Revision Sheet

Pearson Edexcel · International A-Level · Biology · Unit 2 Cells, Development, Biodiversity and Conservation

16 vocabulary items · 23 marks of exam questions (4 questions)

Part 1 · Vocabulary review (16 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

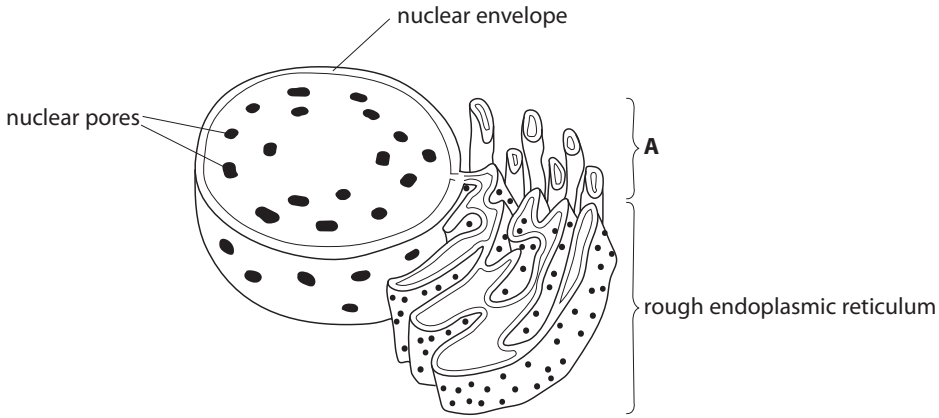
Write the English word.

1. _____ [1]
2. _____ [1]
3. _____ [1]
4. _____ [1]
5. _____ [1]
6. _____ [1]
7. _____ [1]
8. _____ [1]
9. _____ [1]
10. _____ [1]
11. _____ [1]
12. _____ [1]
13. _____ [1]
14. _____ [1]
15. _____ [1]
16. _____ [1]

Part 2 · Exam questions (23 marks, 4 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

17 Eukaryotic cells contain cell organelles.

(a) The diagram shows part of a eukaryotic cell, as drawn by a student. The nuclear envelope, nuclear pores and rough endoplasmic reticulum are labelled.



(i) Which of the following is a correct statement about rough endoplasmic reticulum?

(1)

- ☒ **A** it has 70S (small) ribosomes
- ☒ **B** it has 80S (large) ribosomes
- ☒ **C** it forms vesicles surrounding phospholipids only
- ☒ **D** it forms vesicles surrounding polysaccharides only

(ii) Name a substance synthesised by the organelle labelled **A** in the diagram.

(1)

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(iii) Name **two** structures that could be present inside the nucleus in the diagram.

(2)

1 .....

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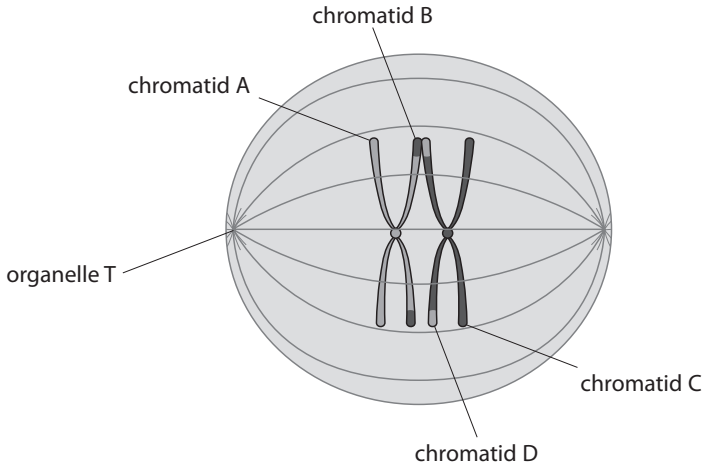
18 The diagram shows part of a cell at the start of metaphase I of meiosis.



(a) Which is organelle T?

(1)

- ☒ **A** centriole
- ☒ **B** lysosome
- ☒ **C** nucleolus
- ☒ **D** ribosome

(b) Explain why it is possible for chromatid A to be genetically different from chromatid B.

