

Candidate Name

Candidate Number

Centre Name

Centre Number

Paper 2:

Model Paper V1 Marking Scheme

(2 hours)

It is necessary to respond on the answer sheets provided alongside this question paper. Additionally, you must have a soft pencil (preferably of type B or HB), a clean eraser and a dark blue or black pen.

INSTRUCTIONS:

- You must write your name, candidate number, centre name and centre number on the answer sheets in the designated spaces.
- Objective section consists of 25 questions, and it is essential that you attempt all of them.
- Each question has four options labelled A, B, C, and D. Select the option that you think is correct. Mark it on the multiple-choice answer sheet using a soft pencil.
- Attempt all the questions from subjective section using a dark blue or black pen.
- It is important to follow the instructions provided on the answer sheets.
- Do not use correction fluid.
- Avoid writing on any bar codes.

INFORMATION:

- This paper has a total of 100 marks.
- In objective section there are 25 questions, each carries one mark. There is no negative marking for incorrect responses.
- In subjective section, 45 marks are for extended theory and 30 marks for practical component.
- The number of marks assigned for every question or its parts is indicated within brackets [].

OBJECTIVES PORTION:

[Total 25 marks]

- | | |
|-------|-------|
| 1. A | 14. D |
| 2. C | 15. C |
| 3. B | 16. B |
| 4. D | 17. A |
| 5. C | 18. A |
| 6. C | 19. B |
| 7. C | 20. A |
| 8. A | 21. B |
| 9. A | 22. B |
| 10. C | 23. B |
| 11. B | 24. A |
| 12. C | 25. A |
| 13. C | |

THEORY PORTION:

[Total 45 marks]

1.

(i)

Water

Mineral ions

Energy

(ii)

Because viruses lack the characteristics of living cells, such as responding to stimuli, growing, and reproducing without a host. They are obligate intracellular parasites.

(iii)

- Reduces transpiration
- Conserve water
- Helps survival in arid environments
- Energy efficiency

(iv)

- Wash off into water bodies.
- Contaminate the water, affecting aquatic life.
- Disrupt the food chain.
- Reduced biodiversity.

2.

(i)

Chromosomes.

(ii)

Deoxyribose sugar.

(iii)

Four nitrogenous bases in DNA

- A: Adenine
- C: Cytosine
- G: Guanine
- T: Thymine

3.

(i)

Lipase catalyzes the hydrolysis of lipids which decreases the pH of the solution causing phenolphthalein to change from pink to colorless.

(ii)

Parental phenotypes blood group A × blood group B

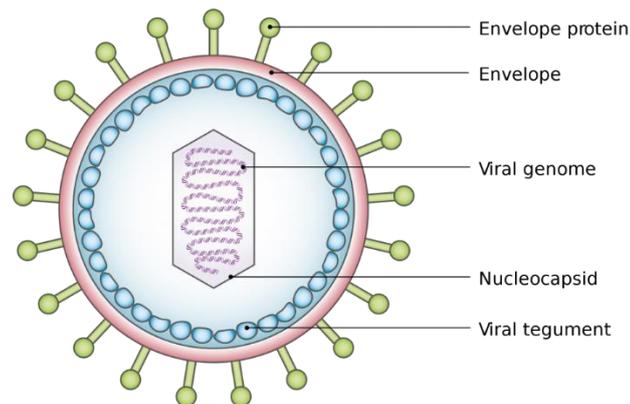
Parental genotypes $I^A I^O \times I^B I^O$

Gametes I^A and I^O + I^B and I^O

Offspring genotype $I^A I^B, I^A I^O, I^B I^O, I^O I^O$

Offspring phenotype blood group O

(iii)



4.

(i)

1. **Combustion** involves the burning of fossil fuels that release carbon dioxide into the atmosphere.
2. **Eating:** During digestion, organic compounds are broken down, and carbon becomes part of the body.
3. **Photosynthesis:** Green plants and algae perform photosynthesis, converting carbon dioxide from the air into glucose using sunlight.

4. **Respiration:** involves the breakdown of organic molecules to release energy and carbon dioxide.

(ii)

- Green plants.

PRACTICAL PORTION:

[Total 30 marks]

1.

(i)

- Prepare starch and amylase solutions and mix them in each test tube.
- Incubate tubes at corresponding temperatures.
- Stop the reaction with iodine solution.
- Measure the time for color change indicating starch digestion.

(ii)

Water bath at 10°C

(iii)

To allow both solutions to reach the same temperature and optimal conditions for the enzymatic reaction.

2.

(i)

If the distance from the tree increases, the percentage of ground covered by plants will also increase. This supports the hypothesis that shade from the tree is affecting plant growth, with less shade leading to increased plant coverage.

(ii)

- Black offspring is produced from grey parents by genetic mutation.
- Black fur provides better camouflage.
- Benefits lead to their higher production, favored by natural selection.

(iii)

- Select participants from both left-handed and right-handed groups.
- Use a consistent experimental setup.
- Collect data on reaction times and control for variables.
- Systematically compare reaction times to explore handedness impact on response speed.