



**A-level  
ENVIRONMENTAL SCIENCE**

**Paper 2**

**7447/2**

**Insert**

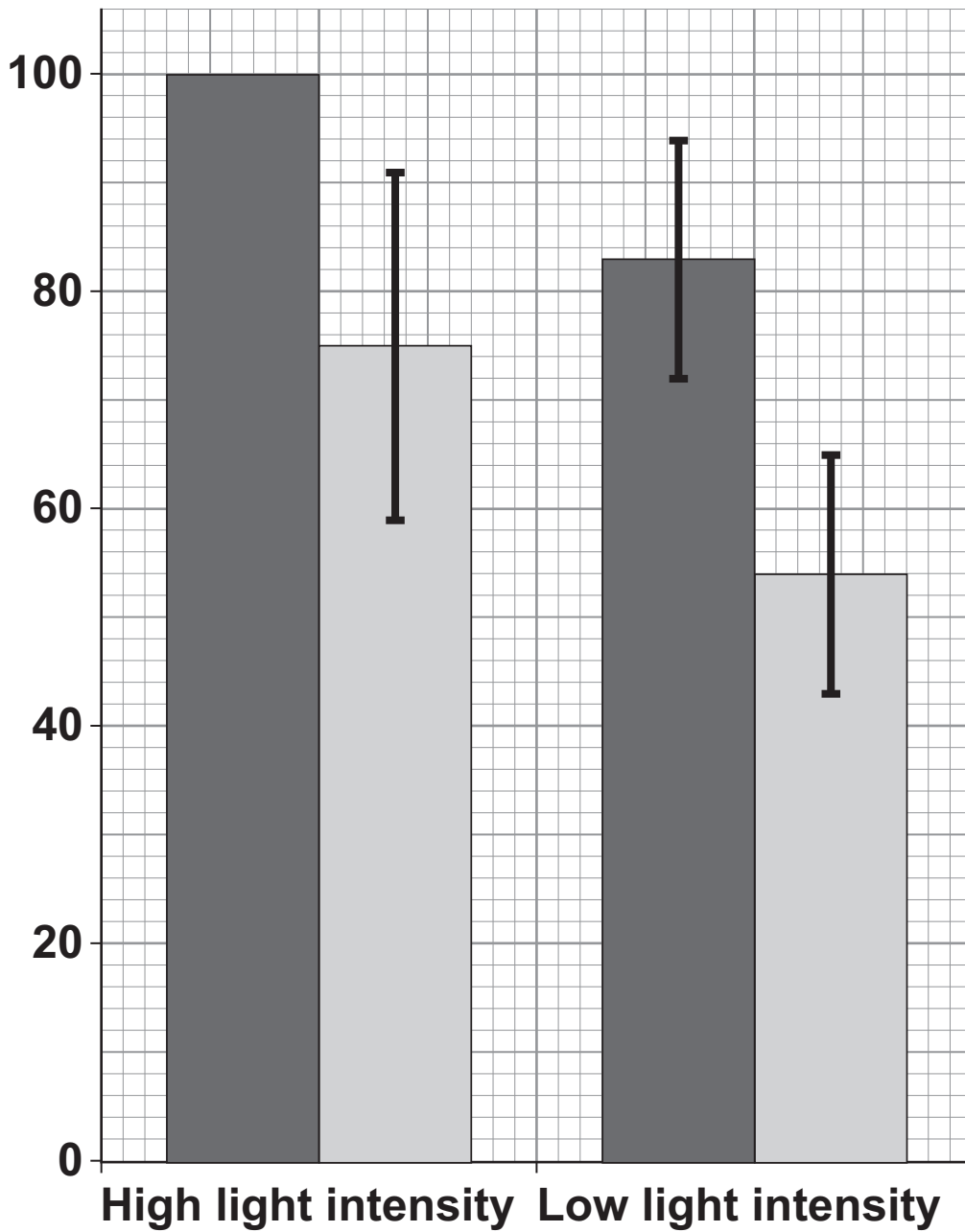
**[Turn over]**

TABLE 3

<b>Plantation</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Cultivation method</b>	<b>Shaded by taller trees</b>	<b>Shaded by taller trees</b>	<b>Direct sunlight</b>	<b>Direct sunlight</b>
<b>Area / ha</b>	<b>750</b>	<b>1000</b>	<b>900</b>	<b>850</b>
<b>Light levels / lux</b>	<b>560</b>	<b>560</b>	<b>1200</b>	<b>1200</b>
<b>Air temperature / °C</b>	<b>25.5</b>	<b>20.5</b>	<b>26.0</b>	<b>20.0</b>
<b>Soil temperature / °C</b>	<b>21.0</b>	<b>18.5</b>	<b>19.7</b>	<b>18.0</b>
<b>Humidity / % saturation</b>	<b>70</b>	<b>60</b>	<b>50</b>	<b>45</b>
<b>Relative wind velocity</b>	<b>Low</b>	<b>Low</b>	<b>High</b>	<b>High</b>
<b>Coffee harvest / t ha<sup>-1</sup></b>	<b>2.1</b>	<b>1.8</b>	<b>3.1</b>	<b>2.6</b>
<b>Reduction in harvest caused by CLR / %</b>	<b>15</b>	<b>12</b>	<b>30</b>	<b>24</b>

