

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

1)

| (a) | <p><i>transpiration</i> loss of water <u>vapour</u> / evaporation of water ; from, aerial parts of plant / leaves / stomata ;</p> <p><i>transpiration stream</i> movement of water (up xylem vessels) ; from roots to, leaves / air surrounding leaves ;</p> | max 3 | IGNORE evaporation of water vapour | | | | | | | | | | |
|----------------------------|--|-------|---|----------------------------|-----------------------|------------------------|--|--------|--|-----------------|---------------|---|--|
| (b) | F ; G ; K ; | 3 | Only one tick per set – if more than one tick then apply CON IGNORE crosses and hybrid crosses | | | | | | | | | | |
| (c) | <table border="1" data-bbox="408 566 727 743"> <thead> <tr> <th>Xylem</th> <th>Phloem</th> </tr> </thead> <tbody> <tr> <td>(named) mineral(s) / salts</td> <td>sucrose / amino acids</td> </tr> <tr> <td>no, end / cross, walls</td> <td></td> </tr> <tr> <td>lignin</td> <td></td> </tr> <tr> <td>(bordered) pits</td> <td>Plasmodesmata</td> </tr> </tbody> </table> | Xylem | Phloem | (named) mineral(s) / salts | sucrose / amino acids | no, end / cross, walls | | lignin | | (bordered) pits | Plasmodesmata | 4 | Award 1 mark for a correct row. IGNORE ions unqualified / nutrients IGNORE proteins / sugars / minerals / salts for phloem DO NOT CREDIT glucose IGNORE continuous tube DO NOT CREDIT holes / pores |
| Xylem | Phloem | | | | | | | | | | | | |
| (named) mineral(s) / salts | sucrose / amino acids | | | | | | | | | | | | |
| no, end / cross, walls | | | | | | | | | | | | | |
| lignin | | | | | | | | | | | | | |
| (bordered) pits | Plasmodesmata | | | | | | | | | | | | |

2)

| (a) | <table border="1" data-bbox="331 835 794 1305"> <thead> <tr> <th>kingdom</th> <th>membrane-bound organelles</th> <th>cell wall</th> <th>type(s) of nutrition</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>heterotrophic and autotrophic ;</td> </tr> <tr> <td>protocist(s) / <i>Protoctista</i> ;</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>present ;</td> <td></td> <td></td> </tr> <tr> <td>plant(s) / <i>Plantae</i> ;</td> <td></td> <td>(present and made of) cellulose ;</td> <td></td> </tr> <tr> <td></td> <td>present ;</td> <td></td> <td></td> </tr> </tbody> </table> | kingdom | membrane-bound organelles | cell wall | type(s) of nutrition | | | | heterotrophic and autotrophic ; | protocist(s) / <i>Protoctista</i> ; | | | | | present ; | | | plant(s) / <i>Plantae</i> ; | | (present and made of) cellulose ; | | | present ; | | | 6 | Mark the first answer in each box. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks IGNORE case of initial 'P' ACCEPT '✓' or 'yes' IGNORE case of initial 'P' ACCEPT '✓' or 'yes' |
|-------------------------------------|---|-----------------------------------|--|-----------|----------------------|--|--|--|---------------------------------|-------------------------------------|--|--|--|--|-----------|--|--|-----------------------------|--|-----------------------------------|--|--|-----------|--|--|---|--|
| kingdom | membrane-bound organelles | cell wall | type(s) of nutrition | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | heterotrophic and autotrophic ; | | | | | | | | | | | | | | | | | | | | | | | | |
| protocist(s) / <i>Protoctista</i> ; | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | present ; | | | | | | | | | | | | | | | | | | | | | | | | | | |
| plant(s) / <i>Plantae</i> ; | | (present and made of) cellulose ; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | present ; | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (b) | fungi ; | 1 | Mark the first answer. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks ALLOW fungus / fungal / fungae IGNORE case of initial 'f' | | | | | | | | | | | | | | | | | | | | | | | | |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

