

Model Answers: Medium

1

The correct answer is **C** because:

- Emphysema is a disease that infects the lungs, it is not infectious and therefore not caused by a virus or can be treated with antibiotics
- HIV/AIDS is an infectious disease caused by a virus
- Cholera is an infectious disease caused by the bacteria *Vibrio cholerae* and so can be treated with antibiotics
- TB is an infectious disease that affects the lungs and can be treated with antibiotics

2

The correct answer is **B** because:

- The village has a clean water supply and sewage treatment, these methods would prevent the transmission of cholera
- The insect control would prevent the transmission of malaria as this need the mosquito vector to transmit the infection
- One form of TB caused by *M. bovis* can be transmitted from infected cattle through meat and milk. The use of a pasteurisation program would prevent this infection
- The only infection not controlled by these measures would be HIV/AIDS

3

The correct answer is **C** because:

- Malaria is caused by one of 4 species of the protoctist *Plasmodium*. It is transmitted by the insect vector the female *Anopheles* mosquito
- TB is caused by two species of *Mycobacterium*, either *M. bovis* or *M. tuberculosis*. *M. bovis* is transmitted from infected cattle in milk or meat. *M. tuberculosis* is transmitted through droplet infection when coughing or sneezing
- HIV is caused by a virus, Human Immunodeficiency Virus, and is transmitted by direct contact with body fluids such as blood or with sexual contact

4

The correct answer is **D** because:

- A person infected with HIV can live for many years after infection. Recent developments in antiretroviral medication has made this even longer as they slow the progression of the disease
- Many patients are asymptomatic (not showing signs of infection) for many years until the virus has reduced the levels of the immune system

to a point that AIDS (Acquired Immunodeficiency Syndrome) has started

- It is not possible to completely cure or remove the HIV infection from a patient

5

The correct answer is **D** because:

- The malaria parasite infects the erythrocytes (red blood cells)
- The infection will reduce the number of red blood cells and anaemia
- The patient will have fevers due to the body reacting to the infection by raising the temperature

A is incorrect as cholera causes diarrhoea and vomiting

B is incorrect as HIV/AIDS affects the immune system and a patient may show flu-like symptoms when first infected are often asymptomatic until the immune system is severely depleted

C is incorrect as tuberculosis is an infection of the lungs and would not cause anaemia

6

The correct answer is **A** because:

- TB is caused by two species of *Mycobacterium*, either *M. bovis* or *M. tuberculosis*
- *M. bovis* is transmitted from infected cattle in milk or meat. *M. tuberculosis* is transmitted through droplet infection when coughing or sneezing
- TB can be controlled by vaccination, the BCG vaccination is derived from the *M. bovis* strain and protects 70 – 80%. This is no longer used in the UK and USA as a routine vaccination but when a person is at risk of infection

B is incorrect as malaria is not caused by a bacteria

C is incorrect as cholera is not caused by a virus

D is incorrect as HIV/AIDS cannot be treated with antibiotics as it is a virus

7

The correct answer is **A** because:

- The best way to control a pandemic is to reduce the spread of the disease

- The reduction of flights would prevent the spread of the disease from country to country

B & C are incorrect as killing all birds would not prevent the spread of H5N1 as this was -only given the name bird flu as it is a **cross-species transmission** from birds to humans.

D is incorrect as antibiotics are only used when a person has the infection. They should not be used in patients without the disease as this would increase the risk of resistant strains developing.

8

The correct answer is **D** because:

- Tracking and tracing people that have been in contact with an infected person is the most effective way of controlling measles as this can cause an epidemic
- People at risk could be given a vaccination to help prevent the infection from spreading

A is incorrect as this is a genetically inherited disease so not infectious.

B is incorrect as the control of the insect vector, in this case, the mosquito, can help control the spread of the infection.

C is incorrect as cholera is transmitted by contaminated water so removing the sewage and providing clean water would be the most effective control measure.

9

The correct answer is **D** because:

- All three will increase the spread of malaria
- An increase in drug resistance in the malaria parasite will increase the number of patients that are infected and not treatable
- Migration due to wars will increase the number of areas that have people with the infection
- Increased global temperatures will increase the number of regions with the optimum temperatures for breeding of the *Anopheles* mosquito

10

The correct answer is **C** because:

- Non-infectious diseases are not caused by a pathogen.
- A pathogen is a disease-causing organism. They can be spread from one person to another via different methods of transmission

A is incorrect as non-infectious diseases can affect all ages

B is incorrect as diseases caused by malnutrition can be non-infectious but not all non-infectious diseases are caused by malnutrition

D is incorrect as Diseases that are transmitted are by definition infectious