

# Symbiosis

23. Adult beef tapeworms live in the intestine of humans. Segments of the adult worm are released in the faeces. Embryos that develop from them remain viable for five months. The embryos may be eaten by cattle and develop in their muscle tissue.

Which row in the table identifies the roles of the human, tapeworm embryo and cattle?

	Role		
	Human	Tapeworm embryo	Cattle
A	host	resistant stage	secondary host
B	host	vector	secondary host
C	secondary host	vector	host
D	secondary host	resistant stage	vector

24. The following statements describe symbiotic relationships between organisms.

- 1 Rhinos allow oxpecker birds to eat the parasitic ticks which live on their skin.
- 2 Spider crabs provide a habitat for algae which grow on them camouflaging the crabs from predators.
- 3 Female *Anopheles* mosquitoes feed on human blood from which they gain nutrients needed for the production of their eggs.

Which of these relationships can be described as mutualistic?

- A 2 only
  - B 3 only
  - C 1 and 2 only
  - D 2 and 3 only
3. The bacteria *Streptomyces* is a microorganism found in soil. It produces a secondary metabolite, the antibiotic streptomycin, which kills other microorganisms. *Streptomyces* live in close association with plant roots. These plants produce soluble carbohydrates which are released into the soil through their roots.

(b) The relationship between *Streptomyces* and the plant roots is described as mutualistic.

(i) Suggest the benefit to *Streptomyces*. 1

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(ii) Suggest the benefit to the plant. 1

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**B** Write notes on parasitic relationships and transmission of parasites. 4

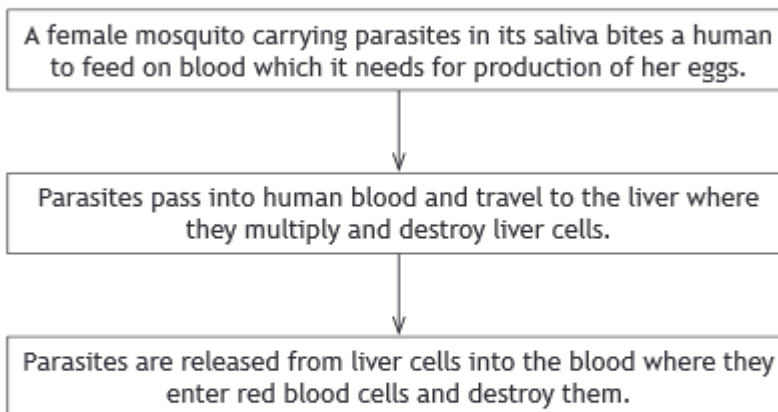
17. The following statements describe symbiotic relationships between organisms.

- 1 Mistletoe plants absorb nutrients from apple trees on which they grow.
- 2 Egyptian Plover birds clean the teeth of Nile crocodiles and feed on the debris they remove.
- 3 Tapeworms live in the small intestine of pigs and absorb some of their nutrients.

Which of these relationships can be described as parasitic?

- A 2 only
- B 3 only
- C 1 and 2 only
- D 1 and 3 only

12. Malaria is a disease in humans caused by a parasite which is transmitted from human to human by mosquitoes. The stages of infection in humans are shown in the flow diagram below.



- (a) (i) Identify the vector in this parasitic relationship. 1

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- (ii) Give a reason why only female mosquitoes transmit the malaria parasite. 1

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- (b) Explain the effect of a parasitic relationship on the host. 1

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- (c) Two methods used to control the spread of malaria are described below.

Method 1 – mosquito repellent applied to the skin.

Method 2 – anti-malarial drugs that kill the parasite.

Choose one of these methods and explain how it can reduce the number of cases of malaria. 1

Method \_\_\_\_\_

Explanation \_\_\_\_\_

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