(2)

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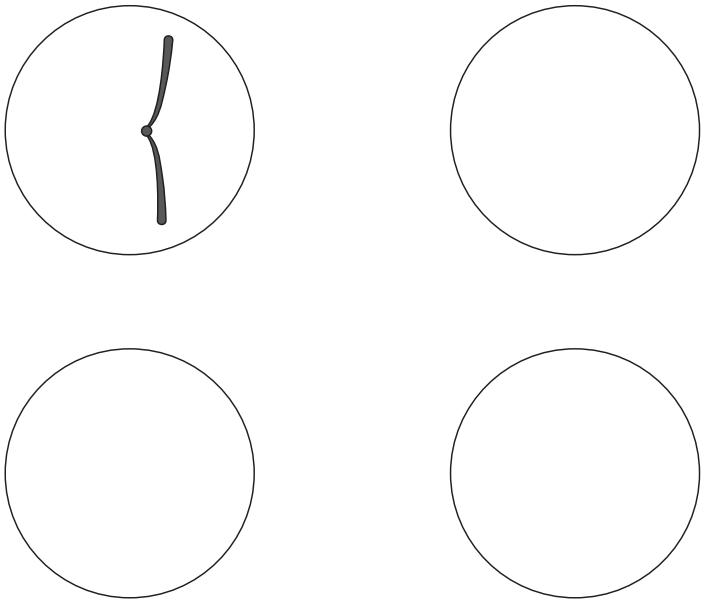
.....

(c) A student was asked to draw the four haploid cells produced by this cell in metaphase I of meiosis.

The diagram shows the incomplete drawings produced by this student.

Complete the drawings to show the **four haploid** cells produced.

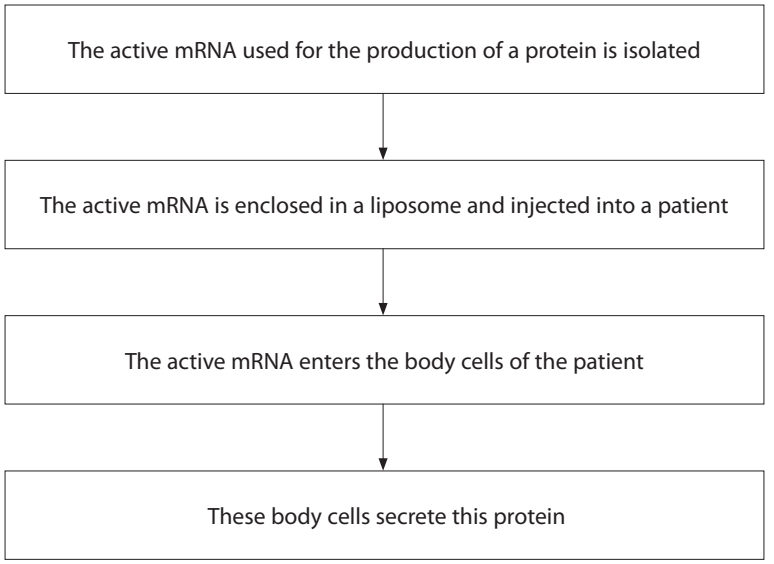
(2)



(Total for Question 18 = 5 marks)

19 A new vaccine has been developed that contains active mRNA.

The flow diagram shows how this vaccine causes body cells to produce a new protein.



(a) The diameter of one spherical liposome was 75 nm.

Calculate the volume of this liposome using the formula:

$$V = \frac{4}{3}\pi r^3$$

Give your answer in standard form.

(2)

Answer ..... nm^3

(b) Active mRNA is formed after post-transcriptional modification of pre-mRNA.

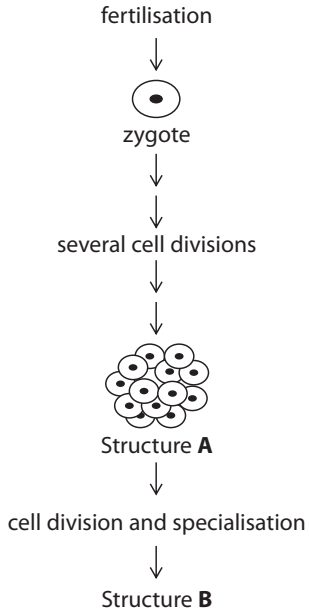
The structure of pre-mRNA produced from transcription is different from the structure of active mRNA.

Compare and contrast the structures of pre-mRNA and active mRNA.

(4)

(Total for Question 19 = 6 marks)

20 The diagram shows some processes that occur after the fertilisation of an egg cell.



(a) Structure **B** is a blastocyst.

Describe the structure of a blastocyst.

(2)

(b) Structure **A** contained 60 cells.

The mitotic index of cells from structure **A** was calculated as 15%.

Calculate the number of cells in structure **A** which were in mitosis.

(1)

Answer .....

(c) Structure **B** contains pluripotent stem cells.

Histone modification and DNA methylation are processes that occur when totipotent stem cells develop into pluripotent stem cells.

Explain how these two processes alter the activation of genes in the cells.

(5)

(Total for Question 20 = 8 marks)