Level 3 International Foundation Diploma for Higher Education Studies
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Biology for University Study

SAMPLE EXAMINATION

This specimen assessment material is devised from previous past papers to reflect the single examination assessment approach now taken for this unit in the Level 3 International Foundation Diploma for Higher Education Studies.

Time allowed: 2 hours

Marking Scheme

This marking scheme has been prepared as a guide only to markers. This is not a set of model answers, or the exclusive answers to the questions, and there will frequently be alternative responses which will provide a valid answer. Markers are advised that, unless a question specifies that an answer be provided in a particular form, then an answer that is correct (factually or in practical terms) must be given the available marks.

If there is doubt as to the correctness of an answer, the relevant NCC Education materials should be the first authority.

Throughout marking, please credit any valid alternative point.

Candidate Name and ID number:		
Marker's comments:		
Moderator's comments:		
Mark:	**Moderated mark:**	**Final mark:**
Penalties applied for academic malpractice:		

Section A – 24 MCQs. Total 24 Marks

Multiple Choice Question

Answer these in your answer booklet – do NOT write on this Question Paper.

Write ONE (1) correct answer from A, B, C, or D for each question in your answer booklet.

Each question is worth 1 mark.

Marks

Question 1 *(AC 1.3)*

Which organelle is larger and more prominent in plant cells compared to animal cells? **1**

A Vacuole
B Golgi apparatus
C Lysosome
D Centriole

Mark Scheme
A. Vacuole

Question 2 *(AC 2.25)*

In which stage of meiosis do homologous chromosomes pair up and exchange genetic material? **1**

A Prophase I
B Metaphase I
C Anaphase I
D Telophase I

Mark Scheme
A. Prophase I

Question 3 *(AC 1.6)*

What is the function of the capsid in a virus? **1**

A To store energy for the virus
B To carry out protein synthesis
C To protect the viral genetic material
D To replicate the virus independently

Mark Scheme
C. To protect the viral genetic material

Marks

Question 4 *(AC 2.27)*

How does genetic variation arise in sexually reproducing organisms? **1**

A Through mutations in gametes
B Through mitosis in somatic cells
C Through asexual reproduction
D Through random fusion of gametes

Mark Scheme
D. Through random fusion of gametes

Question 5 *(AC 1.11)*

Which of the following pairs are reducing sugars? **1**

A Glucose and sucrose
B Fructose and maltose
C Sucrose and maltose
D Sucrose and fructose

Mark Scheme
B. Fructose and maltose

Question 6 *(AC 6.8)*

Where is the antidiuretic hormone (ADH) released from? **1**

A Adrenal gland
B Posterior pituitary gland
C Hypothalamus
D Anterior pituitary

Mark Scheme
B. Posterior pituitary gland

Marks

Question 7 *(AC 1.17)*

Which of the following is **TRUE** about triglycerides? **1**

A They store less energy than carbohydrates due to higher oxygen content
B Being hydrophilic, they increase osmotic water uptake in cells
C Myelin sheath lipids are not primarily triglycerides
D Their oxidation releases water, aiding desert animals' hydration

Mark Scheme
D. Their oxidation releases water, aiding desert animals' hydration

Question 8 *(AC 6.16)*

What are effectors in the nervous system? **1**

A Cells that detect stimuli
B Neurons that carry impulses
C Muscles and glands
D Parts of the spinal cord

Mark Scheme
C. Muscles and glands

Question 9 *(AC 1.26)*

Why is collagen resistant to stretching or breaking under tension? **1**

A Its triple helix contains numerous hydrogen bonds
B It has a large number of hydrophobic amino acids
C It contains sulphur bridges
D It is made up of alpha-helices only

Mark Scheme
A. Its triple helix contains numerous hydrogen bonds

Marks

Question 10 *(AC 6.21)*

What is the name of the increase in positive charge inside the chemoreceptor cell after sodium ion entry? **1**

A Action potential
B Synaptic potential
C Resting potential
D Receptor potential

Mark Scheme
D. Receptor potential

Question 11 *(AC 2.6)*

What causes cancerous cells to grow uncontrollably? **1**

A Nutrient deficiency in cells
B Increase in the number of surrounding tissues
C Mutation in the gene controlling cell division
D Decrease in mitotic activity

Mark Scheme
C. Mutation in the gene controlling cell division

Question 12 *(AC 7.6)*

Which plant tissue is responsible for transporting mineral ions dissolved in water? **1**

