should be used by the patient.
- (5) Children should not be allowed to visit the infected person.
- (6) Clean and boiled drinking water should be given to the patient.
- (7) A balanced and nutritious diet which will provide a lot of energy should be given.
- (8) There should be silence and the patient should be given a lot of bed rest to overcome the infection.

11. What is a disease? Classify disease based on duration and infection cause.

Ans: Disease can be defined as the state of human health which is not at ease is not comfortable. During disease, the functioning or appearance of one or more systems of the body changes.

Classification:

(a) Based on duration:

Acute diseases: Diseases that last for only a short period of time.

Example: headache, common cold, etc.

Chronic diseases: Diseases that last for a long time is called chronic disease

Example, tuberculosis.

- (b) **Based on the cause:** Disease can be grouped as infectious/communicable disease and non-infectious or non-communicable disease.

Infectious diseases: These diseases are caused due to microbes and can spread from one person to another.

Non-infectious diseases: These type of diseases do not spread in the community, but remains internal.

Example: cancer, genetic abnormalities.

12. What are the different ways used for the treatment and prevention of diseases? **Ans: Principles of treatment for diseases are:**

- (1) To reduce the effect of the diseases.
- (2) To kill the cause of the disease i.e., to kill the microbes like bacteria, fungi, protozoa.

Principles of prevention are: This can be done in the following ways:

For avoiding air-borne infections—Avoid visiting a public place, cover your nose and mouth while sneezing or coughing

For water-borne infection—Drink safe, clean, and boiled water.

For vector-borne diseases—Keep the surroundings clean, keep food and water covered and clean. Do not allow any water to stand as it becomes a breeding ground for mosquitoes.

Self-immunity—It is a self-defense mechanism in our system that can fight off and kill microbes that enter our body.

Specific ways—By giving vaccines, a childhood immunization that is given to children for preventing infections and diseases.

13. What are vectors?

Ans: The organisms that spread or carry pathogens from one place to another, from an infected person to a healthy person is called a vector.

Example: mosquito, housefly, etc.

14. What are infectious diseases?

Ans: Diseases that can spread from one person to another and microbes are the immediate cause for these diseases are called infectious diseases.

Example: typhoid

15. What are antibiotics?

Ans: Antibiotics are drugs that block the biochemical pathways important for bacteria. These are used to cure diseases caused due to bacteria.

16. Define vaccines and name two vaccines.

Ans: Vaccine is a chemical /drug given in advance to a body to give immunity against certain diseases.

Vaccines given to children are:

- (a) BCG—for tuberculosis prevention
- (b) Polio drops—for polio prevention

17. What is antibiotic penicillin? Give its function.

Ans: Penicillin antibiotic blocks the bacterial processes that build the cell wall. Due to this drug, the bacteria are unable to make a protective cell wall and die easily. It is used to cure diseases and infections caused by bacteria.

18. Bacteria is a cell, antibiotics can kill these bacteria (cell), Human body is also made of cells how does it affect our body?

Ans: Antibiotics block the biochemical pathway of bacteria by which it makes a

protective cell wall around it. Antibiotic does not allow the bacteria to make this cell wall because of which they die.

Human body cells don't make any cell wall so antibiotics cannot have any such effect on our body.

19. Name the organs affected due to the following diseases: Malaria, jaundice, Japanese encephalitis, typhoid.

Ans: Malaria: Infects liver and red blood cells

Jaundice: Infects the liver.

Japanese encephalitis: Infects the brain

Typhoid: Infects blood.

20. Why are sick patients advised to take bed rest?

Ans: Doctors advise to take bed rest for sick patients so that they can conserve their energy which can be used for healing of their body organs which were affected due to certain diseases.

21. What are disease-specific means of prevention?

Ans: The disease-specific means of prevention are the use of vaccines. The vaccines are used against tetanus, diphtheria, whooping cough, measles, polio, and many others.

22. Why can't we make antiviral medicines/drugs?

Ans: The viruses lie on the borderline of living and non-living organisms. The viruses can live, grow and multiply only inside the host body. They cannot be grown or cultured and their biological pathways cannot be affected. Hence, antiviral medicines/drugs are difficult to make.