| | | | | |
|-------|---|--|-------|---|
| (c) | | <i>Assume answers refer to 3 domain classification unless otherwise stated</i> | 3 max | CREDIT Latin forms of domain names throughout IGNORE case of initial letter |
| | 1 | based on (differences in) , DNA / RNA / nucleic acids / polynucleotides ; | | 1 CREDIT in the context of an example |
| | 2 | <i>idea that more accurately reflects origins (of, prokaryotes / eukaryotes) ;</i> | | |
| | 3 | (domain) divides / AW , prokaryotes ; ora | | 3 'prokaryotes are split into groups because bacteria and archaea are different' = 2 marks (mp 3 and 4) |
| | 4 | <i>idea that domain reflects differences / AW , between (eu)bacteria and archaea ;</i> | | 4 ACCEPT phonetic spellings of 'archaea' 4 ACCEPT 'archaeobacteria' 4 IGNORE multiple examples for this mp, must be a general statement |
| | 5 | example of two differences to support point 3 or 4 ; | | 5 IGNORE if mp 3 or 4 not awarded 5 e.g. (differences between) cell wall / cell membrane / flagella / (named) RNA enzymes / ATPase / proteins bound to genetic material / DNA replication / transcription etc |
| | 6 | (domain) groups / AW , eukaryotes together ; ora | | 6 IGNORE as part of a list of domains. Answer must state that eukaryotes have been placed in the same group. 6 'eukaryotes are placed in the same group because they have similarities' = 2 marks (mp 6 and 7) 6 IGNORE 'are similar' |
| | 7 | <i>idea that domain reflects the fact that there are similarities between eukaryotic kingdoms ;</i> | | 7 IGNORE multiple examples for this mp, must be a general statement |
| 8 | example of two or more similarities to support point 6 or 7 ; | 8 IGNORE if mp 6 or 7 not awarded 8 e.g. all eukaryotes have, nuclei / membrane bound organelles / 80S ribosomes / large cell size / linear DNA / chromosomes / histones etc. | | |
| Total | | | 40 | |

3)

| QUESTION | ANSWER | MARKS | GUIDANCE |
|----------|--|-------|--|
| (a) | <p>1 <u>natural / directional , selection ;</u></p> <p>2 <u>mutation ;</u></p> <p>3 (mutation / genetic variation, is) random / due to chance / spontaneous / <u>pre-existing ;</u></p> <p>4 <u>selection pressure</u> is lack of / competition for , food / prey ;</p> <p>5 individuals with mutation(s) / allele(s) / gene(s) (for echolocation) , <u>survive ;</u> ora</p> <p>6 (echolocation) allele(s) / gene(s) / mutation(s) , passed on (to next generation) ;</p> <p>7 over many generations frequency of , echolocation / allele / characteristic , increases ;</p> | 4 max | <p>2 DO NOT CREDIT if implied as a consequence of selection pressure</p> <p>4 ACCEPT 'selection pressure is ability to hunt' 4 ACCEPT 'selective pressure'</p> <p>5 IGNORE refs to breeding / reproduction 5 ACCEPT 'individuals that can echolocate survive' ora 5 DO NOT CREDIT if answer implies that echolocation is a learned behaviour</p> <p>6 IGNORE 'genetic trait(s)'</p> <p>7 Answers must imply multiple generations 7 ACCEPT 'over time' as an alternative to 'over many generations' but must be further qualified</p> |
| (b) | (i) | 1 | <p>Mark the first answer. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks</p> <p>IGNORE case of initial letter 'P' DO NOT CREDIT if species name given as well</p> |
| | <i>Pipistrellus ;</i> | | |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