A Phloem
B Xylem
C Cambium
D Epidermis

Mark Scheme
B. Xylem

Marks

Question 13 *(AC 2.11)*

Which part of a DNA nucleotide differs among the four types of nucleotides? **1**

A Base
B Sugar
C Phosphate
D Chain

Mark Scheme
A. Base

Question 14 *(AC 7.9)*

What property of water molecules helps maintain a continuous column of water in the xylem? **1**

A Non-polarity
B Ionic bonding
C Hydrophobicity
D Hydrogen bonding

Mark Scheme
D. Hydrogen bonding

Question 15 *(AC 2.18)*

What occurs during RNA splicing in eukaryotic cells? **1**

A Exons are removed and introns are joined together to form mRNA
B Introns are removed, and exons are joined together to form mRNA
C RNA is translated into protein before introns are removed
D DNA is spliced into RNA segments before transcription

Mark Scheme
B. Introns are removed, and exons are joined together to form mRNA

Marks

Question 16 *(AC 7.17)*

What is the colour of the pigment xanthophyll? **1**

A Green
B Yellow
C Red
D Blue

Mark Scheme
B. Yellow

Question 17 *(AC 3.11)*

Which of the following vessels carry blood away from the heart? **1**

A Arteries
B Capillaries
C Veins
D Venules

Mark Scheme
A. Arteries

Question 18 *(AC 8.15)*

Which of the following is the highest level of classification in biological taxonomy? **1**

A Kingdom
B Phylum
C Genus
D Domain

Mark Scheme
D. Domain

Marks

Question 19 *(AC 3.22)*

Which of the following best describes the role of plasma in blood transport? **1**

A It carries oxygen using haemoglobin
B It produces antibodies to fight infections
C It transports carbon dioxide, urea, and hormones
D It helps in the clotting of blood

Mark Scheme
C. It transports carbon dioxide, urea, and hormones

Question 20 *(AC 8.19)*

How are viruses primarily classified? **1**

A By their shape and size
B By the type of host they infect
C By their genetic material
D By their reproductive cycle

Mark Scheme
C. By their genetic material

Question 21 *(AC 4.7)*

Where does oxygen go after it diffuses out of the alveoli? **1**

A Into the airways
B Into the muscle cells directly
C Into the alveolar walls only
D Into red blood cells

Mark Scheme
D. Into red blood cells

Marks

Question 22 *(AC 9.10)*

What are the probes on a microarray composed of? **1**

A Double-stranded DNA molecules that are stable and non-reactive
B Single-stranded DNA or RNA sequences that bind to target DNA
C Protein chains that fold into specific shapes for interaction
D Enzymes that catalyse reactions and cut specific DNA sequences

Mark Scheme
B. Single-stranded DNA or RNA sequences that bind to target DNA

Question 23 *(AC 5.9)*

What distinguishes a self-antigen from a non-self-antigen? **1**

A Self-antigen causes an immune response
B Self-antigen is produced by the body's own cells
C Non-self-antigen is made by body cells
D Non-self-antigen is ignored by the immune system

Mark Scheme
B. Self-antigen is produced by the body's own cells

Question 24 *(AC 9.15)*

What is Factor VIII used for? **1**

A Treating diabetes
B Treating infections
C Blood clotting in haemophiliacs
D Enzyme replacement in Severe Combined Immunodeficiency (SCID)

Mark Scheme
C. Blood clotting in haemophiliacs

Total 24 Marks

SECTION B – 15 questions. Total 45 marks
Answer ALL questions

Marks

Question 25 *(AC 1.7)*

Differentiate between a tissue and an organ. Give ONE (1) example of each from the human body. **3**

Mark Scheme
A tissue is a group of similar cells that work together to carry out a particular function (1 mark).
Example: Muscular tissue helps in movement. Nervous tissue transmits signals. Epithelial tissue covers surfaces and lines organs. Connective tissue provides support and binds structures together. (consider any one example)

An organ is a group of different tissues that work together to perform a certain function (1 mark).
Example: The stomach is an organ. (consider any correct organ) (1 mark for both correct examples)

Question 26 *(AC 2.29)*

Explain how co-dominance and sex-linked inheritance differ in terms of how alleles are expressed in offspring. Use examples to support your answer. **3**

Mark Scheme
In co-dominance, both alleles in a heterozygous individual are fully expressed. For example, if a red-flowered plant (RR) is crossed with a white-flowered plant (WW), the offspring (RW) will have both red and white petals (1 mark).
In sex-linked inheritance, the gene is located on the X chromosome, and since males (XY) have only one X, they express whichever allele is present on it. Females (XX) can be carriers if they have one normal and one affected allele. This means expression depends on the sex of the individual (1 mark).
Thus, co-dominance shows both traits equally, while sex linkage shows a difference in expression between males and females (1 mark).

