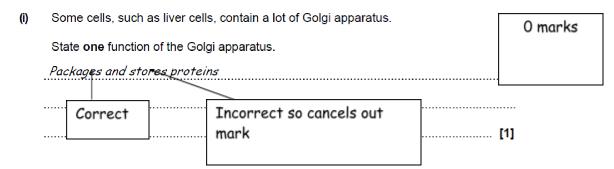
Common and Silly Mistakes

1. Putting a right answer and then missing out on the mark because you then put a wrong answer!

F211 - June 2011

1 (a) Fig. 1.1, on the insert, shows an electron micrograph of cells from the liver.



	Question		Expected Answer		Additional Guidance
1	(a)	(i)	production of vesicles / packaging proteins ;		Mark the first answer. If the first answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks ACCEPT lipids IGNORE ref to transport / secretion / exocytosis / substances / materials DO NOT CREDIT stores proteins
			modification of / processing of / adding carbohydrate to , proteins ;		ACCEPT makes glycoproteins
			production of lysosomes ;	max 1	

2. Missing out key words/using the incorrect key words:

2 (b) (ii) State two examples of active transport in cells.

For each example, you should name the substance that is transported and the cell involved.

Potassium-into the root hair

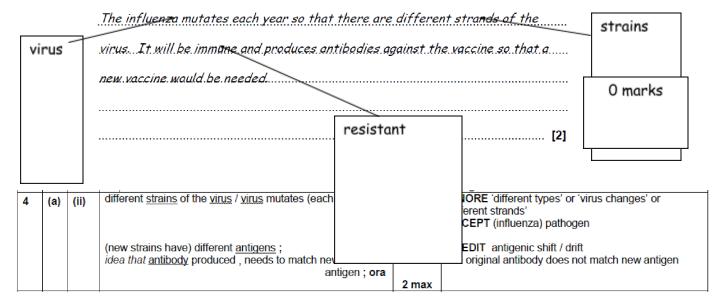
Water by osmosis

Missing word: ions

Wrong - Water moves passively

C	uesti	estion Expected Answer		Mark	Additional Guidance		
2	(p)	(ii)			Mark the first two		g. nitrates.
			(mineral) ions / salts / named e.g, (into) root hair (cell);		phosphates, calc	symbols with charg	
					DO NOT CREDIT		
			hydrogen ions (out of) companion cells ;		ACCEPT ref to los		
							companion cell
			(mineral) ions / salts / named e.g, (across) endodermis; sucrose out of sieve tube at sink;		ACCEPT ref to up		cells lining , e / nephron / PC
					IGNORE reference		exocytosis / ytosis / secretion
					DO NOT CREDIT		
							state
			AVP;;		e.g.		
					substance	cell	(direction)
					sodium/potassium ion(s)	neurone	K ⁺ in Na⁺out
					sodium/potassium	named cell	Ion pump to drive
					ion(s)		cotransport
					potassium ion(s)	guard cell (to open stomata)	in
					sodium ion(s)	cell of loop of Henle	out
					calcium ion(s)	muscle cell	(into sarcoplasmi reticulum)
					calcium ions	presynaptic knob	out
					hydrogen ions	in cell , respiring (aerobically) /	for chemiosmosi
					named ion(s)	photosynthesising cells lining distal	in / out

- When discussing enzymes remember they have a specific ACTIVE SITE. Do noty just say they have a specific SHAPE.
- In cell signalling receptors and signalling molecules have COMPLIMENTARY shapes not matching/same shapes.
- 4 (a) (ii) Suggest why the influenza vaccine has to be changed each year.