| | | | | |
|-----|-------|--|-------|---|
| (b) | (ii) | <p>similar / same, (body) <u>mass</u> ;</p> <p>similar wingspan ;</p> <p>similar / same, colour ;</p> <p>all characteristics , similar / same, except echolocation / wingspan ;</p> <p>previously unable to measure echolocation (frequency) ;</p> | 1 max | <p>Mark the first answer. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks</p> <p>IGNORE 'similar appearance'</p> <p>ACCEPT 'both 5.5 g'</p> <p>IGNORE 'same'</p> <p>ACCEPT 'almost the same' or 'small difference' or ref to figures</p> <p>ACCEPT 'both (medium to dark) brown'</p> |
| (b) | (iii) | <p>1 genetics / genes / DNA ;</p> <p>2 RNA ;</p> <p>3 amino acid sequences ;</p> <p>4 cytochrome C / fibrinopeptide ;</p> | 2 max | <p>Mark the first two answers only.</p> <p>1 IGNORE chromosomes</p> <p>1 ACCEPT (named) bases</p> <p>1 or 2 CREDIT 'nucleotide sequence / polynucleotide base sequence' for 1 mark if neither of mp 1 nor mp 2 have been awarded</p> <p>3 ACCEPT primary structure of polypeptide</p> <p>4 ACCEPT haemoglobin</p> |
| (b) | (iv) | <p>(inter)breed / AW ;</p> <p>determine if offspring are fertile ;</p> <p>if offspring are infertile / no offspring produced, then different species ; ora</p> | 2 max | <p>ACCEPT 'mate' / 'reproduce'</p> <p>CREDIT 'observe to see if populations are reproductively isolated' as resitting A2 candidate might consider phylogenetic species definition</p> <p>This mark is for assessing the fertility of the offspring</p> <p>'if they belong to the same species they will be able to breed with each other and produce fertile offspring' = 2 marks (1st and 3rd)</p> |
| (c) | | <p><i>Most marks (apart from C2, C5 and D5) are stand alone and do not need to be linked to context. However, max 5 if any statements are mismatched.</i></p> <p>C1 <u>continuous</u> ;</p> <p>C2 (continuous / AW , is) effect of , many genes / polygenic / genes and environment / genetic and environmental / environment ;</p> <p>C3 <u>quantitative</u> ;</p> <p>C4 there is a range / any value is possible / intermediate values / no distinct groups / AW ;</p> <p>C5 <i>example</i> to illustrate any C marking point ;</p> <p>D1 <u>discontinuous</u> ;</p> <p>D2 (effect of) one / few, genes ;</p> <p>D3 little / no, environmental effect ;</p> <p>D4 discrete categories / no intermediates / AW ;</p> <p>D5 <i>example</i> to illustrate any D marking point ;</p> | 6 max | <p><i>For example ' some variation is controlled by only one gene this variation will have intermediates'</i></p> <p>AWARD D2 and C4 but max 5 for the whole question and DO NOT AWARD QWC and put EON in the margin</p> <p>C2 IGNORE alleles</p> <p>C2 IGNORE example of environmental factor, e.g.diet</p> <p>C2 Must be linked to context of continuous variation</p> <p>C3 No ora for discontinuous</p> <p>C5 must be linked to another C mark</p> <p>CREDIT only , body <u>mass</u> / wingspan / colour / range of pitch <u>within</u> species</p> <p>D2 ACCEPT 'there is a gene for pitch' or 'there are high-pitched and low-pitched alleles'</p> <p>D2 ACCEPT any suggestion of a low number of genes</p> <p>D2 IGNORE 'variation is genetic'</p> <p>D3 ACCEPT 'only influences by genes' / AW</p> <p>D3 IGNORE unqualified refs to genes</p> <p>D4 ACCEPT 'set groups'</p> <p>D5 Must be linked to another D mark</p> <p>D5 CREDIT only these examples: low-pitched or high-pitched / pitch variation <u>between</u> species / sex / no bat call between 47 and 52 Hz</p> <p>D5 IGNORE 'colour' as an example to support a D mark</p> |
| (c) | | <p>QWC – Award for successfully relating continuous or discontinuous variation to the effect of genes or environment ;</p> | 1 | <p>Award if candidates have been awarded either</p> <p>C2 and any other C mark</p> <p>or</p> <p>D2 / D3 and one of D1, D4 or D5</p> <p>DO NOT AWARD QWC if any mark has been given in the wrong context</p> |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