Marks

Question 27 *(AC 1.24)*

Explain in THREE (3) points how the quaternary structure of haemoglobin enables it to bind and transport multiple oxygen molecules efficiently? **3**

Mark Scheme
1. Haemoglobin's quaternary structure consists of four polypeptide subunits (two alpha and two beta globins) (1 mark).

2. Each subunit contains a heme group with an iron (Fe^{2+}) ion that can bind one oxygen molecule (1 mark).

3. Binding of oxygen to one heme group causes a conformational change in the protein, increasing the affinity of the remaining subunits for oxygen (1 mark).

Question 28 *(AC 6.5)*

List the main sections of a nephron in the order that fluid passes through them, starting from Bowman's capsule. **3**

Mark Scheme
The main sections of a nephron, in order, are:

1. ***Bowman's capsule***
2. ***Proximal convoluted tubule***
3. ***Loop of Henle***
4. ***Distal convoluted tubule***
5. ***Collecting duct*** ***(2 marks for all 5 correct answers, 1 mark for 3-4 correct parts, 0 marks for only 1 or 2 correct parts; 1 mark for the correct order)***

Question 29 *(AC 3.20)*

Describe the THREE (3) main ways in which carbon dioxide is transported in the blood. **3**

Mark Scheme
Carbon dioxide is transported in three ways:

1. A small percentage is dissolved directly in blood plasma (1 mark).

2. It binds to haemoglobin to form carbaminohaemoglobin (1 mark).

3. The majority is transported as bicarbonate ions formed from carbon dioxide reacting with water inside red blood cells (1 mark).

Marks

Question 30 *(AC 6.10)*

Explain how negative feedback controls blood glucose concentration when it becomes too high or too low. **3**

Mark Scheme
When blood glucose concentration becomes too high, beta cells detect the change and release more insulin and less glucagon (1 mark). Insulin stimulates muscle and fat cells to increase glucose uptake and reduces glucose production in the liver, lowering blood glucose back to normal (1 mark).
When blood glucose is too low, alpha cells detect the drop and release more glucagon and less insulin. Glucagon stimulates the liver to produce more glucose and releases it into the blood, raising glucose levels back to normal (1 mark).

Question 31 *(AC 2.10)*

Explain how the structure of DNA allows it to carry genetic information. **3**

Mark Scheme
DNA carries genetic information in the sequence of its nitrogenous bases: adenine (A), thymine (T), guanine (G), and cytosine (C). These bases pair in a specific way—A with T (via 2 hydrogen bonds) and G with C (via 3 hydrogen bonds), forming complementary base pairs (1 mark). The strands of DNA are antiparallel and joined by a sugar-phosphate backbone, twisting into a double helix (1 mark). The order of these base pairs forms the genetic code, which determines the genotype of an organism (1 mark).

Question 32 *(AC 7.2-7.3)*

Explain why a specialised transport system is essential in multicellular organisms and describe the main components of the vascular bundle in herbaceous dicotyledonous plants. **3**

Mark Scheme
This is because their reduced surface area to volume ratio and increased metabolic activity necessitate an efficient means to deliver nutrients and oxygen and remove waste products. (1 mark).
In herbaceous dicotyledonous plants, the vascular bundle consists mainly of xylem and phloem tissues (1 mark). Xylem transports water and dissolved minerals from the roots to the rest of the plant and provides structural support, while phloem transports organic compounds, especially sucrose, from the leaves to other parts of the plant (1 mark).

Marks

Question 33 *(AC 4.7)*

Explain the process of gas exchange in the alveoli. **3**

Mark Scheme
Oxygen from the air in the alveolus diffuses out of the alveoli (1 mark), across the alveolar epithelium and the capillary epithelium, into the haemoglobin in the red blood cells (1 mark). At the same time, carbon dioxide from the blood in the capillaries diffuses into the alveoli (1 mark).

