Biology Model Paper 2025

Time Allowed: 2 Hours
Total Marks: 75

You must bring a soft pencil (preferably type B or HB), a clean eraser, and a dark blue or black pen.

Before attempting the paper, write your name, candidate number, Centre name, and Centre number clearly in the designated spaces.

Instructions for Candidates

- **Section A** contains multiple choice questions. You are required to attempt all questions by selecting the most appropriate option and marking it on the separate MCQ answer sheet using a soft pencil.
- **Section B** comprises both theoretical questions and a practical component. All questions in this section are compulsory. Answers must be written in the space provided on the question paper using a dark blue or black pen. You may use an HB pencil for any diagrams or graphs.
- You may use a simple calculator if needed.
- You should show all your working and use appropriate units.
- Do not use an erasable pen or correction fluid.
- Avoid writing over any bar codes printed on the paper.

Information for Candidates

- This paper consists of a total of **75 marks**.
- **Section A** includes **20 multiple choice questions**, each carrying **1 mark**. There is no negative marking for incorrect answers.
- **Section B** carries a total of **55 marks**, divided as follows:
  Theoretical Questions: 30 marks
  Practical Component: 25 marks
- The number of marks for each question or part question is shown in brackets [ ].

Please read all questions carefully and follow the instructions exactly to ensure your responses are properly evaluated.

Section A : Multiple Choice Questions (20 m)

Question 1:

Which component of the visual system is affected in someone with colour blindness?

A. Optic nerve
B. Rod cells
C. Cone cells
D. Damage to retina

Question 2:

Which row represents the correct structures found in animal cells?

A.	Nucleus	Chloroplast	Mitochondria	Cell wall
B.	Mitochondria	Cell membrane	Nucleus	Ribosomes
C.	Cell wall	Glycogen	Cell membrane	Ribosomes
D.	Glycogen	Chloroplast	Mitochondria	Golgi bodies

Question 3:

A section of DNA contains the order of bases TACCTCGTACGA. What would be the complementary sequence of this strand?

A – ATGGAGCATGCA

B– ATAGAGCATGCA

C – ATGGAGCATCCA

D – ATGGAGCATGCT

Question 4

Which of the following is correct for chemical digestion of lipids by action of lipase?

A – Lipids → amino acids + glycerol

B – Lipids → fatty acids + fat globules

C – Lipids → fatty acids + glycerol

D – Lipids → fat globules + glycerol

Question 5:

Which sequence accurately traces the movement of oxygen from inhalation to absorption by red blood cells?

A – Larynx > bronchi > alveoli > bronchioles > red blood cells

B – Trachea > bronchi > alveoli > bronchioles > red blood cells

C – Larynx > trachea > bronchioles > alveoli > red blood cells

D – Larynx > bronchi > trachea > alveoli > red blood cells

Question 6:

Which mineral deficiency leads to Chlorosis in plants?

A – Phosphate

B – Magnesium

C – Potassium

D – Nitrates

Question 7:

Antibiotics are medicines used to treat bacterial diseases. Which of the following is NOT a mode of action of antibiotics?

A – Inhibiting Protein Synthesis

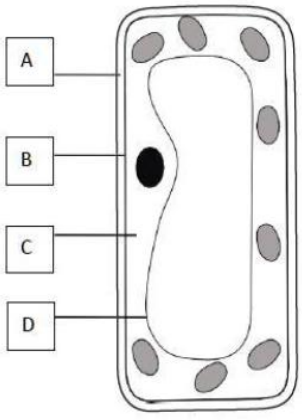
B – Interfering with DNA Replication

C- Inhibits cell wall formation

D - Stop mitosis

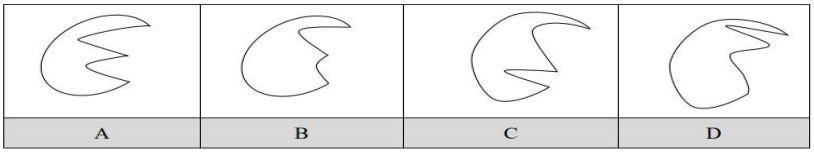
Question 8:

The diagram shows a plant cell. Which structure controls the passage of substances into and out of the cell?



Question 9:

The diagram represents a substrate and four enzymes, A, B, C and D. Which enzyme will act on this substrate?



Question 10:

Consider the given word equation:

I. Glucose → lactic acid + energy

II. Glucose → ethanol + carbon dioxide + energy

III. Glucose + oxygen → carbon dioxide + water + energy

IV. Carbon dioxide + water + energy → glucose + oxygen

The option that shows the equation for anaerobic respiration in humans and in yeast is

	Anaerobic Respiration in Human	**Anaerobic Respiration in Yeast**
A.	II	IV
B.	I	III
C.	III	IV
D.	I	II

Question 11:

In pea plants, the allele (R) for long stem is dominant over the allele (r) for short stem. Similarly, the allele (S) for the purple flower colour is dominant over the allele (s) for white flower colour.

Long Purple	**Long white**	**Short purple**	**Short white**
9	**3**	**3**	**1**

The genetic cross that is expected to produce phenotypic ratio as given in the table is:

A. RrSS x rrss

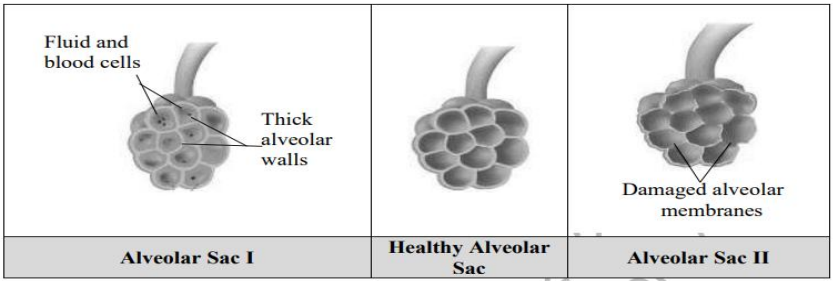
B. RRSS x RrSs

C. RrSs x RrSs

D. RRss x rrSS

Question 12:

The given pictures are of healthy and diseased alveolar sacs in humans.