4)

| | | | | |
|-----|------|--|-------|---|
| (a) | (i) | 11.3 ; ; | 2 | <p>Correct answer = 2 marks even if no working shown. IGNORE '-' before the number</p> <p>If the answer is incorrect, ALLOW 1 mark for seeing $\frac{(2.75 - 2.44)}{2.75} \times 100$ or $\frac{0.31}{2.75} \times 100$</p> <p>If the answer is not given to 1 decimal place, ALLOW 1 mark for A correct but unrounded answer (11.2727..., 11.27 etc) or A correct answer that has been rounded to the wrong number or decimal places or A correct answer seen but has been rounded incorrectly (eg 11.2)</p> |
| (a) | (ii) | <p>1 non-smokers' FEV higher than smokers' ; ora</p> <p>2 smokers' FEV , declines / falls / drops / decreases (over time) ;</p> <p>3 widening gap (between smokers and non-smokers) / rate of decline is lower in non-smokers / smaller reduction in non-smokers ;</p> <p>4 non smokers' (FEV) increases then decreases / peaks ;</p> <p>5 non-smokers' (curve / FEV / lung function) has peak at 1.5 years and 2.88 dm³ ;</p> <p>6 appropriate figures to support mp 1 - 3 ;</p> | 4 max | <p>ACCEPT curve / lung function / amount of exhaled air , as AW for FEV</p> <p>1 DO NOT CREDIT FEV is higher at the start (alone) as this implies it is lower later on</p> <p>2 IGNORE 'both decline'</p> <p>3 ACCEPT ora for decline and extent of reduction</p> <p>6 Figures must include 2 FEVs with units linked to time in years and must support the point being made. 6 ALLOW valid calculated comparison 6 ALLOW comparative dates such as '2 years later'</p> |

| Time (years) | FEV ₁ (dm ³) had stopped smoking | FEV ₁ (dm ³) continue to smoke | Acceptable range for difference | Other useful figures: |
|--------------|---|---|---------------------------------|---|
| 0.0 | 2.82 | 2.75 | 0.07 | Increase over 1 ½ years for stopped smoking = 0.06 dm ³ |
| 0.5 | 2.85 | 2.73 | 0.12 | Decrease over 1 ½ years for continue to smoke = 0.06 – 0.07 dm ³ |
| 1.0 | 2.87 | 2.71 | 0.16 | Decrease over from 1 ½ years to 5 years for stopped smoking = 0.10 – 0.11 dm ³ |
| 1.5 | 2.88 | 2.68 – 2.69 | 0.19 – 0.20 | Decrease over from 1 ½ years to 5 years for continue to smoke = 0.24 – 0.25 dm ³ |
| 2.0 | 2.87 | 2.67 – 2.68 | 0.19 – 0.20 | |
| 2.5 | 2.86 | 2.64 | 0.22 | Decrease over 5 years for stopped smoking = 0.04 – 0.05 dm ³ |
| 3.0 | 2.84 | 2.60 | 0.24 | Decrease over 5 years for continuing smokers = 0.31 dm ³ |
| 3.5 | 2.82 – 2.83 | 2.56 – 2.57 | 0.25 – 0.27 | |
| 4.0 | 2.80 | 2.53 | 0.27 | |
| 4.5 | 2.78 – 2.79 | 2.49 | 0.29 – 0.30 | |
| 5.0 | 2.77 – 2.78 | 2.44 | 0.33 – 0.34 | |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