	(a)	(II	State why the English Elm clone is genetically isolated from other varieties of elm.				
			They are all genetically identical becaus	e it re	produc	ces asexually by sucke	rs.
						Missing word: only	[1]
3	(a)	(ii)	rarely / do not , produce seed / cross-pollinate / interbreed ; only reproduce asexually ;	1 max			

3. Mistakes with simple calculations - show your working and double check all calculations!

stage of cell cycle	percentage cells in stage (%)
interphase	82.00
prophase	4.34
metaphase	3.23
anaphase	3.23
telophase	7.20

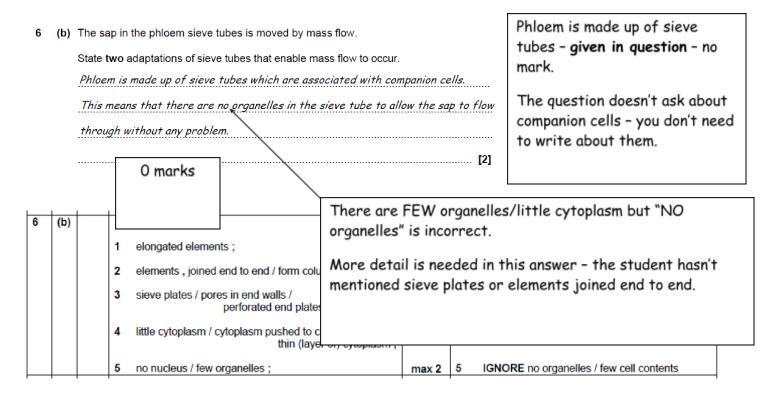
This question relies on your understanding that nuclear division is prophase, metaphase, anaphase and telophase are ALL part of nuclear division (mitosis) so you need to add up the % figures.

4 (c) Using the results shown in Table 4.1, calculate the percentage of the cell cycle taken up by nuclear division.

Show your working.	
4.34 + 3.23 + 3.23 + 72.0 = 18 + 80	This part not needed
	1 mark
Answer =22.5	% [2]

Question		Question Expected Answer		Mark	Additional Guidance	
(c)		Two marks for correct answer, even if no working shown				
		18.00;;		CREDIT 18 / 18.0		
				If answer is incorrect or missing allow one mark for working		
				100 – 82		
				or 4.34.+ 3.23 + 3.23 + 7.20		
			_	or 18 somewhere in working		
			(c) Two marks for correct answer, even if no working shown	(c) Two marks for correct answer, even if no working shown		

4. Repeating the question in your answer



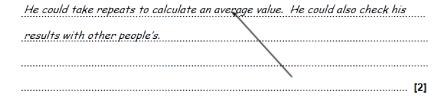
5. 1	Vot	enou	ugh detail - the number of marks shou	ıld be	the nu	mber of separate points.		
2	(a)	Enzym	nes are biological catalysts.			1 mark		
		Explain the term biological catalyst.						
		It's an enzyme that speeds up chemical reactions						
		More detail needed - what is an enzyme?						
	0	#i						
2	Ques (a)	uon	(enzymes are) proteins / used in metaboli	1		<u> </u>	ne body'	
	'		named metabolic pathway;		IGNO	DRE 'biological / enzyme / in nature'		
			alter rate of (chemical) reaction / lowers activation energy provides alternative route for reaction is not changed / is not used up	n /) ;		EPT does not take part in reaction 'speed up metabolic reactions' = 2 marks		
4	(b)	Tamif	lu® is an antiviral drug that can be used to treat influer	nza pati	ents.			
			State why a doctor would not prescribe antibiotics to t			Must say what antibiotics D	0	
			Because flu is a caused by a virus.					
	Question		Expected Answers			Additional Guidance		
4	(b)	(i)	(antibiotics) are, not effective against viruses / effective (only) against bacteria (and fungi / protozoa);	1	IGNORE ACCEPT	antibiotics do not kill viruses viruses are resistant to antibiotics correct ref to detail of antibiotic action, e.g. s attack cell wall which is not present in		
				-	mucilza	(VII GO)	_	

6. Use the term MEAN rather than AVERAGE.

(b) (iii) The student collected the data shown in Table 2.1.

F	or each exampleative (%) ould name	the substance that is transported	and the cell
	5	4	
	10	7	
	12	10	
	25	28	

Suggest how the student could check the reliability of the data.



C	Question		uestion Expected Answers		Additional Guidance
2	(b)	(iii)	repeat / replicate; compare replicate values / identify anomalous results;		e.g compare replicates with Table 2.1
			mean / range / standard deviation / error bars / % error ;		IGNORE average
			compare results with , others' / book / internet , values / results ;		Must contain the idea of other investigators ACCEPT 'look up normal values on the internet'
				2 max	

7. When asked to compare, you must make sure you make comparative statements:

F214 - June 2011

2 (a) The nervous system is made up of a number of different types of neurone, which transmit electrical impulses.

