

**AS Level Biology B**  
**H022/01** Foundations of biology

**Question set 5**

1 There are different types of vaccine for immunising against different diseases.

The table below shows three different types of vaccine.

Complete the missing information in the table.

(a) Type of vaccine	Features of the vaccine	Advantage
<p>.....</p> <p>.....</p>	<p>Non-pathogenic, modified strains of the bacteria or virus are used</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Isolated extracted antigens</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>Can produce vaccines for different strains of bacteria/viruses</p>
<p>Killed inactivated pathogens</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

[3]

(b) In 2015, a trial was conducted in Guinea, Africa to test the effectiveness of the vaccine rVSV-ZEBOV against the Ebola virus.

- Researchers wanted to save as many lives as possible, so ring vaccination was used during the trial instead of a placebo.
- In communities where at least one new case of the disease had been reported, 7651 participants were randomly assigned to one of two groups.
- Group one were vaccinated immediately after Ebola was reported.
- Group two were vaccinated ten days after group one.
- The incubation time for the Ebola virus is ten days.

Results showed that there were no new cases of Ebola among the 4123 people in group one and 16 cases among the 3528 people in group two.

- (i) What was the purpose of **group two** in this trial? . [1]
- (ii) Discuss the ethical issues related to this trial. [2]
- (iii) Using the information, evaluate the effectiveness of the rVSV-ZEBOV vaccine. [2]

**Total Marks for Question Set 5: 8**



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