FIGURE 3

Infected  
leaves / %



KEY

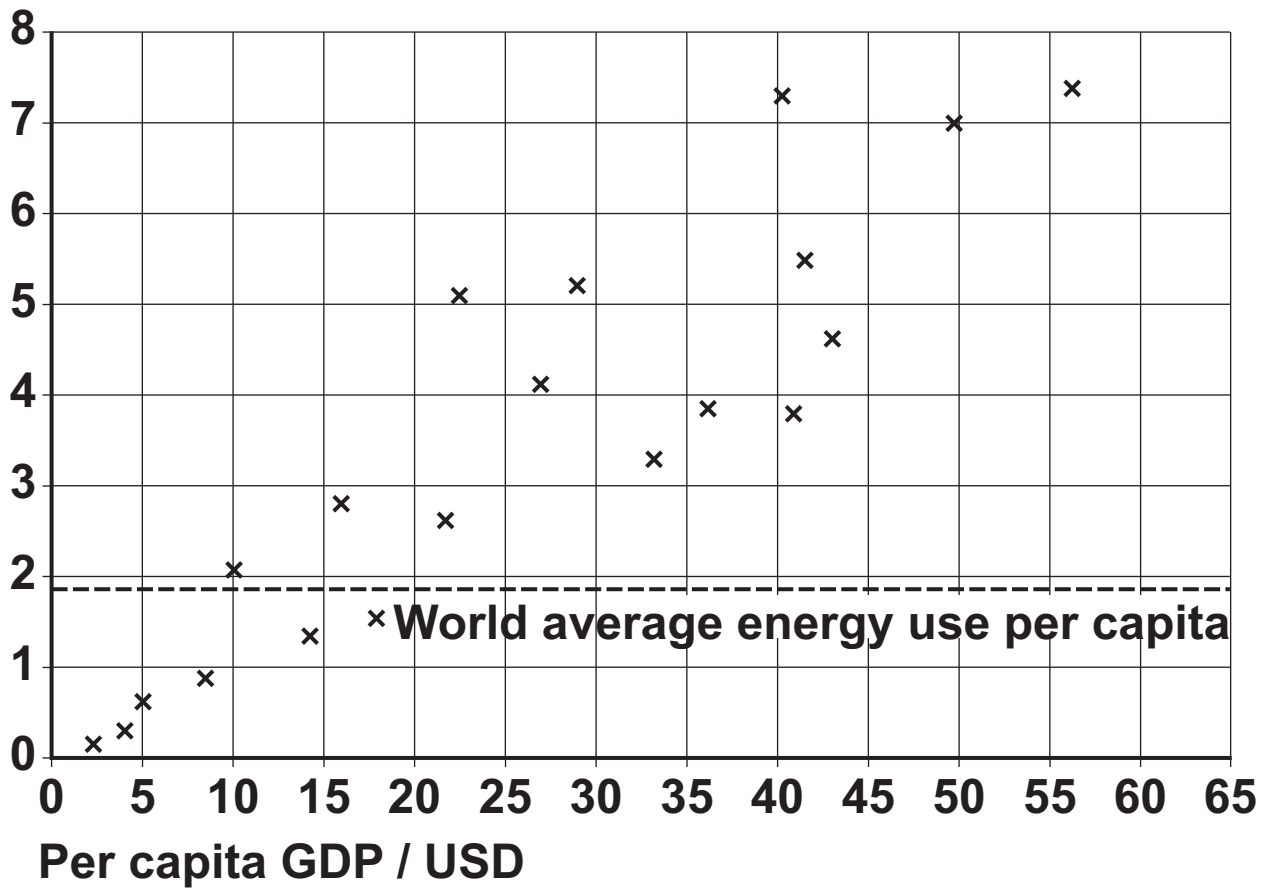
■ 23° C – 27° C    □ 18° C – 22° C

┃ Standard deviation

[Turn over]

FIGURE 4

Per  
capita  
energy  
use /  
tonnes  
of oil



**TABLE 5**

<b>Year</b>	<b>Number of days with temperature below 0 °C</b>	<b>Number of introduced species surviving</b>
<b>1900</b>	<b>75</b>	<b>1</b>
<b>1910</b>	<b>80</b>	<b>1</b>
<b>1920</b>	<b>80</b>	<b>1</b>
<b>1930</b>	<b>75</b>	<b>1</b>
<b>1940</b>	<b>78</b>	<b>1</b>
<b>1950</b>	<b>75</b>	<b>2</b>
<b>1960</b>	<b>50</b>	<b>2</b>
<b>1970</b>	<b>36</b>	<b>3</b>
<b>1980</b>	<b>35</b>	<b>4</b>
<b>1990</b>	<b>33</b>	<b>6</b>
<b>2000</b>	<b>28</b>	<b>11</b>
<b>2010</b>	<b>15</b>	<b>18</b>

