

Q13.

Question Number	Answer	Additional Guidance	Mark
(i)	<ul style="list-style-type: none"> correct measurements from the photograph (1) correct answer 	<u>Example of calculation</u> Starch grain 27mm and width of chloroplast 60mm $27000 \div 22 = 12\ 273$ $60000 \div 12\ 273 = 4.889\ (\mu\text{m})$ ALLOW 4.9 / 4.89 / 4.8 recurring (μm) (ALLOW one mark for correct calculation from different measurements)	(2)

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(ii)	An explanation that makes reference to three of the following: <ul style="list-style-type: none"> (granum) is formed from many layers of thylakoid membranes to increase surface area (for absorbing light) thylakoid membranes contain chlorophyll to absorb light electron carrier molecules in thylakoid membrane involved in ATP production 	ALLOW stacks of thylakoids provide a large surface area ALLOW photosystems / photosynthetic pigments in place of chlorophyll ALLOW for light dependent reaction in place of absorb light ALLOW ATP synthase / photophosphorylation	(3)