| | | | | |
|-----|-------|---|-------|---|
| (b) | (i) | <p>1 <i>causes</i> tar ;</p> <p>2 (cigarette smoke) destroys / damages / paralyses, cilia / ciliated epithelium ;</p> <p>3 (cigarette smoke stimulates) <u>goblet</u> cells to release <u>more</u> mucus ;</p> <p>4 mucus (in airways) , builds up / cannot be removed / AW ;</p> <p>5 more, pathogens / bacteria / viruses / microbes, collect / trapped / accumulate (in mucus) ;</p> <p>6 <i>idea that</i> cough is an attempt to , increase air flow / remove microbes , by removing mucus ;</p> <p><i>effects</i> 7 (frequent coughing) damages / inflames, (named) airway / alveoli / elastic fibres ;</p> <p>8 formation of scar tissue ;</p> <p>9 airway / bronchi / bronchiole, walls thicken ;</p> <p>10 <u>lumen</u> of , airway / bronchi / bronchiole , narrows ;</p> <p>11 flow of air restricted ;</p> <p>12 (damage to alveoli causes) reduced surface area for , gas exchange / oxygen diffusion ;</p> | 6 max | <p>2 ALLOW in response to any component of cigarette smoke 2 DO NOT CREDIT 'kills cilia' / 'cilia die' 2 IGNORE 'cilia stick together'</p> <p>3 ALLOW in response to any component of cigarette smoke 3 Must contain the idea of more mucus than normal</p> <p>5 IGNORE 'pathogens' alone must have idea of increasing number of pathogens e.g. ACCEPT 'breeding' / 'multiplying' /AW 5 ACCEPT 'higher number of pathogens present' 5 ACCEPT 'infections more likely'</p> <p>6 There must be a reason for removing the mucus 6 ACCEPT 'to clear the throat by removing mucus' 6 ACCEPT 'to reduce infections by removing mucus'</p> <p>7 IGNORE damage to lungs 7 IGNORE damage as a result of elastase / emphysema</p> <p>8 CREDIT in any part of lung</p> <p>9 IGNORE 'trachea' 9 CREDIT 'smooth muscle (in wall) thickens'</p> <p>10 IGNORE 'trachea'</p> <p>11 'airflow restricted due to extra smooth muscle' = 2 marks, mp 9 and 11</p> |
| | | QWC – One cause of cough and one effect of cough | 1 | Award if at least 1 mark has been given from each of the mark scheme sections (1-6 and 7-11) for this question. |
| (b) | (ii) | <p>emphysema ;</p> <p><u>chronic</u> bronchitis ;</p> <p>asthma ;</p> | 2 max | <p>Mark the first answer on each prompt line. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks</p> <p>ACCEPT phonetic spellings</p> <p>IGNORE emphysema</p> |
| | (iii) | <p>1 <u>elastin</u> is <u>substrate</u> ;</p> <p>2 (elastin / substrate) binds to / fits into , <u>active site</u> ;</p> <p>3 active site / enzyme / elastase / substrate / elastin, shape changes ;</p> <p>4 <i>idea of</i> closer fit (between active site and substrate) ;</p> <p>5 <u>more</u> bonds form (between substrate and active site) ;</p> <p>6 forms enzyme-substrate-complex / ESC ;</p> <p>7 <i>idea that</i> (change in shape of active site) destabilises / weakens , bonds (in substrate) / substrate ;</p> <p>8 activation energy reduced ;</p> <p>9 <i>idea of</i> further shape change of, active site / enzyme, after products form ;</p> | 5 max | <p>1 Must be a clear statement</p> <p>2 IGNORE complementary 2 ACCEPT goes in to</p> <p>3/4 CREDIT 'mould around' once for either mp 3 or mp 4 but award the alternate marking point if seen</p> <p>4 ACCEPT eg tighter / more precisely / in a better position</p> <p>5 ACCEPT 'interactions'</p> <p>7 ACCEPT e.g. puts, pressure / strains, on</p> <p>9 IGNORE 'the enzyme is unchanged'</p> |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

5)