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**TABLE 6**

Sample interval / m	Percentage of species cover in each quadrat along the transect															
	Quadrat number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	20	30	50	40	30	30	10	20	30	20	10	20	30	50	80	70
2	20		50		30		10		30		10		30		80	
4	20				30				30				30			
8	20								30							

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TABLE 9

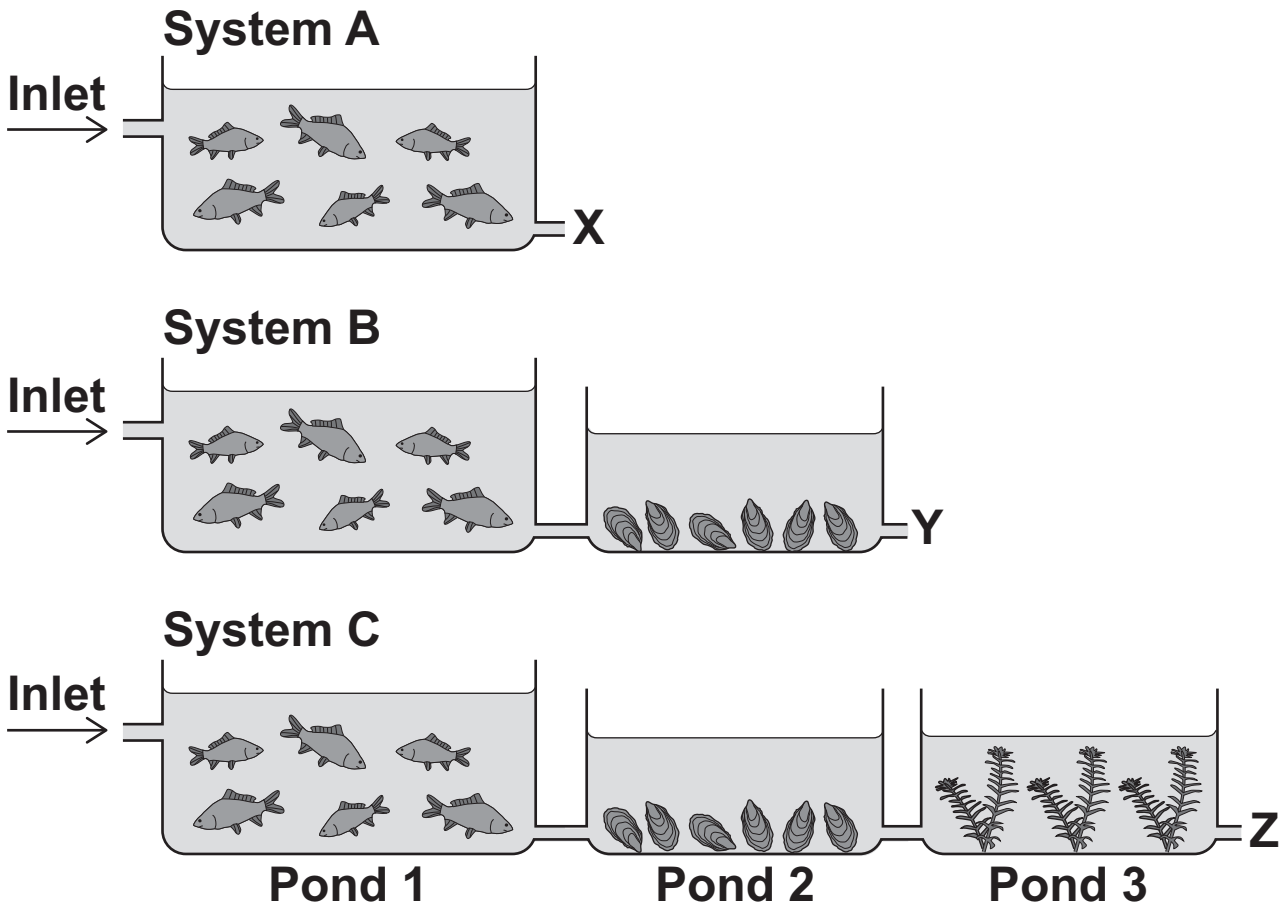
Degrees of freedom (total number of samples -2)	p-values					
	0.20	0.10	0.05	0.02	0.01	0.001
	Critical values					
1	3.078	6.314	12.706	31.821	63.657	636.619
2	1.886	2.920	4.303	6.965	9.925	31.598
3	1.638	2.353	3.182	4.541	5.841	12.941
4	1.533	2.132	2.776	3.747	4.604	8.610
5	1.476	2.015	2.571	3.365	4.032	6.859
6	1.440	1.943	2.447	3.143	3.707	5.959
7	1.415	1.895	2.365	2.998	3.499	5.405
8	1.397	1.860	2.306	2.896	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073



Degrees of freedom (total number of samples -2)	p-values					
	0.20	0.10	0.05	0.02	0.01	0.001
	Critical values					
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.767
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725

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FIGURE 9



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