Question 34 *(AC 7.18-7.19)*

Explain how the absorption of light by different pigments relates to the rate of photosynthesis and describe how chromatography can be used to identify these pigments. **3**

Mark Scheme
Chlorophyll A, Chlorophyll B, and carotenoids absorb light mainly in the blue-violet and red regions of the spectrum (1 mark), which corresponds to the wavelengths where photosynthesis occurs most efficiently, as shown in the action spectrum (1 mark). Chromatography separates these pigments based on their solubility and size; carotenoids travel the farthest and have the highest Rf value, followed by chlorophyll A and then chlorophyll B, which has the smallest Rf value due to lower solubility and larger size (1 mark).

Question 35 *(AC 4.13)*

Explain why lipids release more energy than carbohydrates during aerobic respiration. **3**

Mark Scheme
Lipids release more energy because their fatty acid chains have a high number of hydrogen atoms (1 mark). When lipids are broken down, more hydrogen atoms become available, which are picked up by NAD and FAD (1 mark). These reduced carriers release hydrogen at the inner mitochondrial membrane, increasing the proton gradient and boosting ATP produced via chemiosmosis (1 mark).

Marks

Question 36 *(AC 8.10)*

Explain how selective breeding is used to improve crop yield and give one example each from wheat, rice, and maize. **3**

Mark Scheme
Selective breeding involves choosing individuals with desirable traits and breeding them over generations to enhance these traits in offspring (1 mark). In wheat, fungal-resistant varieties are developed by introducing resistant alleles, which increases yield. In rice, resistance to bacterial and fungal diseases is improved similarly (1 mark). In maize, hybridisation through outbreeding reduces inbreeding depression and increases plant vigour and yield (1 mark).

Question 37 *(AC 4.25)*

What are the main processes involved in mitochondrial energy production and which enzymes are involved in it? **3**

Mark Scheme
The main processes involved in mitochondrial energy production are the Krebs Cycle (1 mark) and the Electron Transport Chain (1 mark). The enzymes involved in these processes include Nicotinamide Adenine Dinucleotide Phosphate (NADP), Nicotinamide Adenine Dinucleotide (NAD), Adenosine Diphosphate (ADP), and Flavin Adenine Dinucleotide (FAD) (1 mark for correct naming of all the enzymes).

Question 38 *(AC 9.4)*

Explain the role of the following enzymes in genetic engineering: **3**

a) Restriction endonuclease
b) Reverse transcriptase
c) DNA ligase

Mark Scheme
a) Restriction endonuclease cuts DNA at specific base sequences, producing sticky or blunt ends, allowing insertion of desired genes into vectors (1 mark).
b) Reverse transcriptase synthesises complementary DNA (cDNA) from mRNA, enabling the genetic information in RNA to be transferred into DNA form (1 mark).
c) DNA ligase joins the DNA fragment into a vector by forming phosphodiester bonds, effectively sealing the inserted gene into the plasmid (1 mark).

Marks

Question 39 *(AC 9.5-9.7)*

Explain the role of promoter and marker genes in genetic engineering and briefly differentiate gene editing from genetic engineering. **3**

Mark Scheme
In genetic engineering, the promoter is a DNA sequence that determines gene expression by allowing RNA polymerase to bind and initiate transcription. It ensures the correct gene is transcribed and is essential for regulating gene expression (1 mark). Marker genes are used to identify cells that have successfully incorporated recombinant DNA. Modern marker genes often use green fluorescent protein (GFP), which causes cells to glow under UV light, indicating successful gene transfer (1 mark).
Gene editing differs from genetic engineering as it involves modifying the organism's existing DNA at specific sites, while genetic engineering often involves inserting DNA from another organism (1 mark).

Total 45 Marks

SECTION C – 8 questions. Total 31 marks
Answer ALL questions

Marks

Question 40 *(AC 2.25)*

Place the following cellular events in the correct sequential order during meiosis and identify the specific stage of meiosis each event belongs to. Justify your answers. **4**

Events:
A. Homologous chromosomes are pulled apart toward opposite poles.
B. Chromosomes align singly along the centre of the spindle.
C. Chromatids are separated to opposite poles.
D. Homologous chromosomes pair up side-by-side.

