

4 Meiosis is involved in the production of gametes such as human egg cells and sperm cells.

- (a) An investigation was carried out to study the effect of changing the temperature on spindle fibre formation in human egg cells during meiosis.

Five human egg cells undergoing meiosis at 37 °C were incubated at 25 °C for 10 minutes and then returned to 37 °C. After 20 minutes, the number of egg cells showing spindle fibre formation was recorded.

The investigation was repeated at three different incubation temperatures.

The results are shown in the table below.

Incubation temperature / °C	Number of human egg cells used	Number of human egg cells showing spindle fibre formation
25	5	0
28	5	2
33	5	5
37	5	5

- (i) Suggest why some of the human egg cells were incubated at 37 °C throughout this investigation.

(1)

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- (ii) Using the information in the table, describe the effect of temperature on spindle fibre formation in human egg cells.

(2)

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(b) A student made the statement that all 5 cells would have shown spindle fibre formation if the incubation temperature had been either 35 °C or 31 °C.

- (i) Using the information in the table, give evidence to support part of this statement.

(2)

- (ii) Using the information in the table, give evidence that may **not** support part of this statement.

(2)



(6)

(Total for Question 4 = 13 marks)