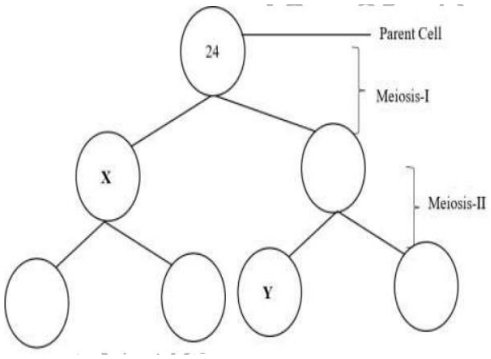


The alveolar sacs I and II represent which diseases in human?

	Alveolar Sac I	Alveolar Sac II
A.	emphysema	pneumonia
B.	pneumonia	emphysema
C.	asthma	bronchitis
D.	bronchitis	asthma

Question 13:

The given diagram shows the process of meiosis in plants. The number of chromosomes in the cells X and Y is



	X	Y
A.	24	12
B.	12	6
C.	12	12
D.	6	6

Question 14:

Giraffe and koala live in the same forest and feed on grass. The ecological interaction between giraffe and koala is

A. competition.

B. parasitism.

C. predation.

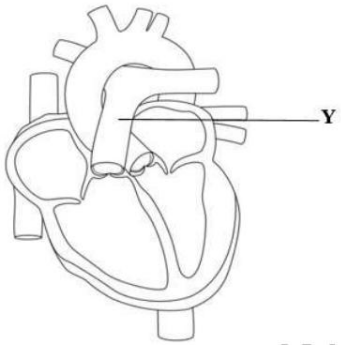
D. commensalism

Question 15:

The given diagram shows longitudinal section of the human heart.

Which of the following option is CORRECT about the identification, concentration of carbon dioxide and blood pressure in the vessel labelled as Y?

	Vessel Y	Concentration of carbon dioxide	Blood pressure
A.	Pulmonary vein	High	High
B.	Pulmonary artery	High	Low
C.	Aorta	High	Low
D.	Superior Vena cava	Low	High



Question 16:

A child is frightened by a loud noise and shouts for help. In which order are the different types of neurons involved in this response?

	Involved First	Involved in CNS	Involved last
A.	Motor neuron	Relay neuron	Sensory neuron
B.	Sensory neuron	Relay neuron	Motor neuron
C.	Sensory neuron	Motor neuron	Relay neuron
D.	Motor neuron	Sensory neuron	Relay neuron

Question 17:

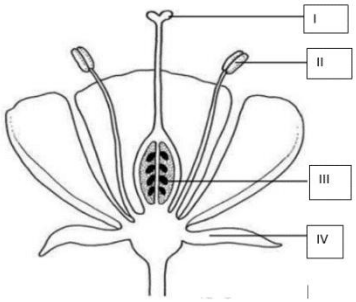
In pollination, pollens transfer from the labelled parts:

A. II to I

B. I to III.

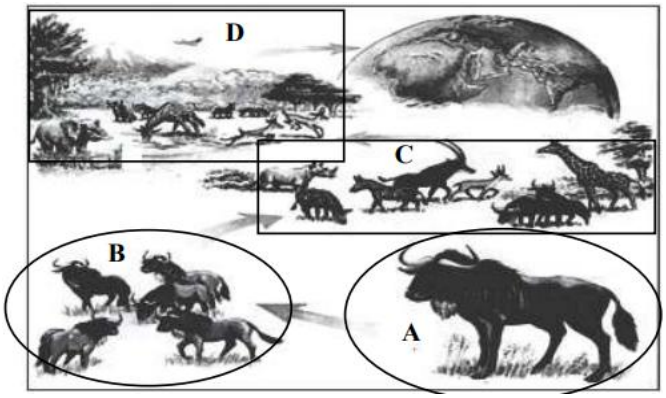
C. II to IV.

D. III to IV



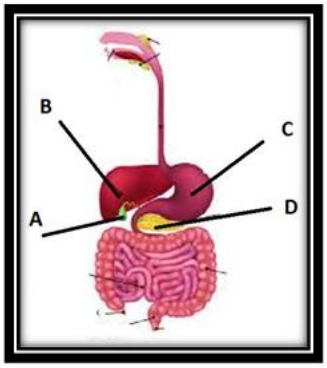
Question 18:

In the given diagram of biological level of organization, the population level is labelled as:



Question 19:

Which organ of the body is responsible for the production of enzyme trypsin for the digestion of protein?



Question 20:

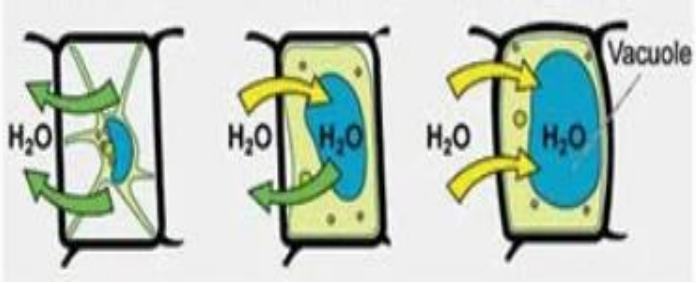
Which process is being represented in the diagram below?