Mark Scheme
Correct sequence with stages and justification: (marks are only awarded for the correct ordering and identifying the correct specific stages)

D – Prophase I: Homologous chromosomes pair up; this occurs only during prophase I. (1 mark)

A – Anaphase I: Homologous chromosomes (not chromatids) are pulled apart, indicating anaphase I. (1 mark)

B – Metaphase II: Chromosomes align singly, showing it's a metaphase stage without homologous pairing, so it must be metaphase II. (1 mark)

C – Anaphase II: Chromatids (not full chromosomes) are being pulled apart, which happens in anaphase II. (1 mark)

Question 41 *(AC 1.13)*

Describe how a glycosidic bond is formed and broken, using maltose and sucrose as examples. **4**

Mark Scheme
A glycosidic bond is formed in a condensation reaction, where two α-glucose molecules combine to form maltose, releasing a molecule of water (1 mark).
The bond can be broken by hydrolysis, a reaction where water is used to break the glycosidic bond and convert maltose back into monosaccharides (1 mark).
Sucrose is formed by a condensation reaction between glucose and fructose, resulting in the formation of a glycosidic bond and the release of water. (1 mark).
The glycosidic bond in sucrose can also be broken by hydrolysis, producing the original glucose and fructose monosaccharides (1 mark).

Marks

Question 42 *(AC 6.1-6.3)*

Describe how negative feedback helps maintain a constant body temperature in mammals and explain the role of effectors in both hot and cold conditions. **4**

Mark Scheme
Negative feedback helps maintain homeostasis by detecting changes in body temperature and triggering responses to reverse them (1 mark). In hot conditions, glands in the skin secrete sweat to increase heat loss by evaporation (1 mark). In cold conditions, arrector pili muscles contract to trap a layer of warm air next to the skin, reducing heat loss (1 mark). These effectors respond to information transferred by the nervous system (1 mark).

Question 43 *(AC 2.7)*

Describe the key events that occur during each stage of mitosis and explain how these events ensure that each daughter cell receives identical genetic material. **4**

Mark Scheme
In prophase, the nuclear envelope breaks down and chromosomes condense. Spindle fibres form and attach to chromosomes (1 mark).

In metaphase, chromosomes align at the middle of the cell and attach to spindle fibres by their centromeres (1 mark).

In anaphase, centromeres divide and sister chromatids separate, moving to opposite poles. The chromatids appear V-shaped as the spindle contracts (1 mark).

In telophase, chromatids uncoil into chromosomes, and nuclear envelopes form around each group, creating two nuclei. These steps ensure each new cell gets an identical set of chromosomes (1 mark).

Marks

Question 44 *(AC 7.12-7.13)*

Explain how the active loading of sucrose into the phloem sieve tubes at the source creates a hydrostatic pressure gradient that drives the mass flow of organic solutes to the sink. Include the role of companion cells and water movement in your answer. **4**

Mark Scheme
Hydrogen ions first pumped out of their cytoplasm into the cell walls using a proton pump, where it moves back into the companion cells through cotransporter proteins along with sucrose against its concentration gradient (1 mark). The sucrose then moves into the sieve tubes via plasmodesmata (1 mark).

Loading sucrose lowers the water potential in the sieve tubes, causing water to enter from adjacent cells by osmosis. This increases hydrostatic pressure at the source (1 mark). At the sink, solutes are removed, causing water to leave by osmosis and lowering hydrostatic pressure. This pressure difference drives mass flow of water and solutes through the phloem (1 mark).

Question 45 *(AC 3.21)*

Describe how bicarbonate ions are formed in red blood cells and explain the role of the chloride shift. **3**

Mark Scheme
In red blood cells, carbon dioxide reacts with water to form carbonic acid, catalysed by carbonic anhydrase (1 mark). This acid dissociates into bicarbonate (HCO_3^-) and hydrogen ions (1 mark). Bicarbonate leaves the cell, and to maintain ionic balance, chloride ions enter the cell, which is called the chloride shift (1 mark).

Question 46 *(AC 8.6)*

Explain how natural selection and the bottleneck effect can lead to changes in the allele frequency of a population over time. **4**

Mark Scheme
Natural selection leads to changes in allele frequencies as individuals with advantageous alleles are more likely to survive and reproduce (1 mark), passing these alleles to their offspring. Over time, this increases the frequency of beneficial alleles in the population (1 mark).
The bottleneck effect occurs when a large population is suddenly reduced in size due to an environmental event (1 mark). This reduces genetic diversity, as many alleles may be lost purely by chance. The new, smaller population has different allele frequencies than the original population (1 mark).

