Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/33**

Paper 3 Theory (Core) **October/November 2017**

MARK SCHEME

Maximum Mark: 80

Published

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Mark schemes will use these abbreviations

- **;** separates marking points
- / alternatives
- **I** **I**
- **R** reject
- **A** **A** (for answers correctly cued by the question, or guidance for examiners)
- AW alternative wording (where responses vary more than usual)
- AVP any valid point
- **ecf** credit a correct statement / calculation that follows a previous wrong response
- **ora** or reverse argument
- ( ) the word / phrase in brackets is not required, but sets the context
- underline actual word given must be used by candidate (grammatical variants excepted)
- max indicates the maximum number of marks that can be given

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>1(a)</td><td>any 2 from
feathers / beak / wings / hard-shelled eggs / two legs ;;</td><td>2</td><td></td></tr>
<tr><td>1(b)</td><td><table><tr><th>name of bird</th><th>letter</th></tr><tr><td>pied avocet</td><td>A</td></tr><tr><td>Andean avocet</td><td>B</td></tr><tr><td>common sandpiper</td><td>C</td></tr><tr><td>banded stilt</td><td>E</td></tr><tr><td>whimbrel</td><td>D</td></tr></table>;;;;</td><td>4</td><td>4 or 5 correct = 4 marks
3 correct = 3 marks
2 correct = 2 marks
1 correct = 1 mark</td></tr>
<tr><td>1(c)(i)</td><td>idea of long legs allow them to wade in shallow water ;

idea of long beaks to, dig up / catch their prey ;

AVP ;</td><td>2</td><td></td></tr>
<tr><td>1(c)(ii)</td><td>natural selection ;</td><td>1</td><td>A adaptation / evolution / survival of the fittest</td></tr>
</table>

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2(a)(i)</td><td>H ;</td><td>1</td><td></td></tr>
<tr><td>2(a)(ii)</td><td>bladder ;</td><td>1</td><td></td></tr>
<tr><td>2(b)</td><td>(ureter) carries, urine/urea, from the kidneys / to the bladder ;

(urethra) carries, urine/urea, from the bladder to the outside ;</td><td>2</td><td>A transports urine for 1 mark only</td></tr>
<tr><td>2(c)(i)</td><td>amino acids ;</td><td>1</td><td>R if more than one answer</td></tr>
<tr><td>2(c)(ii)</td><td>liver ;</td><td>1</td><td></td></tr>
<tr><td>2(d)</td><td>
<table>
<tr><th colspan="2">rest day</th><th colspan="2">race day</th></tr>
<tr><th>water input from / cm^3</th><th>water loss from / cm^3</th><th>water input from / cm^3</th><th>water loss from / cm^3</th></tr>
<tr><td>respiration 400</td><td>faeces 100</td><td>respiration 500</td><td>faeces 100</td></tr>
<tr><td>food 500</td><td>skin 400</td><td>food 500</td><td>skin 1900</td></tr>
<tr><td>drink 1500</td><td>breathing 400</td><td>drink 2000</td><td>breathing 600</td></tr>
<tr><td></td><td>urine 1500</td><td></td><td>urine 400</td></tr>
<tr><td>Total 2400</td><td>Total 2400</td><td>Total 3000</td><td>Total 3000</td></tr>
</table>
;
;</td><td>2</td><td>4 correct = 2
2 or 3 correct = 1
1 correct = 0</td></tr>
<tr><td>2(e)</td><td>increased volume (of urine) ;

(urine is) more dilute / less concentrated ;</td><td>2</td><td></td></tr>
</table>

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>3(a)</td><td>
<table>
<tr><th>action</th><th>chronic obstructive pulmonary disease</th><th>coronary heart disease</th><th>HIV infection</th><th>liver disease</th><th>lung cancer</th></tr>
<tr><td>drinking alcohol</td><td></td><td>(✓)</td><td></td><td>✓</td><td></td></tr>
<tr><td>injecting heroin</td><td></td><td>(✓)</td><td>✓</td><td>(✓)</td><td></td></tr>
<tr><td>smoking tobacco</td><td>✓</td><td>✓</td><td></td><td></td><td>✓</td></tr>
</table>
;
;
;</td><td>3</td><td></td></tr>
<tr><td>3(b)</td><td>contains nicotine ;
addictive / withdrawal symptoms / AW ;</td><td>2</td><td></td></tr>
<tr><td>3(c)(i)</td><td>woman’s blood alcohol reaches a higher peak ;