A – Active transport

B – Facilitated diffusion

C – Osmosis

D – Diffusion



Section B [55 marks]

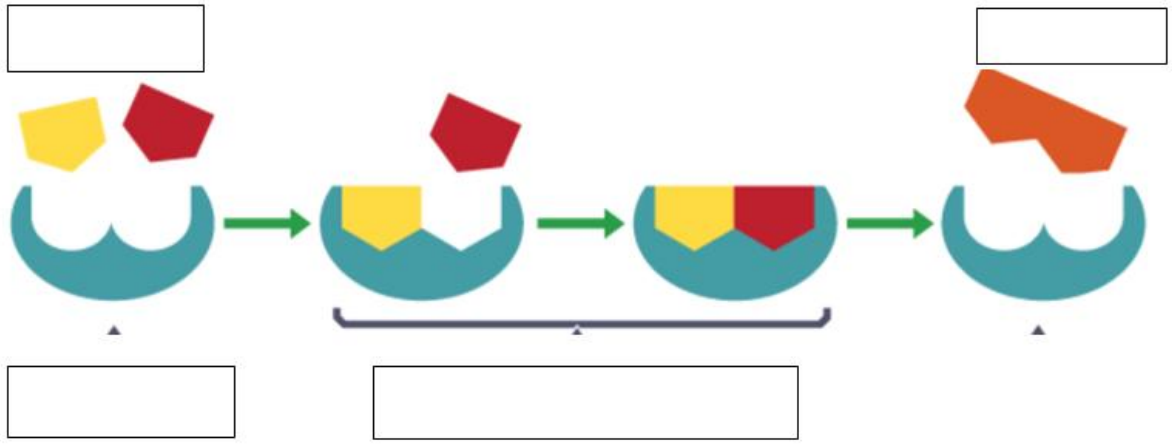
Theoretical Questions (30 marks)

Q1.In chemical digestion, enzymes play a crucial role in the digestion of carbohydrates, protein and fats.

a) Complete the table below regarding proteases: (2 marks)

	Name of enzyme	Site of production	Acts on which substance
1.		Stomach	Protein
2.		Small intestine	Peptides/protein

b) The diagram below shows an enzyme reaction.



Label any two of the above boxes with the appropriate terminologies. (2 marks)

c) Explain the effects of pH Levels on the rate of protein digestion in the body.

(2 marks)

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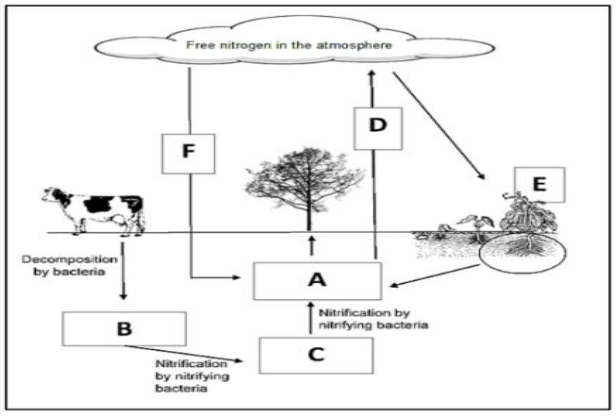
Q2. a) Nutrient cycles are vital for maintaining life on Earth. Identify the nitrogenous compound B and C in the process below.

(2 marks)

B._____

C._____



b) What is the role of nitrifying bacteria in nitrogen cycle? (1 mark)

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c) The Earth has naturally gone through periods of warming and cooling, this has led to changes in environments globally. Describe how this warming affects the climate system of the earth?

(3 marks)

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Q3. The given table demonstrates a genetic cross between two flowers:

Parents	Red	×		White
F1 Generation	Pink			
F1 x F1	Pink	×		Pink
F2 Generation	Red	Pink	Pink	White

a) Determine the genotype of the pink flowers produced in F1 generation. (1 mark)

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b) Identify the type of dominance in the given cross. (1 mark)

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c) Determine the phenotype and genotype of offspring flowers if two pink flowers of F2 generation are crossed. (4 marks)

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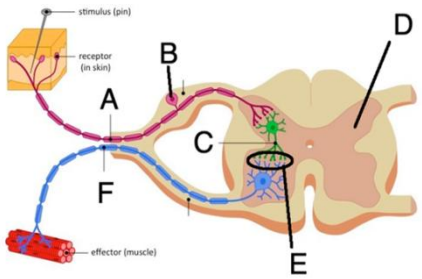
Q4. a) Identify the process which is going on at point E. (1 mark)



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b) Complete the table below by writing the role of the following labeled part. Refer to the diagram shown in Q4. a. (2 marks)

	Letter	Description
i.	A	
ii.	D	

c) Creams or moisturizers are sometimes used as pain relievers and are applied directly to the skin. Explain how this topical application helps to reduce discomfort after an injury. (1 mark)

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d) Explain any two structural adaptations of neurons that enable them to carry out their function effectively. (2 marks)

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Q5. What are the main product of anaerobic respiration in human muscle cells and yeast. Explain your answer with a proper chemical equations. (2 marks)

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Q6. Briefly explain any two factors that influence the rate of diffusion. (2 marks)

Q7. Differentiate between mitosis and meiosis using any two points. (2 marks)

Practical Component (25 marks)

Q1. In the natural environment, decomposition breaks down organic matter and releases nutrients back into the environment so that it is available for other organisms. Rate of decay is greater in tropical climates than cold temperate climates.

