

Question Number	Answer	Mark										
1(a)	<table border="1"> <thead> <tr> <th>Name of adaptations</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>physiological ;</td> <td>Some metabolic reactions become less efficient in cold weather so the organism generates more heat to keep warm</td> </tr> <tr> <td>behavioural ;</td> <td>Sheep learn to ignore sounds that have no importance to them</td> </tr> <tr> <td>anatomical ;</td> <td>The ears of African elephants are larger than those of Asian elephants, due to differences in the environment</td> </tr> <tr> <td>physiological ;</td> <td>Formation of a sun tan when human skin is exposed to sunlight</td> </tr> </tbody> </table>	Name of adaptations	Example	physiological ;	Some metabolic reactions become less efficient in cold weather so the organism generates more heat to keep warm	behavioural ;	Sheep learn to ignore sounds that have no importance to them	anatomical ;	The ears of African elephants are larger than those of Asian elephants, due to differences in the environment	physiological ;	Formation of a sun tan when human skin is exposed to sunlight	(4)
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1(b)	<p>N.B. D = description; E = explanation Points to be paired i.e. cannot score three marks for three D points</p> <p>1D {haploid / 23 chromosomes / half set of chromosomes in } nucleus ; 1E so that {{diploid / eq} number / full complement / 46 chromosomes} restored(at fertilisation) ;</p> <p>2D lipid droplets / food store / eq ; 2E supplies {energy / nutrients} for division / eq ;</p> <p>3D large (cell) {size / surface area / eq} ; 3E increased chance of fertilisation / eq ;</p> <p>4D reference to {cortical granules / lysosomes / zona pellucida} (in cytoplasm) ; 4E to prevent {more sperm entry / polyspermy / eq} ;</p> <p>5D reference to {release / eq} of a {chemical / eq} ; 5E to attract sperm / chemotaxis / eq ;</p> <p>6D membrane with '(sperm) receptors' on surface / eq ; 6E to allow sperm to {bind / eq} ;</p> <p>7D {much / eq} mRNA present ; 7E to allow early translation of transcription factors / eq ;</p>	max (4)

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1(c)	<ol style="list-style-type: none"> 1. {pine needles /extract / filter paper soaked in extract} placed on {agar plate / in wells / eq} ; 2. with bacterial {lawn / eq} ; 3. reference to sterile/aseptic approach e.g. appropriate reference to sealing ; 4. reference to an appropriate time (for incubation) e.g. 24 hours, 1 week ; 5. (incubate at) a sensible temperature suggested e.g. 25°C ; NOT 37°C / human body temp 6. (looking for) {clear area / inhibition zone / loss of cloudiness /reduced cell number/ eq} (around pine needles, extract / filter paper / wells) ; 7. (clear area) shows no bacteria / eq ; 8. reference to suitable control ; 	<p>max (5)</p>