woman’s blood alcohol reaches its peak later / slower ;

woman’s blood alcohol takes longer to return to the original level / AW ;

after 12 minutes the woman’s blood alcohol is higher than the man’s ;</td><td>2</td><td></td></tr>
<tr><td>3(c)(ii)</td><td>70 ;</td><td>1</td><td></td></tr>
<tr><td>3(c)(iii)</td><td>20 ;</td><td>1</td><td>ecf from 3(c)(ii)</td></tr>
<tr><td>3(c)(iv)</td><td>differences in size / ref. to enzyme activity / metabolism / genetic predisposition / age / more active liver / AVP ;</td><td>1</td><td>A different food intake / tolerance to alcohol</td></tr>
</table>

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Question	Answer	Marks	Guidance
4(a)	**G** as first letter **;** **E D F** in the middle **;** **A** as the last letter **;**	**3**	**A EFD**
4(b)	barrier **;** surgical **;** chemical **;**	**3**	
4(c)(i)	(infection transmitted) via exchange of (named)body fluids **;** during sexual contact **;**	**2**	
4(c)(ii)	AIDS **;**	**1**	
4(c)(iii)	(contaminated) blood transfusions / organ transplants / sharing needles / breast feeding / birth / blood to blood contact / AVP **;**	**1**	**R** saliva

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Question	Answer	Marks	Guidance
5(a)(i)	pollen (grains) **;**	**1**	
5(a)(ii)	ovules **;**	**1**	
5(a)(iii)	anthers **;**	**1**	
5(a)(iv)	stigma **;**	**1**	
5(b)	*insect - pollinated* petal shape / landing platform / mimicry AW **;** colour **;** nectar / nectaries **;** guideline **;** sticky / spikey / large, pollen **;** anthers / stamens enclosed **;** *wind - pollinated* small / no petals **;** exposed anther / stigma **;** feathery stigma **;** loosely attached anthers **;** large quantity of pollen **;** smooth / light, pollen **;**	**4**	max 3 from either section. **I** scent / smell **I** any ref to seeds
5(c)	(suitable) temperature **;** oxygen **;** water **;**	**2**	

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Question	Answer	Marks	Guidance
6(a)	(they are) producers **;** makes its own food **;** ref to photosynthesis **;** animals / consumers cannot make their own food / get food from plants **;**	**3**	
6(b)(i)	desert plants → kangaroo rat / lizard → snake → hawk **;**	**1**	**R** if more or less than 4 organisms given
6(b)(ii)	hawk **;** snake **;** fox **;**	**2**	
6(c)	*scorpions* population decrease **;** less food **;** *desert plants* population increases **;** idea of less predation / less herbivores / primary consumers to eat them / AW **;**	**4**	

Question	Answer	Marks	Guidance
7(a)(i)	chlorophyll **;**	**1**	
7(a)(ii)	palisade (mesophyll) **;**	**1**	**A** guard cell / spongy mesophyll cell
7(b)(i)	cuticle **;**	**1**	
7(b)(ii)	(upper) epidermis **;**	**1**	
7(c)	*xylem* water / mineral ions **;** *phloem* sugars **;**	**2**	**A** other correctly named molecules e.g. sucrose / amino acids
7(d)(i)	stomata **;**	**1**	
7(d)(ii)	carbon dioxide **;**	**1**	**A** water <u>vapour</u>
7(d)(iii)	oxygen **;**	**1**	

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Question	Answer	Marks	Guidance
8(a)(i)	hormones **;**	**1**	
8(a)(ii)	pancreas **;**	**1**	
8(a)(iii)	reduce blood, sugar / glucose, concentration **;**	**1**	
8(b)	blood / plasma **;**	**1**	
8(c)(i)	changing the genetic material (of an organism) **;** by, removing / changing / inserting individual genes **;**	**2**	
8(c)(ii)	herbicide resistance / pest resistance / production of vitamins / drought resistance / frost resistance / AVP **;**	**1**	

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Question	Answer	Marks	Guidance
9(a)(i)	(male) black (fur) (female) white (fur) **;**	**1**	
9(a)(ii)	**bb ;**	**1**	
9(a)(iii)	**Bb ;**	**1**	
9(b)(i)	**BB** and **Bb ;**	**1**	
9)b)(ii)	3 (black) : 1 (white) **;**	**1**	

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