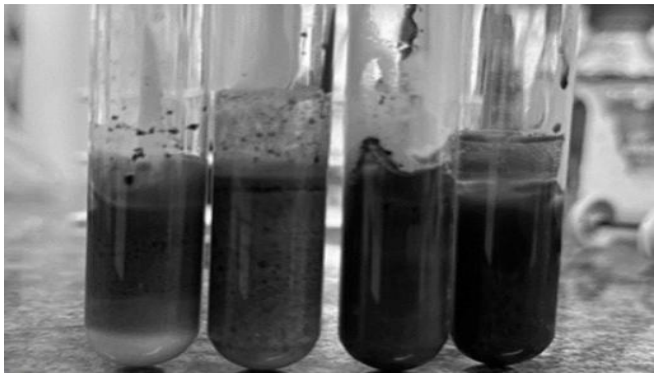
Investigate the effect of temperature on the rate of decay, using full fat milk, enzyme B and sodium carbonate solution.

a) What are the apparatus used in this experiment? (1 mark)

b) What will be the Dependent variable for this experiment? (1 mark)

c) What will be the independent variable for this experiment? (1 mark)

d) After adding milk, and sodium carbonate solution to a test tube, phenolphthalein is added. The students took a picture but it was in black and white. State the correct colour that should be observed? (1 mark)



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e) After adding enzyme B to the mixture the fats in the milk are broken down, which of the products will lead to a decolourisation of the phenolphthalein? (1 mark)

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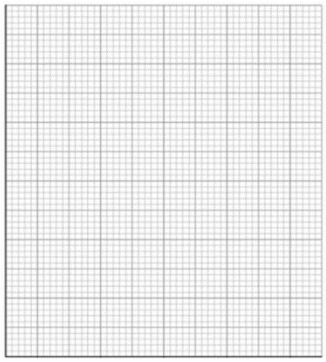
f) In larger organisms, the rate of decay can be measured in change in their masses. Below is the results of mass change of an organism over a period of 30 days. (3 marks)

	Time in days	Mass in kilograms
1.	0	20
2.	5	19.5
3.	10	18
4.	15	16.5
5.	20	15
6.	25	14
7.	30	14

Complete the graph by:

- Suitable scale
- Correct plotting of data
- Drawing straight lines between the plots.
- Put mass in Kg on the Y axis
- Put time in days on X axis



g) Describe and explain the relationship of graph. (2 marks)

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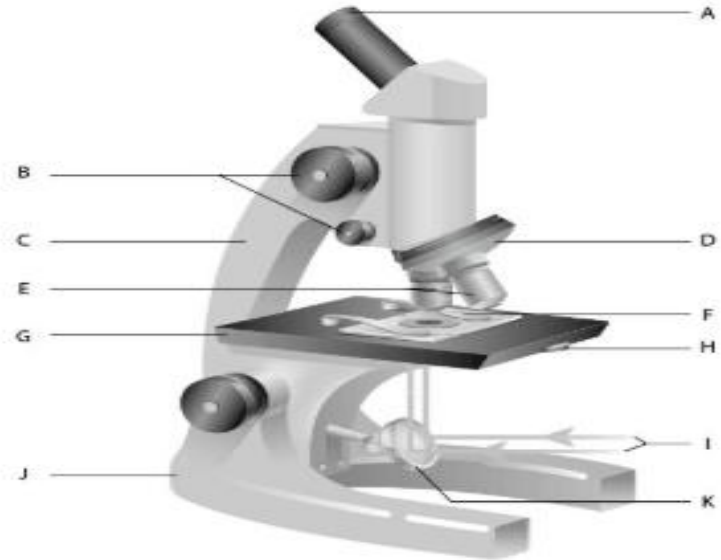
Q2. Microscopes are used to observe very small living organisms and cells. During an investigation, a student wishes to observe human cheek cells. He used a cotton swap to take a sample.

a) Identify and label the following parts, A, D & K of a light microscope.
(3 marks)



b) State which chemical stain/dye is used to observe animal cells. (1 mark)

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c) Explain why a dye is needed to view the sample? (1 mark)

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d) Describe in detail the process of slide preparation. (2 marks)

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e) Write any two safety precautions you should take when preparing the slide? (2 marks)

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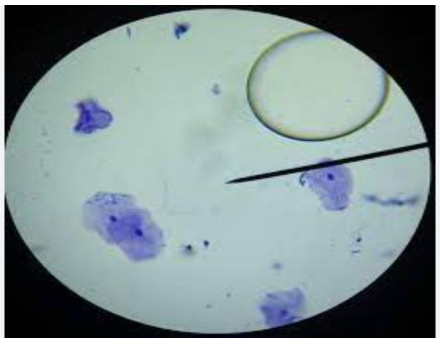
f) Look at the image of temporary slide made by a student. State the error the student had made in his slide preparation? (1 mark)