| | | | | |
|-------|-------|--|-------|---|
| (a) | (i) | <p>1 <u>artificial selection</u> / <u>selective breeding</u> ;</p> <p>2 select (male and female) sheep that are, larger / woollier / meatier/ have desired characteristics ;</p> <p>3 crossbreed / breed (together) / mate (together) / interbreed ;</p> <p>4 select , best / AW, offspring ;</p> <p>5 <i>idea of breeding</i> (and selecting) for , many / several , generations ;</p> | 3 max | <p>2 ACCEPT 'large / woolly / meaty, male and female that can produce healthy offspring' ;</p> <p>2 'sheep' can be inferred from 'individuals' as it is in the stem of the question</p> <p>3 ACCEPT 'reproduce'</p> <p>5 IGNORE traits passed on through generations, answers must imply breeding and selection</p> |
| | (ii) | <p>(use of) (named) antibiotics ;</p> <p>(use of) (named) pesticides / insecticides / fungicides ;</p> <p>cloning / genetic modification / AW ;</p> <p>artificial insemination / AI / IVF / marker-assisted selection ;</p> <p>hormones ;</p> <p>vaccinations ;</p> | 1 max | <p>Mark the first answer. If the answer is correct and an additional answer is given that is incorrect or contradicts the correct answer then = 0 marks</p> <p>IGNORE refs to 'fertiliser' etc., as 'sheep' is in question stem</p> <p>IGNORE refs to diet</p> <p>ACCEPT 'steroids' / 'growth supplements'</p> <p>IGNORE 'better veterinary care'</p> |
| (b) | (i) | <p>1 broken down by, decomposers / bacteria / fungi ;</p> <p>2 add (named) mineral(s) <u>to soil</u> ;</p> <p>3 nitrate and phosphate and potassium / NPK ;</p> <p>4 specific use of (any) named mineral ;</p> <p>5 lack of (named) , mineral(s) / nutrient(s) / ion(s), is <u>limiting factor</u> (for growth) ;</p> <p>6 <i>example of way</i> in which soil quality is improved ;</p> | 3 max | <p>2 IGNORE nutrients ACCEPT ions</p> <p>3 ACCEPT nitrogen , NO₃⁽⁻⁾, PO₄⁽³⁻⁾, K⁽⁺⁾ NH₃, NH₄⁽⁺⁾, ammonium, ammonia</p> <p>3 IGNORE phosphorous, P , N₂</p> <p>4 eg nitrate or nitrogen for protein, magnesium for chlorophyll, etc.</p> <p>4 DO NOT CREDIT vague uses like 'nitrate for growth'</p> <p>6 ACCEPT for example change in pH / crumb size / air content / moisture content / less leaching of minerals / increased humus / presence of (named) detritivores / less risk of soil erosion</p> |
| | (ii) | <p>1 (fertiliser) promotes <u>growth</u> of, one / few, (plant) species ;</p> <p>2 other (plant) species , out-competed / AW (as a result of competition from crop species) ;</p> <p>3 <i>idea of disruption</i> of food chains ;</p> <p>4 <i>idea of reduction</i> in , soil quality / humus , over time so plants cannot grow ;</p> | 2 max | <p>1 ACCEPT 'once species might grow more than another'</p> <p>1 IGNORE 'yield'</p> <p>2 IGNORE fertilisers / eutrophication , killing other plants</p> <p>2 ACCEPT 'other plants die' in the context of their being out-competed by the crop plant</p> <p>3 DO NOT CREDIT in the context of biomagnification / eutrophication</p> <p>4 ACCEPT 'might change soil pH so some plants can't grow'</p> |
| | (iii) | <p>1 loss of <u>genetic</u> , diversity / variation (in wild population) ;</p> <p>2 environment / agricultural requirements, may change (in future) ;</p> <p>3 (lost) genes / alleles , may have been useful ;</p> <p>4 e.g. of gene useful to agriculture ;</p> <p>5 fewer pollinators ;</p> <p>6 loss of (pest) predators ;</p> | 3 max | <p>IGNORE answers in the context of genetic variation within the domestic population. For example, 'if one plant is susceptible to a disease then they might not all die'.</p> <p>1 ACCEPT small / reduced , gene pool</p> <p>3 ACCEPT 'potential genetic resource may have been lost'</p> <p>4 e.g., <i>gene</i> for pest resistance / disease resistance / heat tolerance / drought tolerance ;</p> <p>4 DO NOT CREDIT immunity to diseases</p> |
| Total | | | 12 | |

CHERRY HILL TUITION OCR BIOLOGY AS PAPER 13 MARK SCHEME

6)

| <i>definition</i> | <i>term</i> |
|--|--------------------|
| sampling in which the observer does not decide when and where to take measurements | random ; |
| a representative group of organisms that are selected from a population | sample ; |
| the area in which an organism lives | habitat ; |
| a measure of the relative numbers of individuals in each species | species evenness ; |
| the frequency of occurrence of plants in a particular area | abundance ; |
| the number of species present in a particular area | species richness ; |

6 DO NOT AWARD mark if two or more answers are given in any box except IGNOREs listed below

IGNORE systematic

IGNORE percentage cover

IGNORE biodiversity