

Synoptic Essays

Q1.

Write an essay on the topic below.

The importance of nitrogen-containing substances in biological systems.

(Total 25 marks)

Q2.

Write an essay on the topic below.

The importance of diffusion in organisms.

(Total 25 marks)

Q3.

Write an essay on the topic below.

How nucleotides, molecules derived from nucleotides and nucleic acids are important in keeping organisms alive.

(Total 25 marks)

Q4.

Write an essay on the topic below.

The ways in which water and the regulation of water content are important to organisms.

(Total 25 marks)

Q5.

Write an essay on the topic below.

The importance of movement in living organisms.

(Total 25 marks)

Q6.

Write an essay on the topic below.

The importance of receptors in living organisms.

(Total 25 marks)

Q7.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of

your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The control of processes in cells and the importance of these controls.

(Total 25 marks)

Q8.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The importance of ions in biology.

(Total 25 marks)

Q9.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The importance of responses to changes in the internal and external environment of an organism.

(Total 25 marks)

Q10.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The importance to humans of the control of growth, reproduction and development of organisms, including themselves.

(Total 25 marks)

Q11.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

How cells and organisms carry out exchanges with their external environment to maintain their internal environment.

(Total 25 marks)

Q12.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy. It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

How energy is transferred within and between organisms.

(Total 25 marks)

Q13.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The importance of shapes fitting together in cells and organisms.

(Total 25 marks)

Q14.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
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Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

How bacteria can affect the lives of humans and other organisms.

(Total 25 marks)

Q15.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

A cycle is a biological pathway or process in which the end product of one cycle becomes the starting point for the next cycle. Write an essay about cycles in biology.

(Total 25 marks)

Q16.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Carbon dioxide may affect organisms directly or indirectly.
Describe and explain these effects.

(Total 25 marks)

Q17.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The causes of disease in humans.

(Total 25 marks)

Q18.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Polymers have different structures. They also have different functions. Describe how the structures of different polymers are related to their functions.

(Total 25 marks)

Q19.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Heat and many different substances are transferred within the body and between the body and the environment. Explain how surface area is linked to this transfer.

(Total 25 marks)

Q20.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Inorganic ions include those of sodium, phosphorus and hydrogen. Describe how these and other inorganic ions are used in living organisms.

(Total 25 marks)

Q21.**Essay**

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The transfer of energy between different organisms and between these organisms and their environment.

(Total 25 marks)

Q22.**Essay**

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Cells are easy to distinguish by their shape. How are the shapes of cells related to their function?

(Total 25 marks)

Q23.**Essay**

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Mean temperatures are rising in many parts of the world. The rising temperatures may result in physiological and ecological effects on living organisms. Describe and explain these effects.

(Total 25 marks)

Q24.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

How microscopes have contributed to our understanding of living organisms.

(Total 25 marks)

Q25.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Enzymes and their importance in plants and animals

(Total 25 marks)

Q26.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The process of osmosis and its importance to living organisms.

(Total 25 marks)

Q27.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Energy transfers which take place inside living organisms.

(Total 25 marks)

Q28.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

How the structure of proteins is related to their functions.

(Total 25 marks)

Q29.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3

Relevance	3
Quality of written communication	3

Write an essay on the following topic:

The causes of variation and its biological importance.

(Total 25 marks)

Q30.

Essay

You should write your essay in continuous prose.

Your essay will be marked for its scientific accuracy.

It will also be marked for your selection of relevant material from different parts of the specification and for the quality of your written communication.

The maximum number of marks that can be awarded is

Scientific	16
Breadth of knowledge	3
Relevance	3
Quality of written communication	3

Write an essay on the following topic:

Ways in which different species of organisms differ from each other.

(Total 25 marks)