

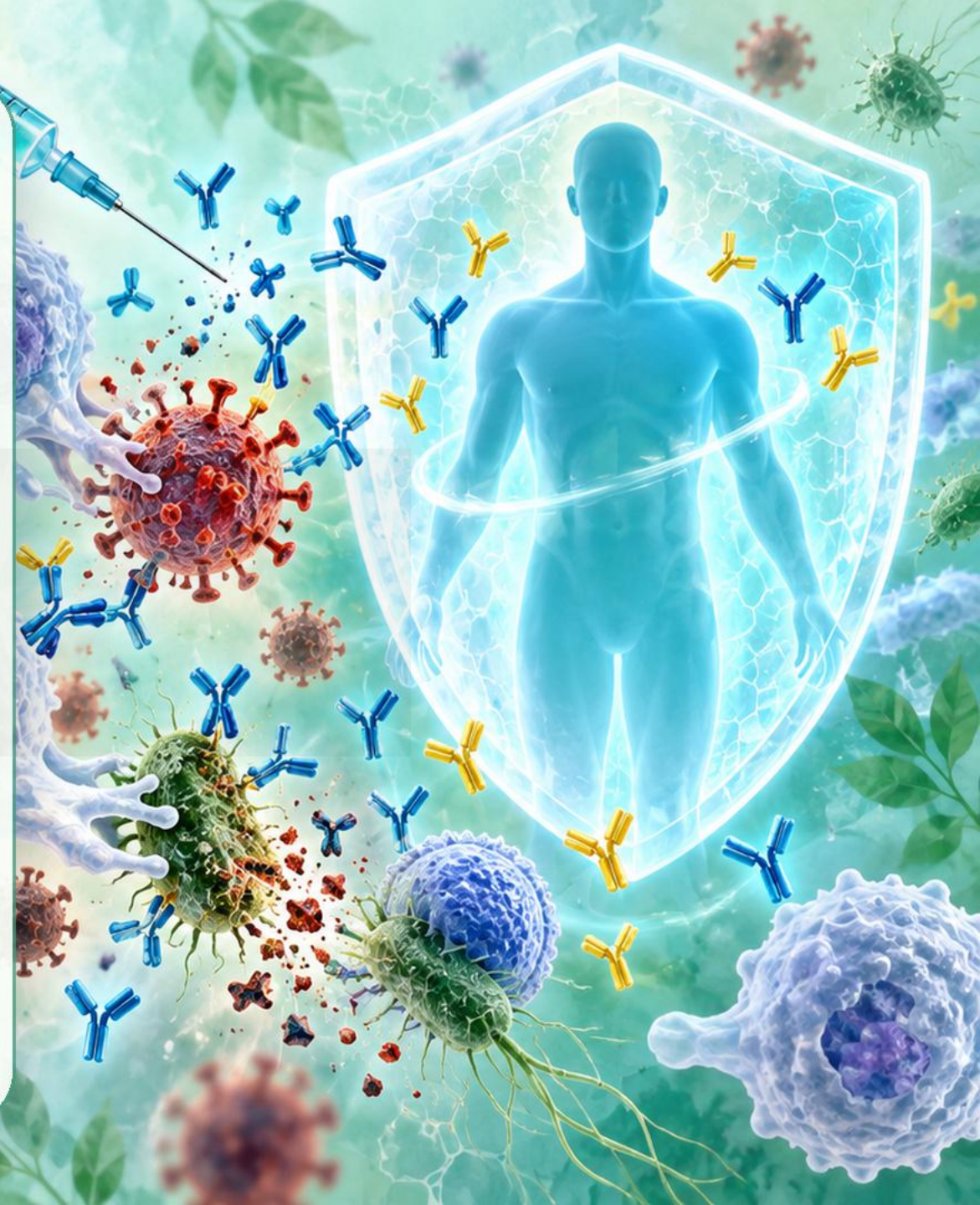
BIOLOGY • CLASS 12

7

CHAPTER

Human Health and Disease

NCERT SOLUTIONS



EXERCISE SOLUTIONS: QUESTIONS 1 & 2

1. What public health measures would you suggest as safeguards against infectious diseases?

Answer:

- Provide safe drinking water, sewage treatment and proper disposal of waste and excreta.
- Maintain personal hygiene, handwashing and safe food handling; keep public places clean.
- Control mosquitoes and their breeding sites; use nets and window screens.
- Provide vaccination, health education, disease surveillance, early diagnosis and treatment.
- Use respiratory hygiene and ventilation to reduce respiratory infections.

2. How has the study of biology helped us control infectious diseases?

Answer:

- It identifies pathogens, their life cycles, vectors and routes of transmission.
- Knowledge of immunity led to vaccines and immunisation programmes; vaccination helped eradicate smallpox.
- Biology led to diagnostic tests, antibiotics and other pathogen-specific medicines.
- It guides sanitation, vector control and biotechnology-based prevention.

Antibiotics act against susceptible bacteria, not viruses.

EXERCISE SOLUTION: QUESTION 3

3. How does transmission of the following diseases take place?

(a) Amoebiasis

Answer: Cysts of Entamoeba histolytica enter through food or water contaminated with faecal matter. Houseflies can mechanically carry the cysts to food.

(b) Malaria

Answer: The bite of an infected female Anopheles mosquito introduces Plasmodium sporozoites into a person.

(c) Ascariasis

Answer: Infective eggs of Ascaris are swallowed in contaminated food, water or soil on unwashed hands and vegetables.

(d) Pneumonia

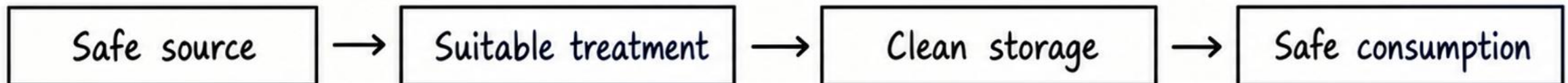
Answer: Respiratory pathogens spread mainly through droplets or aerosols from an infected person; contact with contaminated secretions or utensils can also spread some causative microbes.

EXERCISE SOLUTION: QUESTION 4

4. What measures would you take to prevent water-borne diseases?

Answer:

- Drink water from a safe source. If microbial safety is doubtful, use appropriate boiling or approved treatment.
- Store drinking water in clean, covered containers and avoid contaminating it while taking water out.
- Use toilets and ensure proper sewage treatment; keep faeces and waste away from water sources.
- Wash hands with soap after using the toilet and before preparing or eating food.
- Wash fruits and vegetables with safe water and maintain hygienic food preparation.
- Keep water tanks and distribution systems clean, and report contamination or outbreaks.



EXERCISE SOLUTION: QUESTION 5

5. What does “a suitable gene” mean in the context of DNA vaccines?

Answer: It means a gene that encodes an antigenic protein of a pathogen capable of stimulating a protective immune response.

- The antigen is recognised as foreign by the immune system.
- The response can include specific antibodies, immune cells and immunological memory.
- The vaccine is intended to prepare immunity without causing the disease itself.



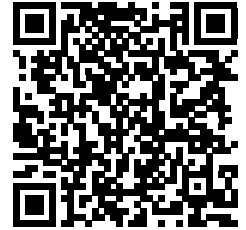


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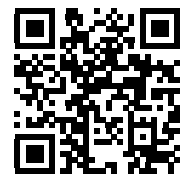


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