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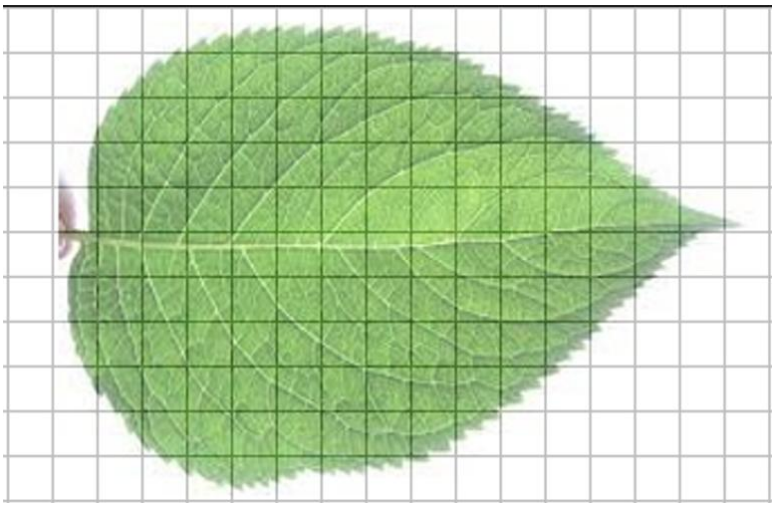
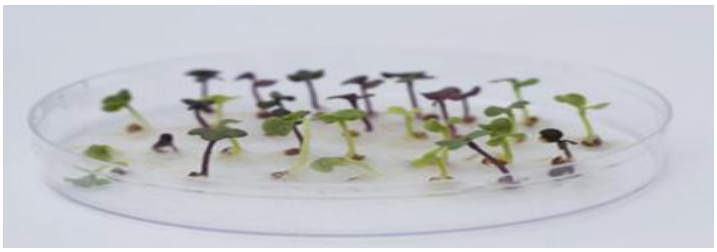
Q3. a) Calculate the surface area of a leaf by using grid/graph paper. (2 marks)



b) Using the seedling sample shown in the picture, describe an appropriate experimental method that a student could follow to demonstrate the phenomenon of phototropism. (3 marks)



Answering Key and Marking scheme

Paper: Biology Model Paper: 2025 (Time: 2 hours)

Section A: MCQs (20 marks)

Question Number	Answering Key
1	C
2	B
3	D
4	C
5	C
6	B
7	D
8	B
9	C
10	D
11	C
12	B
13	C
14	A
15	B
16	B
17	A
18	B
19	D
20	C

Section B: (55 marks)

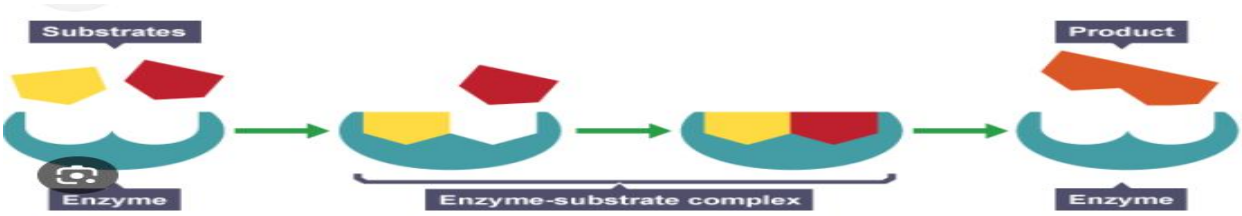
Theoretical Questions (30 marks)

Q1. In chemical digestion, enzymes play a crucial role in the digestion of carbohydrates, protein and fats.

a) Complete the table below regarding proteases: (2 marks)

	Name of enzyme	Site of production	Acts on which substance
1.	**Pepsin**	Stomach	Protein
2.	**Trypsin**	Small intestine	Peptides/Protein
Marking scheme:1 mark for each Enzyme.			

b) The diagram below shows an enzyme reaction. Label any two of the above boxes with the appropriate terminologies. (2 marks)



Marking scheme: 1 mark for each labelling.

c) Explain the effects of pH Levels on the rate of protein digestion in the body. (2 marks)

Ans: pH Levels:

- Different proteases work best at specific pH levels.
- For example, pepsin in the stomach works best in acidic conditions (pH ~2).
- If pH is too high or too low, the enzyme's active site may change shape, which reduces its ability to bind proteins.

Marking scheme: 1 mark for each point.

Q2. a) Nutrient cycles are vital for maintaining life on Earth. Identify the nitrogenous compound B and C in the process below. (2 marks)

Ans: b. ammonium c. nitrates

Marking scheme:1 mark for each (B and C) labelling.

b) What is the role of nitrifying bacteria in nitrogen cycle? (1 mark)

Ans: Nitrifying bacteria are responsible for nitrification, a key step in the nitrogen cycle. Their role is to convert toxic ammonia into forms that plants can use:

Marking scheme: 1 mark for defining the role.

c) The Earth has naturally gone through periods of warming and cooling, this has led to changes in environments globally. Write any 3 points to describe how this warming affects the climate system of the earth? (3 marks)

Ans: This warming affects the climate system in the following ways:

1. **Alters Weather Patterns**:
   - Warmer temperatures change wind and rainfall patterns, leading to more extreme weather, such as heat waves, storms, floods, and droughts.
2. **Melts Ice and Glaciers**:
   - Rising temperatures cause polar ice caps and glaciers to melt, contributing to rising sea levels and flooding of coastal areas.
3. **Disrupts Ocean Currents:**
   - Increased temperatures and freshwater from melting ice can disrupt ocean currents, which regulate global climate systems.
4. **Increases Frequency of Natural Disasters:**
   - Warmer oceans fuel stronger hurricanes and cyclones, increasing damage and risk to ecosystems and human communities.
5. **Shifts in Ecosystems and Wildlife:**
   - Species may migrate or go extinct as their habitats become unsuitable due to temperature or precipitation changes.

Global warming drives climate change by disrupting natural systems that regulate weather and climate, leading to long-term shifts in temperature, rainfall, and environmental stability.

