



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY

0610/32

Paper 3 Theory (Core)

October/November 2016

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2016 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

© IGCSE is the registered trademark of Cambridge International Examinations.

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

This document consists of **15** printed pages.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Abbreviations used in the Mark Scheme:

- ; separates marking points
- / alternatives
- I ignore
- R reject
- A accept (for answers correctly cued by the question, or guidance for examiners)
- AW alternative wording
- 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 words given must be used by the candidate (or grammatical variants of them)

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
1(a)(i)	arachnida / arachnids;	1	
1(a)(ii)	8 legs / 4 pairs of legs; 2 part body / cephalothorax and abdomen; no antennae; simple / multiple, eyes;	2	
1(b)	crustaceans; myriapods; insects;	2	
		Total: 5	

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
2(a)	<p>air / droplet; (pathogens) inhaled/breathed in (to lungs);</p> <p>indirect contact / food / liquids / contaminated surfaces or object or water;</p> <p>eat / ingest or drinking / touch surfaces / touch objects / via clothing / linen;</p> <p>broken skin; bites / cuts / grazes / needle stick;</p> <p>blood / (named) body fluids; blood transfusions / sexual contacts / sharing needles;</p> <p>direct / physical, contact; skin to skin / touching someone;</p> <p>AVP with explanation;</p>	4	

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
2(b)(i)	skin; <i>idea of</i> beneficial bacteria (on skin/in gut/in vagina); nose hair; mucus; stomach acid / HCl/ gastric juices; ear wax; tears/ saliva; vaginal secretions / AW; scabs seal wounds / blood clots; AVP;	2	

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
2(b)(ii)	<p>keep food covered; kitchen free from animals (pets/rodents/insects etc)/equipment for killing pests/empty waste bins frequently;</p> <p>keep cooked and uncooked food separate; <i>idea of</i> correct storage temperature for food; thawed food not re-frozen; cook food, thoroughly/at correct temperature;</p> <p>wash/clean, food; wash/clean/sterilise, hands; wash/clean/sterilise, equipment; wash/clean/sterilise/use anti-bacterial sprays, on preparation surface; no smoking in the kitchen;</p> <p>different, preparation surfaces/chopping boards, for different food groups; dry surfaces;</p> <p>use within (use by) dates; keep wounds under waterproof dressings; use gloves/hair nets; AVP;</p>	2	

Page 7	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
2(b)(iii)	vaccination / immunisation / inoculation / antiseptics / disinfectants / sterilising / boiling water; water treatment / sewage treatment / chlorination of drinking water managed land-fill sites; insecticide sprays / mosquito nets / rat poison; condoms; AVP;	1	
		Total: 9	

Question	Answer	Mark	Guidance
3	B; H; C; G; B/D; F; H;	7	
		Total: 7	

Page 8	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
4(a)(i)	produced /replaced, as rapidly as it is removed; from the environment; so it does not run out;	2	
4(a)(ii)	<i>sustainable resource</i> : forests / wood / timber / fish stocks / biofuels; <i>non-sustainable resource</i> : fossil fuels / e.g. of fossil fuel / mineral reserves / ores AVP;	2	
4(b)	<p>1 screening /filtering or removal of, solids /large objects;</p> <p>2 settling or heavy objects /grit, sink to bottom;</p> <p>3 microbes /bacteria, decompose organic matter in aerobic conditions;</p> <p>4 aeration;</p> <p>5 organic material removed by anaerobic micro-organisms;</p> <p>6 chlorine added / UV light / ozone / sterilisation / use of disinfectants / bactericides;</p> <p>7 distillation;</p>	3	
		Total: 7	

Page 9	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
5(a)	<p><i>J</i> – larynx;</p> <p><i>K</i> – trachea;</p> <p><i>L</i> – bronchus;</p> <p><i>M</i> – lung;</p>	4	
5(b)	<p>P;</p> <p><i>idea of:</i> large(r) surface area (than N) / alveolar wall is thin(ner) / small diffusion distance / blood vessel closer to alveolar wall (than R or N) / more rapid diffusion of gases / thin(ner) or smaller cells than Q;</p>	1 1	
5(c)(i)	<p>oxygen and glucose (on LHS);</p> <p>water and carbon dioxide (on RHS);</p>	2	

Page 10	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
5(c)(ii)	<p><i>energy needed for:</i></p> <ul style="list-style-type: none"> 1 contraction of muscle fibres /body movement; 2 (examples of) chemicals reactions; 3 cell division /growth /repair; 4 passage of nerve impulses; 5 brain activity; 6 maintenance of constant body temperature; 7 reproduction /embryo development; 8 digestion; 9 excretion; 10 AVP; 	3	
		Total: 11	

Question	Answer	Mark	Guidance
6(a)	<p>movement of water;</p> <p>by diffusion / down a concentration gradient;</p> <p>through a partially permeable membrane;</p>	3	
6(b)(i)	<p>A: cell wall;</p> <p>B: cytoplasm;</p> <p>C: nucleus;</p>	3	
6(b)(ii)	label line to end, on /in, central vacuole;	1	

Page 11	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
6(c)	absorbs water / water moves or diffuses into cell / enters the cell; (cell) gets bigger; vacuole gets bigger; cell wall pushed out / AW; (cell) becomes turgid / turgor pressure increases; AVP;	3	
		Total: 10	

Question	Answer	Mark	Guidance
7		5	
		Total: 5	

Page 13	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
8(a)	urine / excretion; breathing / exhaling; faeces / egestion;	2	
8(b)	sweat comes from sweat glands; (sweat / water) on skin surface; water evaporates; using heat energy from the body; ref. to blood carries heat; loss of heat energy lowers body temperature; AVP; e.g. ref. to latent heat e.g. ref. to energy levels in water molecules	4	
8(c)(i)	<u>9</u> (arbitrary units per hour);	1	

Page 14	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
8(c)(ii)	(more) weight carried, the more sweat produced / ora; when there is no load, sweat is still produced OR little difference in sweating between no load and 3 kg load; the relationship is not linear / a greater volume of sweat is produced when the increase is from 6 to 9 kg than when the increase is from 3 to 6 kg / AW; data quote comparison of figures;	2	
8(d)(i)	92(%);;	2	$\frac{24.0 - 12.5}{12.5} \times 100$ or $\frac{11.5}{12.5} \times 100$
8(d)(ii)	the track suit adds mass; track suit material, is an insulator / traps heat; more heat retained in body / temperature raised / body is hotter / AW;	2	
		Total: 13	

Page 15	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0610	32

Question	Answer	Mark	Guidance
9	chlorophyll; glucose / starch; palisade; stomata; epidermis; chlorophyll;	6	
		Total: 6	

Question	Answer	Mark	Guidance
10(a)	root hair (cell);	1	R root
10(b)	line ending on xylem tissue in root; line ending on xylem tissue in stem;	2	
10(c)(i)	stomata in / transpiration from, lower surface of leaf; jelly blocks the stomata in M / no stomata blocked in L ; stomata are needed for, transpiration / water loss;	2	
10(c)(ii)	little transpiration from / few stomata on, the upper surface; more, transpiration / water loss, from the lower surface of leaf; (so) jelly has little effect / AW;	2	
		Total: 7	