Q	Answer as per MS	Marks	NOTES
1 (i)	(actual length of bacterium) = size / length, of the image ÷ magnification;		$\text{Magnification} = \frac{\text{image}}{\text{object}}$.
(ii)	2.6 (µm) ;		$0.0026 \times 10^3 = 2.6\ \mu m$.
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2 (i)	image size ÷ actual size ;		$\text{Magnification} = \frac{\text{length of image}}{\text{actual lenght}}$. $\therefore \text{Actual lenght} = \frac{\text{lenght of Image}}{\text{Magnification}}$.
(ii)	55 (µm) ;		$0.055 \times 10^3 = 55\ \mu m$
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3	breakdown of large to small molecules ; from insoluble to soluble ;		Breakdown of large to small molecules to make them soluble.
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4 **(i)**	test-tube 1 **1** (less cloudy), slower break down of egg white solution / protein **;** **2** (no HCl so) pH of the solution is too high **; ora** **3** high pH denatures pepsin / enzyme **;** test-tube 2 **4** hydrochloric acid causes a low pH **;** **5** pepsin works best in / optimal activity, low pH / acidic conditions **;** test-tube 3 **6** pepsin / enzyme, unable to break down, protein / egg white solution **;** **7** boiling denatures, pepsin / enzyme **;** **8** ref to enzyme-substrate complex / fewer successful collisions **;** **9** high pH / boiling, changes shape of active site **;**		$\frac{\text{width of Image}}{2700} = \text{Actual width}.$
(ii)	as a control **;** to show that pepsin is responsible for the protein digestion **;** to show that hydrochloric acid does not digest the protein **;**		$0.0008 \times 10^3 = 0.8\ \mu m.$

5	no nucleus **;** cell wall **;** loop of DNA **;** AVP **;;**		1. Absence of nucleus 2. Cell wall present .
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6	muscle **;** gland **;**		1. Nucleus 2. Cell membrane .
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7	stores / contains, chromosomes / genes / alleles / genetic information / DNA **;** controls the (activity / reactions of the) cell **;** controls how cells, develop / divide / reproduce / grow **;** *idea that it* stores instructions for, making proteins / protein synthesis / making RNA **;** AVP **;**		Nucleus controls the activity of the Cell .
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8	circular DNA / chromosome **;** plasmid(s) **;** cell membrane **;** cell wall(not made of cellulose) cytoplasm **;** capsule **;** (small) ribosomes **;** flagella **;** AVP **;**		1. circular DN. 2. Cell wall (not made of cellulose)
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9 (i)	A cytoplasm ; B nucleus ;		A : Cytoplasm B : Nucleus .
(ii)	forms a barrier between the cell and its surroundings ; keeps contents of cell inside ; allows / controls / (movement of) substances, into / out, of the cell / across membrane ;		Forms a barrier between the cell and its surroundings.
(iii)	irregular shape / rounded shape / not columnar / not cylindrical / not rectangular / no specific shape ;		Unlike the palisade mesophyll cells, the cells shown in the figure do not have a regular shape.
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10	large surface area ; more surface for respiration ; allows, increased / faster / efficient, respiration ;		The inner membrane is folded to increase the surface area which increase the rate of respiration.
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11	cell walls, inelastic / do not stretch / rigid / inflexible / keep shape of cell ; cells, are turgid / have high turgor pressure ; resist any increase in, volume / pressure ; these cells do not absorb excess water ; the cells will not burst ;		Cell walls are inelastic and do not change shape which they would have to if contractive vacuoles were present.
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12	single celled / unicellular ; no (true) nucleus / no nuclear membrane ; loop of DNA ; no, (membrane-bound) organelles ; e.g. no mitochondria / chloroplasts (peptidoglycan / murein) cell wall ; reproduce by binary fission ; small(er) / 70S, ribosomes ; plasmids ;		1. Absence of Nucleus. 2. Cell wall present.
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13	respiration; aerobic (respiration); release energy / make ATP;		Oxidation of glucose to release energy during respiration.
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14	cytoplasm; cell membrane; single celled / unicellular; no (true) nucleus / no nuclear membrane; loop of DNA / chromosome / naked DNA; no, (membrane-bound) organelles / mitochondria / chloroplasts; (peptidoglycan / murein) cell wall; AVP; e.g. plasmids		1. Absence of nucleus. 2. Cell wall present.
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15	it is (made of a group of) tissues working together to perform specific function(s);		A leaf is an organ because it is made up of different tissues, each performing a particular function.
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16	respiration **;** aerobic (respiration) **;** release energy / make ATP **;**		1. Fungi do not contain chlorophyll do not photo synthesize. 2. Fungi feed saprophytic ally or parasitically on organic matter.
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