Marking scheme: 1 mark for each point (3 are required)

Q3. The given table demonstrates a genetic cross between two flowers:

Parents	Red	×		White
F1 Generation	Pink			
F1 x F1	Pink	×		Pink
F2 Generation	Red	Pink	Pink	White

a) Determine the genotype of the pink flowers produced in F1 generation. (1 mark)

Ans: Rr

Marking Scheme: I mark for writing F1 generation.

b) Identify the type of dominance in the given cross. (1 mark)

Ans: Incomplete dominance

Marking Scheme: I mark for writing type of dominance.

c) Determine the phenotype and genotype of offspring flowers if two pink flowers of F2 generation are crossed.

(4 marks)

Ans: Rr x Rr

RR Red flower	Rr Pink flower
Rr Pink flower	rr White flower

Marking Scheme: 1 mark for each phenotype and genotype offspring.

Q4. a) Identify the process which is going on at point E. (1 mark)

Ans: Synapses.

Marking Scheme: 1 mark for identification of process at E.

b) Complete the table below by writing the role of the following labeled parts. Refer to the diagram shown in Q4. a. (2 marks)

	Letter	Description
i.	A	Sensory neurons play a crucial role in transmitting information from the body's sensory receptors to the central nervous system (CNS) for processing.
ii.	D	The grey matter of the spinal cord serves as a processing center for various functions, including motor control, sensory processing, and autonomic nervous system regulation.

Marking Scheme: 1 mark for each description (A and D).

c) Creams or moisturizers are sometimes used as pain relievers and are applied directly to the skin. Explain how this topical application helps to reduce discomfort after an injury. (1 mark)

Ans: When painkillers are applied as a cream or moisturizer to the skin, they help relieve pain through a process called topical absorption**. The active ingredients in the cream penetrate the skin** and **target the affected area without entering the bloodstream in large amounts.**

Marking scheme: 1 mark for explanation (bold words are key words should be present in the answer)

d) Explain any two structural adaptations of neurons that enable them to carry out their function effectively. (2 marks)

Ans:

1. **Long Axon:**
   Neurons have a long axon that allows electrical impulses to travel over long distances within the body, from one part to another.
2. **Dendrites:**
   They have many branched dendrites that increase the surface area for receiving signals from other neurons or sensory receptors.

3. **Myelin Sheath:**
   Many neurons are covered by a fatty layer called the myelin sheath. This acts as an insulator and speeds up the transmission of impulses along the axon through a process called saltatory conduction.
4. **Nodes of Ranvier:**
   These are small gaps in the myelin sheath where the impulse jumps from one node to the next, further increasing the speed of signal transmission.
5. **Synaptic Terminals:**
   The axon ends in synaptic terminals that contain neurotransmitters. These chemicals help pass the signal across a synapse to another neuron, muscle, or gland.

Marking scheme: 1 mark for each adaptation, two are required.

Q5. What are the main product of anaerobic respiration in human muscle cells and yeast. Explain your answer with a proper chemical equations. (2 marks)

Ans :

1. In Human Muscle Cells:

- When oxygen is lacking (e.g. during intense exercise), glucose is broken down anaerobically.
- Main product: Lactic acid

Chemical equation:

Glucose ($C_6H_{12}O_6$) → Lactic acid ($2C_3H_6O_3$) +energy

2. In Yeast (and some microorganisms)

- Yeast performs anaerobic respiration known as fermentation.
- Main products: Ethanol (alcohol) and carbon dioxide

Chemical equation:

Glucose ($C_6H_{12}O_6$) → Ethanol ($2C_2H_5OH$)+Carbon dioxide ($2CO_2$)

Marking Scheme: 1 mark for each equation and products.

Q6. Briefly explain any two factors that influence the rate of diffusion. (2 marks)

Ans: Factors that influence the rate of diffusion:

1. Concentration Gradient
2. Temperature

1.Concentration Gradient:

- The greater the difference in concentration between two areas, the faster the rate of diffusion.
- A steeper gradient means more particles move from high to low concentration quickly.

2.Temperature:

- Higher temperatures increase the kinetic energy of particles, causing them to move faster and diffuse more quickly.

Marking Scheme: 1 mark for each (There are many other factors too).

Q7. Differentiate between mitosis and meiosis using any two points. (2 marks)

Ans:

MITOSIS	MEIOSIS
A type of cell division that produces two genetically identical daughter cells.	A type of cell division that produces four genetically different daughter cells (gametes).
Asexual mode of reproduction responsible for growth and repair of body cells.	Sexual mode of reproduction responsible for formation of gametes (sperms and eggs)
Daughter cells have the same number of chromosomes as the parent (diploid → diploid).	Daughter cells have half the number of chromosomes as the parent (diploid → haploid).
No genetic variation (cells are clones).	Produces genetic variation due to crossing over and independent assortment.

Marking Scheme: 1 mark for each difference/any two differences are needed.

Practical Component (25 marks)

Q1. a) What are the apparatus used in this experiment? (1 mark)

Ans: Petri dish, needle, thermometer and beaker.

Marking Scheme: 1 mark for writing any two correct apparatus used for the experiment.

b) What will be the Dependent variable of this experiment? (1 mark)

Ans**: The rate of decay of the milk** — which can be measured by the time it takes for the milk to turn acidic or a change in pH.

Marking Scheme: 1 mark for writing the dependent variable.

c) What will be the independent variable for this experiment? (1 mark)

Ans**: Temperature** – This is what you change to observe its effect on the rate of decay.

