

Antibiotics

Question Paper 5

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Infectious disease
Sub Topic	Antibiotics
Booklet	Theory
Paper Type	Question Paper 5

Time Allowed : 24 minutes

Score : / 20

Percentage : /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

1 *Plasmodium falciparum* is the causative agent of the most severe form of malaria.

It is distributed throughout the tropics.

(a) Explain why malaria is restricted to the tropics.

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..... [2]



The haploid number of *P. falciparum* is 14.

Fig. 5.1 shows the life cycle of *P. falciparum*.

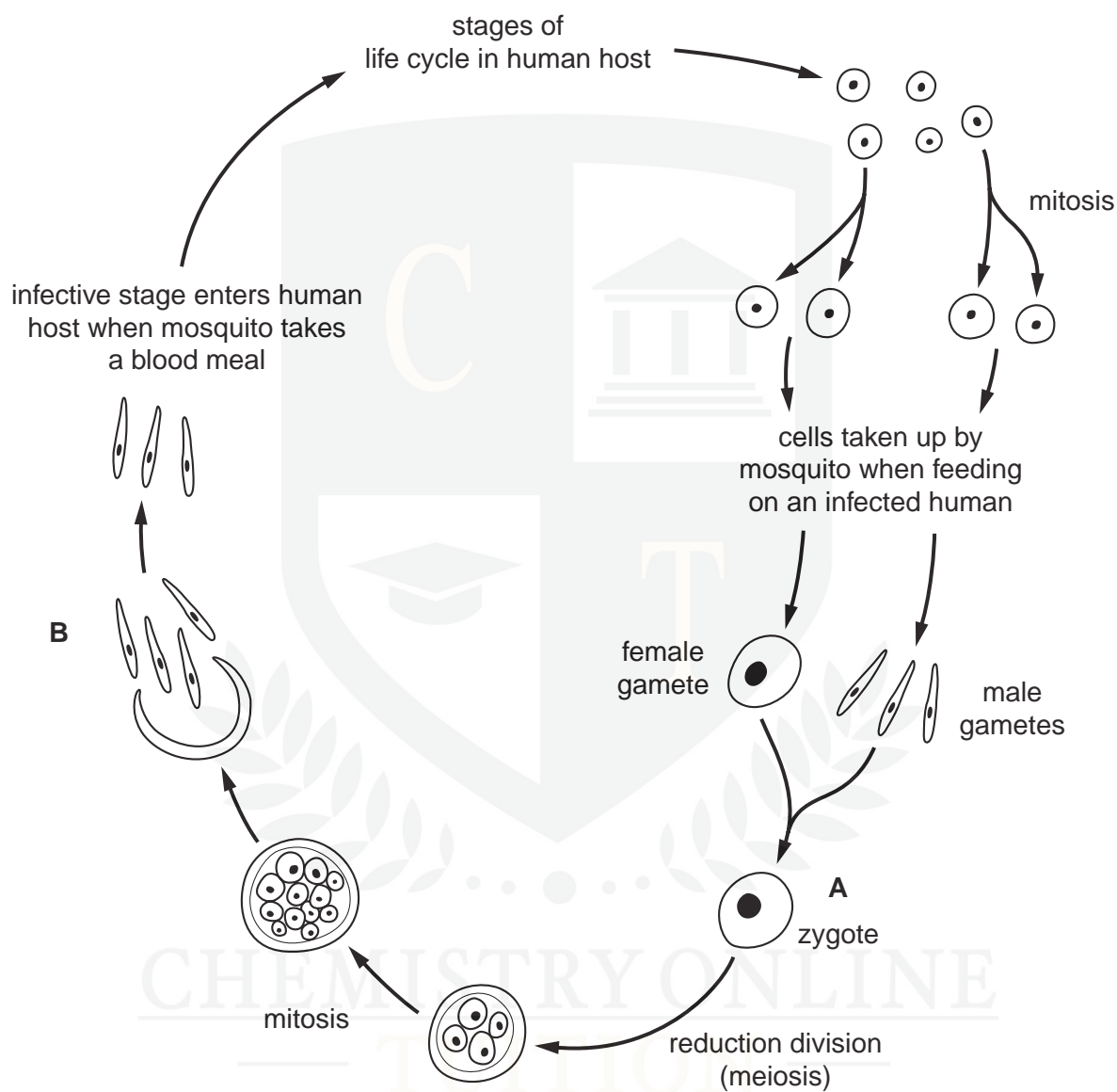


Fig. 5.1

(b) (i) State the number of chromosomes present at stages **A** and **B**.

A

B [2]

- (ii) Explain why a reduction division (meiosis) occurs during the life cycles of organisms, such as *Plasmodium*, that reproduce sexually.

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- (c) Explain why it has proved difficult to develop a vaccine for malaria.

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[Total: 10]

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2 Table 5.1 shows blood cell counts for three different people.

Table 5.1

	number of cells per mm ³ of blood		
	healthy person at sea level	healthy person acclimatised to high altitude	person with a bacterial infection
red blood cells	5 400 000	6 100 000	5 300 000
T helper lymphocytes	1 000	1 050	850
phagocytes	5 400	5 600	8 750

- (a) (i) Calculate the percentage increase in the number of red blood cells in the person acclimatised to high altitude compared with the person at sea level. Show your working and express your answer to the nearest whole number.

Answer = [2]

- (ii) Explain the advantage of this increase in red blood cells to people who live at high altitude.

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.....[2]

- (b) State the roles of phagocytes and T helper lymphocytes during an immune response to a bacterial infection.

phagocytes

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T helper lymphocytes

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(c) Antibiotics are used to treat people with bacterial infections.

Explain the danger of the widespread use of antibiotics to treat disease.

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[2]

[Total: 8]

