Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/32**

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

MARK SCHEME

Maximum Mark: 80

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is a registered trademark.

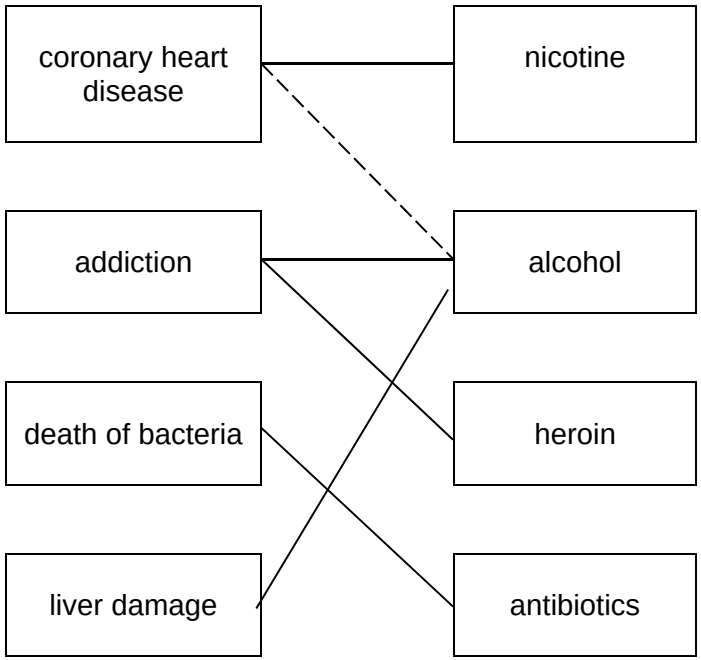
This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

© UCLES 2017

Mark schemes 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

© UCLES 2017

Question	Answer	Marks	Guidance
1	 ;;;;;	**5**	1 mark for each correct line up to max 5 deduct a mark for each incorrect line when more than 5 are drawn **A** link between addiction and nicotine link between liver damage and heroin

Question	Answer	Marks	Guidance
2(a)	(**A**) petal **;** (**B**) anther / stamen **;** (**C**) stigma / filament **;** (**D**) ovule **;**	**4**	**I** style / carpel **I** ovum / ovary / seed

© UCLES 2017

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2(b)</td><td>
<table>
<tr><td>structure</td><td>how a wind-pollinated flower differs from the flower in Fig. 2.1</td><td>reason for difference</td></tr>
<tr><td>anther</td><td>loosely attached</td><td>easily shaken by wind to release pollen</td></tr>
<tr><td>petals</td><td>small / absent / dull / inconspicuous / not colourful / green / not wide / not long ;</td><td>no need to attract pollinators / insects not required ;</td></tr>
<tr><td>stigma</td><td>large / feathery / long / protruding / exposed / hairy / wide / tall / thick ;</td><td>(large surface area) to, catch / trap / receive, pollen ;</td></tr>
<tr><td>pollen</td><td>smooth / light / small / more / not sticky ;</td><td>easily carried(by wind) / higher chance of pollination ;</td></tr>
</table>
</td><td>6</td><td>AW throughout

I scent / nectary</td></tr>
</table>

Question	Answer	Marks	Guidance
3	femidom **;** vagina **;** sperm **;** surgical **;** sperm duct **;** chemical **;**	**6**	

Question	Answer	Marks	Guidance
4(a)(i)	13 (days) **;**	**1**	
4(a)(ii)	flower food prolongs the life of the flower / petals take longer to drop off if the plant has flower food / **ora ;**	**1**	**A** flowers in water for water only **I** growth
4(b)(i)	xylem **;**	**1**	**I** vascular bundle / vein **A** tracheid
4(b)(ii)	source of energy / energy released **;** by respiration **;** AVP **;** e.g. use of glucose to form other (named) molecules	**2**	**A** correct, word / symbol equation for respiration for max 1
4(b)(iii)	an organism that gets its energy **;** from, dead / waste, (organic) material **;**	**2**	

© UCLES 2017

Question	Answer	Marks	Guidance
5(a)	(**R**) epidermis **;** (**S**) palisade **;** (**T**) guard cell / cytoplasm **;** (**V**) stoma / stomata **;**	**4**	
5(b)	1 photosynthesis **;** 2 carbon dioxide and water (substrate) / AW **;** 3 glucose and oxygen (produced) **;** 4 <u>energy</u> needed comes from light / light <u>energy</u> converted to chemical energy **;** 5 chlorophyll / chloroplasts, traps / absorb, the light (energy) **;** 6 carbon dioxide from the air / water from the soil **;**	**4**	 **A** mp2 and mp3 in a correct, word / symbol equation **A** sun / sunlight mp5 must be stated (not inferred by being placed on an arrow in an equation) **I** from the roots