Marking Scheme: 1 mark for writing the independent variable.

d) After adding milk, and sodium carbonate solution to a test tube, phenolphthalein is added. The students took a picture but it was in black and white. State the correct colour that should be observed? (1 mark)

Ans: Pink

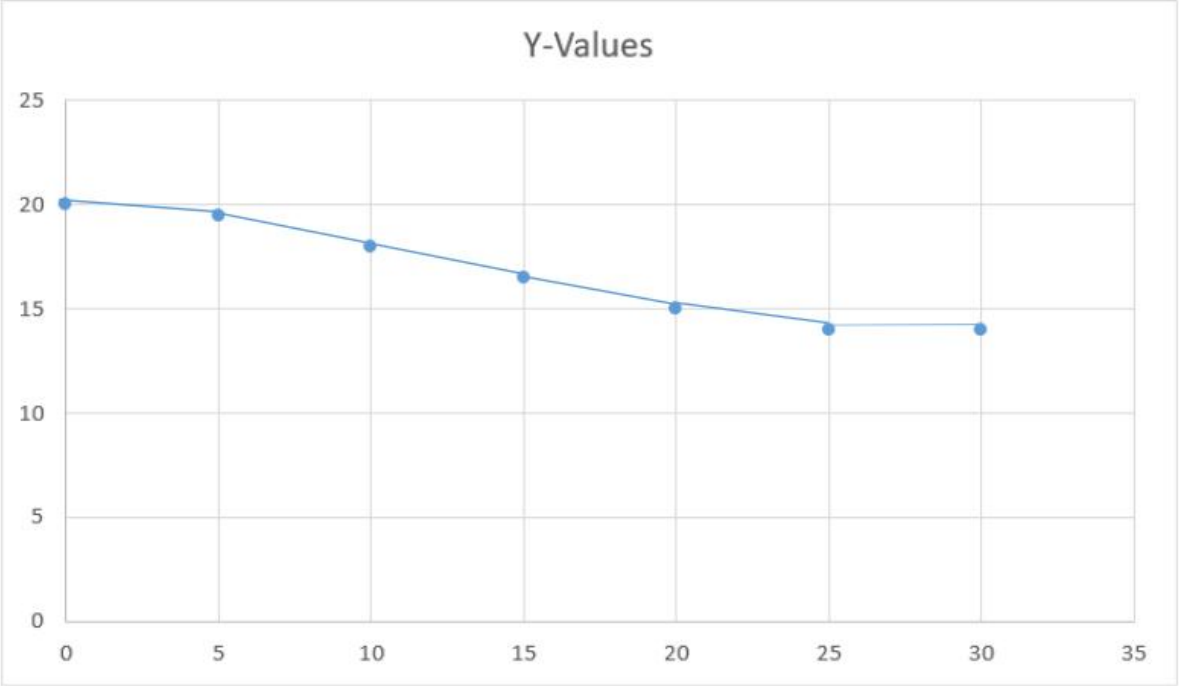
Marking Scheme: 1 mark for writing pink colour.

e) After adding enzyme B to the mixture the fats in the milk are broken down, which of the products will lead to a decolourisation of the phenolphthalein? (1 mark)

Ans: The product that leads to the decolourisation of phenolphthalein is: Fatty acid.

Marking Scheme: 1 mark for writing fatty acid.

f) In larger organisms the rate of decay can be measured in change in their masses. Below is the results of mass change of an organism over a period of 30 days. (3 marks)



Add axis titles:

X-axis: **Time (days)**
Y-axis: **Mass (kg)**

Note: Join the dots to complete your graph.

Marking Scheme: Axis and labels 1 mark, accurate plotting 1 mark, dot to dot with straight lines 1 mark.

g) Describe and explain the relationship of graph? (2 marks)

Description:

- The graph would show a downward-sloping curve from 20 kg to 14 kg over 30 days.
- From day 0 to day 25, the mass decreases steadily.
- From day 25 to day 30, the mass remains constant at 14 kg — the curve becomes flat.

Marking Scheme: 1 mark for 0-25 and 1mark for 25-30 days graph.

Q2. Microscopes are used to observe very small living organisms and cells, during an investigation a student wishes to observe human cheek cells using a cotton swap to take a sample.

a) A- Ocular D- Revolving nose piece K- Reflector/mirror (3 marks)

Marking Scheme: 1 mark for each labelling.

b) State which chemical stain/dye is used to observe animal cells. (1 mark)

Ans: Methylene blue/ Eosin

Marking Scheme: 1 mark for writing methylene blue or Eosin.

c) Explain why a dye is needed to view the sample? (1 mark)

Ans: A dye is needed to stain the nucleus and other cell structures, making them easier to see under a microscope. It is especially useful for highlighting DNA in the nucleus, as animal cells are often transparent without staining.

Marking Scheme: 1 mark for writing the use of dye.

d) Describe in detail the process of slide preparation. (2 marks)

Ans: 1. Collect the sample and place the sample on a clean slide.

2. Add a drop of Stain and place the cover slip and view the slide under microscope.

Marking Scheme:1 mark for each step.

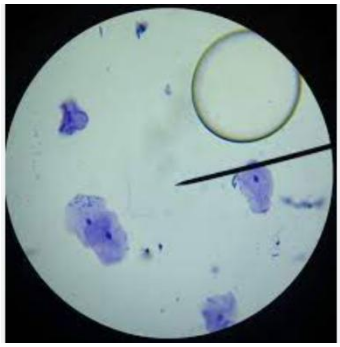
e) Write any two safety precautions you should take when preparing the slide? (2 marks)

Ans:

1. Handle glass slides and cover slips carefully – to avoid cuts from sharp edges
2. Use stains in small amounts – they can be harmful if spilled or inhaled
3. Clean up spills immediately – especially stains
4. Wash hands after handling biological samples and chemicals
5. Dispose of biological materials properly – according to school or lab safety guidelines.