Complete the table below by stating **three** differences in the structure of motor and sensory neurones.

At AS , one box in the row may be filled in. With A2, the table is likely to be blank.

motor neurone	sensory neurone
Carries messages from the CNS	Carries messages from the CNS
Has a dendron and the cell body sticks out from the rest of the cell at the centre	Cell body is at the end of the cell
Has a short axon	Doesn't have a dendron
	•

Not messages - IMPULSES

This is not a comparative statement as the 2 boxes discuss different parts of the structure

[3]

(Question		Expected Answer		Answer	Mark	Additional Guidance	
1	(a)						Award 1 mark for each correct side by side comparison. Comparative statements must be made on the same row. ALLOW two valid comparisons in the same pair of boxes, e.g Cell body at end of Cell body in middle neurone in the CNS and in the PNS = 2 marks	
				motor neurone	sensory neurone			
			1	cell body in CNS	cell body , not in CNS / in PNS	;	mps 2, 3 and 4 can be taken from a labelled diagram All mps can be taken from annotated diagrams	
			2	cell body at end (of neurone)	cell body , not at end / in middle (of neurone)	;		
			3	dendrites connect directly to cell body	dendrites do not connect directly to cell body or dendrites at the end(s) of , dendron / axon	;		
			4	long(er) axon	short(er) axon	;		
			5	dendron absent / no dendron	dendron present	;		
			6	ends at motor end plate	starts at / connects to , (sensory) receptor	;		
						3		

8. Giving up because you don't recognise the words in the question:

3 Fatigue is a symptom of some medical conditions. One feature of fatigue is extreme tiredness, due to a lack of energy.

Medical conditions that have fatigue as a characteristic symptom include Type 2 diabetes, certain heart conditions, chronic fatigue syndrome (CFS) and emphysema.

(a) Explain how emphysema could result in fatigue.

It means that there's less oxygen getting in and getting to the cells so there is less energy as there is ne respiration.	
	There is LESS respiration not NO respiration
[2]	
I've never heard of emphysema. What is it? It's not on the syllabus.	Yes it is - in F212. At A2 20% of the marks are synoptic. This
	question simply asks you to apply your knowledge!
[2]	

Question	Expected Answer	Mark	Additional Guidance
(a)			IGNORE 'produces' energy in any mark point
	less ventilation / ldea of difficulty in exhaling due to less recoil / small surface area for gaseous exchange / less oxygen entering capillanes / less oxygen entering blood;		1 DO NOT CREDIT no oxygen
	2 less oxygen (reaching cells) for , (aerobic) respiration / oxidative phosphorylation ;		2 DO NOT CREDIT no respiration
	3 (so) less ATP produced;		3 DO NOT CREDIT no ATP
	4 idea of increased acidity (as CO ₂ / lactate builds up) interfering with / affects , enzymes / respiratory metabolism ;	2 max	

9. Don't use negative statements:

2	Animals behave in ways that enhance their survival and reproductive capacity. This behaviour may be
	innate or learned.

(a)	Des	scribe what is meant by:
	(i)	innate behaviour
		It's instinctive. You're born with it. You don't have to think about it.

(ii)	learned behaviour Learned behaviour isn't instinctive.	This is a negative statement.

(Quest	ion	Expected Answers	Marks	Additional Guidance
2	(a)	(i)	1 instinctive; 2 genetic / genetically determined / inherited; 3 rigid / fixed pattern / inflexible;		IGNORE born with it / present from birth ACCEPT description. Same in all members of species or
			4 <u>stereotyped / stereotypical</u> ;		performed the same all the time
			5 automatic / does not require thought / does not require learning;	2 max	
2	(a)	(ii)	1 (behaviour) changed / altered / learnt , by experience ;		1 ACCEPT taught by parents / learnt by watching others 'due to experience' is not enough. They need to refer to past experience.
			2 ref. memory / association / reinforcement / practice;		
			3 variable;	2 max	3 ACCEPT description. Varies or is different in different members of a species or in one animal at different times