

## 10. Infectious diseases

### Starter Quiz · 课前小测

A-Level Biology

Name: \_\_\_\_\_ Score: \_\_\_\_\_

1. A pathogen is:

- ☐ an organism that lives in or on a host and causes disease
- ☐ a type of white blood cell
- ☐ a medicine that kills bacteria
- ☐ a vaccine

2. Which helps control the spread of an infectious disease?

- ☐ vaccination
- ☐ eating more sugar
- ☐ ignoring symptoms
- ☐ sharing needles

3. Penicillin kills bacteria by:

- ☐ stopping them building their cell walls, so they take in water and burst
- ☐ breaking down their DNA
- ☐ blocking their ribosomes
- ☐ dissolving their membranes with heat

4. An organism that carries a pathogen from one host to another — like the mosquito for malaria — is a \_\_\_\_\_.

\_\_\_\_\_

5. The most important way to prevent cholera is to:

- ☐ provide clean water and proper sewage treatment
- ☐ sleep under mosquito nets
- ☐ use condoms
- ☐ take a long antibiotic course

6. Why do antibiotics not work against viruses?

- ☐ a virus has no cell wall or reactions of its own to target
- ☐ viruses are too large
- ☐ viruses have thicker cell walls
- ☐ viruses are not alive at all, so nothing affects them

7. Cholera is caused by a bacterium and spreads through water or food contaminated with faeces.

- ☐ True    ☐ False

8. Malaria is controlled by attacking the mosquito \_\_\_\_\_ — with nets, insecticides and by draining breeding pools.

\_\_\_\_\_

9. There is currently no cure or vaccine for HIV, so prevention (condoms, clean needles) matters most.

- ☐ True    ☐ False

10. Antibiotic resistance spreads by natural \_\_\_\_\_ — resistant bacteria survive and reproduce.

\_\_\_\_\_

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A-Level Biology

1. **an organism that lives in or on a host and causes disease**

A pathogen causes an infectious (transmissible) disease — e.g. a bacterium, virus or protoctist.

2. **vaccination**

Vaccination, hygiene and quarantine all reduce the spread of disease.

3. **stopping them building their cell walls, so they take in water and burst**

Penicillin prevents cell-wall synthesis; the growing cell cannot hold the water it absorbs, so it bursts.

4. **vector**

The mosquito is the vector that transmits the Plasmodium protoctist when it bites.

5. **provide clean water and proper sewage treatment**

Cholera spreads via faeces-contaminated water, so clean water and good sanitation are key.

6. **a virus has no cell wall or reactions of its own to target**

Antibiotics target bacterial structures/processes; a virus has none of these, using the host cell instead.

7. **True**

Cholera (*Vibrio cholerae*) spreads via contaminated water/food — so clean water and sanitation prevent it.

8. **vector**

The mosquito is the vector; stop it biting (nets) or breeding (drain still water) and you stop malaria spreading.

9. **True**

HIV has no cure or vaccine yet; prevention and drugs that slow the virus are the main tools.

10. **selection**

The antibiotic is the selection pressure; only resistant bacteria survive to pass on their genes.