Marking Scheme: 2 marks for any two measures.

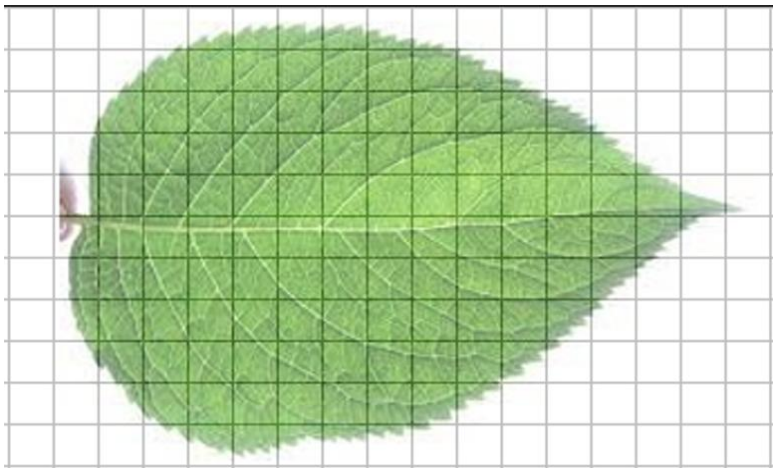
f) Look at the image of temporary slide made by a student. State the error the student had made in his slide preparation? (1 mark)



Ans: Bubble is present in the slide.

Marking Scheme: 1 mark for identification of bubble.

Q3.a) Calculate the surface area of a leaf by using grid/graph paper. (2 marks)



Ans: Steps to Calculate Leaf Surface Area:

1. Trace the Outline
2. Count Full Squares

Each full square represents 1 cm^2 (or 1 mm^2, depending on your grid).

3. Estimate Partial Squares
    - Count all partially filled squares around the edge.
    - Combine them to make an estimate:
    - Every two half squares ≈ 1 full square.

4. Add Total Area

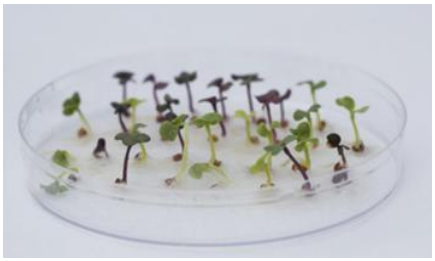
For Example:

- **48 full squares**
- **16 half squares → 8 full squares**

Total Area=48+8=56 cm^2

Marking Scheme: 1 mark for counting method, 1mark for final calculated area and correct unit.

b) Using the seedling sample shown in the picture, describe an appropriate experimental method that a student could follow to demonstrate the phenomenon of phototropism. (3 marks)



Ans: Steps

1. Prepare a Box (Light Maze/Window Box)

   Take a cardboard box and cut a small hole on one side (only one direction for light to enter). Line the inside with black paper to absorb stray light.

2. Place Seedlings Inside, Position the Light Source

   Put the seedlings upright in their pots/trays inside the box, opposite the hole. Place a lamp or position the box so sunlight enters only through the hole

3. Leave for Several Days and observe and measure the height of seedlings

   Allow the seedlings to grow for 3–5 days. Ensure constant temperature and moisture.

   After a few days, observe the direction of seedling growth. Use a ruler to measure the angle of bending or direction of growth toward the light. The seedlings will bend/grow toward the light entering through the hole — **showing positive phototropism**.

Marking Scheme: 1 mark for each step.

TABLE OF SPECIFICATION

MCQS NO	Cognitive level			Theoretical Questions	Cognitive level			Practical component			
	AO1	AO2	AO3		AO1	AO2	AO3		AO1	AO2	AO3
1.	AO1			Q1a=2		AO2		Q1a=1			AO3
2.	AO1			Q1b=2		AO2		Q1b=1			AO3
3.		AO2		Q1c=2	AO1			Q1c=1			AO3
4.	AO1			Q2a=2	AO1			Q1d=1			AO3
5.		AO2		Q2b=1		AO2		Q1e=1			AO3
6.	AO1			Q2c=3		AO2		Q1f=3		AO2	
7.	AO1			Q3a=1		AO2		Q1g=2			AO3
8.		AO2		Q3b=1	AO1			Q2a=3		AO2	
9.		AO2		Q3c=4			AO3	Q2b=1			AO3
10.		AO2		Q4a=1	AO1			Q2c=1			AO3
11.		AO2		Q4b=2	AO1			Q2d=2			AO3
12.		AO2		Q4c=1			AO3	Q2e=2			AO3
13.	AO1			Q4d=2		AO2		Q2f=1			AO3
14.	AO1			Q5=2	AO1			Q3a=2		AO2	
15.		AO2		Q6=2		AO2		Q3b=3			AO3
16.	AO1			Q7=2	AO1						
17.	AO1										
18.	AO1										
19.	AO1										
20		AO2									
Total	**11**	**09**			**12**	**13**	**05**			**08**	**17**

Marks of AO1		**Percentage**
MCQs	**11**	
Theoretical Question	**12**	**30%**
Total	**23**	

Marks of AO2		**Percentage**
MCQs	**09**	
Theoretical Question	**13**	**40%**
Practical Component	**08**	
Total	**30**	

Marks of AO3		**Percentage**
Theoretical Question	**05**	
Practical Component	**17**	**30%**
Total	**22**	