Marks

Question 47 *(AC 4.18)*

Describe the sequence of biochemical events during glycolysis that lead from glucose to pyruvate, including the roles of ATP and NAD. In your answer, explain how energy is both invested and produced during this process. **4**

Mark Scheme
Phosphorylation of Glucose (Energy Investment):
Glucose (6C) enters the cytoplasm and is phosphorylated by the enzyme hexokinase using 2 ATP molecules, forming hexose-1,6-biphosphate (6C). This is an energy investment phase (1 mark).

Splitting of Hexose-1,6-biphosphate:
The hexose biphosphate is then split into two triose phosphate (TP) molecules (each 3C and with one phosphate group) (1 mark).

Oxidation of Triose Phosphate (Energy Production):
Each TP is oxidised, losing two hydrogen atoms. These are accepted by NAD, forming 2 molecules of reduced NAD. This step also results in the production of 2 ATP molecules (substrate-level phosphorylation) (1 mark).

Conversion of TP to Pyruvate (Further ATP Production):
Each TP is converted to pyruvate (3C), producing another 2 ATP molecules (1 mark).

Total 31 Marks

End of paper

Learning Outcomes Matrix

Question	Learning Outcomes / Assessment Criteria assessed	Marker can differentiate between varying levels of achievement
Section A		
1	AC 1.3	Yes
2	AC 2.25	Yes
3	AC 1.6	Yes
4	AC 2.27	Yes
5	AC 1.11	Yes
6	AC 6.8	Yes
7	AC 1.17	Yes
8	AC 6.16	Yes
9	AC 1.26	Yes
10	AC 6.21	Yes
11	AC 2.6	Yes
12	AC 7.6	Yes
13	AC 2.11	Yes
14	AC 7.9	Yes
15	AC 2.18	Yes
16	AC 7.17	Yes
17	AC 3.11	Yes
18	AC 8.15	Yes
19	AC 3.22	Yes
20	AC 8.19	Yes
21	AC 4.7	Yes
22	AC 9.10	Yes
23	AC 5.9	Yes
24	AC 9.15	Yes
Section B		
25	AC 1.7	Yes
26	AC 2.29	Yes
27	AC 1.24	Yes
28	AC 6.5	Yes
29	AC 3.20	Yes
30	AC 6.10	Yes
31	AC 2.10	Yes
32	AC 7.2-7.3	Yes
33	AC 4.7	Yes
34	AC 7.18-7.19	Yes
35	AC 4.13	Yes
36	AC 8.10	Yes
37	AC 4.25	Yes
38	AC 9.4	Yes
39	AC 9.5-9.7	Yes
40	AC 2.25	Yes

Section C		
41	AC 1.13	Yes
42	AC 6.1-6.3	Yes
43	AC 2.7	Yes
44	AC 7.12-7.13	Yes
45	AC 3.21	Yes
46	AC 8.6	Yes
47	AC 4.18	Yes

Grade Descriptors

Learning Outcome	Pass (40-59%)	Merit (60-69%)	Distinction (70-100%)
1. Define and discuss cell structure, biological molecules, and enzymes	Demonstrates an adequate awareness and understanding of concepts, terminology and processes with a reasonable discussion and application of principles and satisfactory reference to theory and science.	Demonstrates a consistent and accurate awareness and understanding of concepts, terminology and processes with a detailed discussion and application of principles and precise reference to theory and science.	Demonstrates an outstanding awareness and understanding of concepts, terminology and processes with a highly comprehensive and sophisticated discussion and application of principles and critical and meticulous reference to theory and science.
2. Recognise, describe, and discuss the process of reproduction			
3. Define and discuss cell membranes, and the mammalian transport and cardiovascular systems			
4. Define and discuss gas exchange and the human respiratory and energy release systems			
5. Recognise, define, and discuss diseases and infections, and the human body's immune system as a means of defence against them.			
6. Recognise, define, and discuss the systems involved in the regulation, coordination, and control of the human body and in plants			
7. Define, explain, and discuss photosynthesis and transport in multicellular plants			
8. Define and discuss selection, evolution, classification, biodiversity, and conservation			
9. Recognise, define, and discuss genetic technology and its principles and advancements			