© UCLES 2017

Question	Answer	Marks	Guidance
6(a)	<table><tr><th colspan="2"></th><th>name of insect</th><th>letter on Fig. 6.1</th></tr><tr><td>1</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td>Melolontha</td><td>J</td></tr><tr><td></td><td></td><td>Cyriopalus</td><td>E</td></tr><tr><td>3</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td>Trigonopterus</td><td>F</td></tr><tr><td></td><td></td><td>Ceutorhyncus</td><td>K</td></tr><tr><td>5</td><td></td><td>Stephanorrhina</td><td>H</td></tr><tr><td></td><td></td><td>Attagenus</td><td>G</td></tr></table>	**5**	5 or 6 correct = 5 4 correct = 4 3 correct = 3 2 correct = 2 1 correct = 1
6(b)(i)	jointed legs / exoskeleton / segmented body **;**	**1**	
6(b)(ii)	*any two from:* crustacean **;** myriapods **;** arachnids / chelicerata **;**	**2**	**I** centipedes / millipede **I** individual species names

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>7(a)(i)</td><td>
<table>
<tr><th>role in the food web</th><th>name of the organism</th></tr>
<tr><td>a producer</td><td>algae ;</td></tr>
<tr><td>a primary consumer</td><td>shrimp / mayfly (larvae) / blackfly (larvae) ;</td></tr>
<tr><td>an organism that is both a secondary and a tertiary consumer</td><td>trout ;</td></tr>
</table>
</td><td>3</td><td></td></tr>
<tr><td>7(a)(ii)</td><td>six ;</td><td>1</td><td></td></tr>
<tr><td>7(a)(iii)</td><td>(the) Sun ;</td><td>1</td><td></td></tr>
<tr><td>7(b)</td><td>kingfisher:
numbers decrease ;
lack of, food or energy / starvation / migration ;

shrimps:
number decrease ;
(leeches will increase as not eaten by trout so) more leeches will eat (more) shrimp / more predators (of the shrimp);</td><td>4</td><td></td></tr>
<tr><td>7(c)</td><td>arrow from caddisfly larva to duck (name in a box) ;

arrow from aquatic plant (name in a box) to duck ;</td><td>2</td><td></td></tr>
</table>

© UCLES 2017

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>8(a)(i)</td><td>liver ;</td><td>1</td><td></td></tr>
<tr><td>8(a)(ii)</td><td>amino acids ;</td><td>1</td><td></td></tr>
<tr><td>8(b)</td><td>
<table>
<tr><th>letter on Fig. 8.1</th><th>name of structure</th><th>function of structure</th></tr>
<tr><td>L</td><td>renal artery</td><td>transports blood to the kidney</td></tr>
<tr><td>M</td><td><u>ureter</u>;</td><td>transports urine / urea, from kidney / to bladder ;</td></tr>
<tr><td>N</td><td>bladder ;</td><td>stores / keeps urine / urea ;</td></tr>
<tr><td>P</td><td>vena cava ;</td><td>transport blood to the heart / carries deoxygenated blood ;</td></tr>
</table>
</td><td>6</td><td></td></tr>
<tr><td>8(c)</td><td>water ;

salt(s) / (named mineral) ions ;

AVP ;;</td><td>2</td><td>I glucose / proteins

A mineral(s)

e.g.
hormones / vitamins / ammonia / creatinine</td></tr>
<tr><td>8(d)(i)</td><td>lung(s) ;</td><td>1</td><td>A gills</td></tr>
<tr><td>8(d)(ii)</td><td>blood / plasma ;</td><td>1</td><td>A red blood cell
I blood vessels</td></tr>
</table>

© UCLES 2017

Question	Answer	Marks	Guidance
9(a)	impaired judgement / reduced self-control / reduced inhibitions **;** increased / slower, reaction time **;** depressant **;** reduced coordination / blurred vision / double vision **;** AVP **;**	**2**	AW throughout **I** liver damage / high blood pressure e.g. drowsiness / dizziness / brain damage
9(b)	1 number of deaths (for, men / women) increases and decreases **;** 2 male deaths increase until 2006 and decrease from 2008 **;** 3 female deaths increase until 2008 then decrease / AW **;** 4 reference to plateau (in men or women) / AW **;** 5 both decrease from 2008 **;** 6 number of male deaths (always) higher than number of female deaths / **ora ;**	**3**	
9(c)(i)	17 (per 100 000 population) **;**	**1**	
9(c)(ii)	63 **;;**	**2**	**A** 9×7 or $\frac{9 \times 700\,000}{100\,000}$ = 1mark

Question	Answer	Marks	Guidance
9(c)(iii)	*decreases because:* 1 education / campaigns / people more aware (of dangers) **;** 2 ref to economic reason / price of alcohol has increased **;** 3 legislation / car drivers breathalysed and fined / alcohol banned in public places **;** 4 social, awareness **/** pressures **;** 5 AVP **;** e.g. better health care / safer cars **OR** *increases because:* 1 addiction / people disregard their health **;** 2 people unaware of dangers **;** 3 more alcohol, available / affordable **;** 4 more advertising (of alcoholic products) **;** 5 peer / social, pressure **;**	**2**	AW throughout

Question	Answer	Marks	Guidance
10(a)(i)	adrenaline **;**	**1**	
10(a)(ii)	wide pupils **;** increased, heart / pulse, rate **;** increased breathing rate **;** increased size of respiratory passages / AW **;** increased level of glucose in blood **;** AVP **;**	**2**	e.g. increased blood pressure / increased alertness / redistribution of blood / reduced pain perception AW

© UCLES 2017