Your Science Online

Cambridge IGCSE Biology 0610 style

CELLS – MARK SCHEME

Maximum mark: 41 (Core: 38). ";" separates marking points. Accept correct alternative wording. Apply error carried forward (ecf) where shown. Do not award a final-answer mark if the unit is wrong or missing, unless the unit is printed on the answer line.

Question	Answer	Marks	Guidance
1(a)	A cell wall; B cell membrane; C chloroplast; D nucleus;	4	do not allow: cell wall and cell membrane the wrong way round allow: plasma membrane for B
1(b)	(large / permanent) vacuole;	1	allow: sap vacuole
1(c)	any two from: cell wall; chloroplast; (large permanent) vacuole;	2	accept letters A, C, E if named do not allow: nucleus / cell membrane / cytoplasm
1(d)	photosynthesis / absorbs light (energy) to make glucose / food;	1	allow: contains chlorophyll to absorb light
2(a)	P circular DNA; Q plasmid; R ribosome;	3	allow: loop of DNA / chromosome for P do not allow: nucleus for P
2(b)	not in a nucleus / no nucleus / free in the cytoplasm / circular / in plasmids;	1	
2(c)	protein synthesis;	1	allow: make proteins / make enzymes
2(d)	(aerobic) respiration; release energy (for the cell);	2	do not allow: "make energy" / "produce energy" for 2nd mark
3(a)	ciliated cell: moves mucus (in the trachea and bronchi); root hair cell: absorbs water and mineral ions; red blood cell (named); palisade mesophyll: photosynthesis; neurone / nerve cell (named);	4	1 mark per correct row (5 rows; max 4) allow: "nerve cell" for neurone
3(b)	long extension / hair; larger surface area (for absorption);	2	allow: thin wall so short distance for 1 mark if not given above
3(c)	more space for haemoglobin;	1	allow: carries more oxygen
3(d)	many mitochondria release (a lot of) energy (by respiration); energy needed for the tail to move / swimming (to the egg);	2	do not allow: "make energy"
4(a)	cell, tissue, organ, organ system, organism;	1	all correct for the mark

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Question	Answer	Marks	Guidance
4(b)	group of cells with similar structures, working together to perform a shared function;	1	
4(c)	group of tissues working together to perform specific functions;	1	
4(d)	leaf / root / stem / flower;	1	
5(a)	actual size = image size / magnification **or** 45 / 1500; 0.030 (mm);	2	allow 0.03 mm
5(b)	30 (micrometres);	1	ecf from (a) × 1000
5(c)	magnification = image size / actual size **or** 60 / 0.020; (×) 3000;	2	
5(d)	10 mm = 10 000 micrometres **or** 2.0 micrometres = 0.0020 mm; (×) 5000;	2	units must be the same before dividing
6(a)	peel a thin layer of (onion) epidermis (with forceps); place it (flat) on a (clean) slide in a drop of water; lower a cover slip on top; view with the low-power objective first / focus with the coarse focus knob, then high power;	4	allow: “use tweezers” allow: “so light can pass through” for thin layer
6(b)	to stain the cells / make structures (e.g. nucleus) easier to see;	1	
6(c)	to avoid trapping air bubbles;	1	

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