**SUNRISE ONE TERM 1 EXAMINATION 2023**

Kenya Certificate of Secondary Education

FORM FOUR

Form 4 BIOLOGY Term 1

**Name ……………………………………………… Adm No: ………….. Index No:…………………..**

**Class:…………………….. Candidate’s Signiture………..Date………………………….**

**STUDENT’S TARGET………………**

**231/1**

**BIOLOGY**

**PAPER 1**

**THEORY**

**APRIL 2023**

**2 HOURS**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the spaces provided on this page above

2. Answer ALL questions in the spaces provide

**For examiner’s use only**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum score** | **Candidate’s score** |
| 1 – 27 | 80 |  |

***This paper consists of 10 printed pages***

1. What is the function of the following in a microscope?

(a) Mirror (1mk)

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(b) Diaphragm (1mk)

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1. Use the chart below to answer the questions that follow

Prothrombin A

B Thromboplastin

Thrombin

Fibrinogen C

Name: -

(a) The blood cell represented by A (1mk)

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(b) Metal ion represented by B (1mk)

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(c) End product represented by C (1mk)

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1. Below is a nucleotide strand

A – A – G – T – C

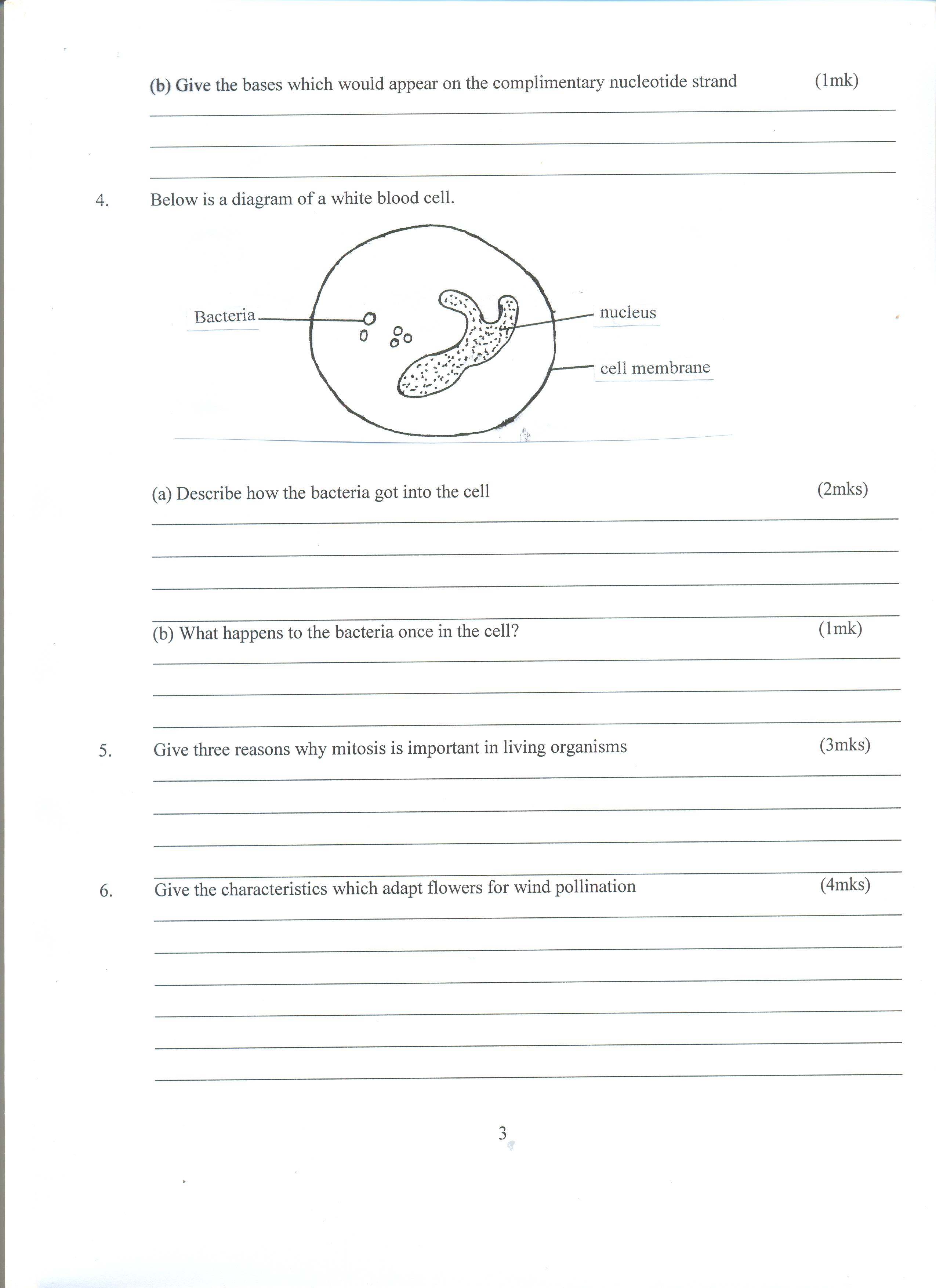
(a) Is it a DNA or RNA strand? Give a reason (2mks)

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(b) Give the bases which would appear on the complimentary nucleotide strand (1mk)

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1. Below is a diagram of a white blood cell.



(a) Describe how the bacteria got into the cell (2mks)

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(b) What happens to the bacteria once in the cell? (1mk)

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1. Give three reasons why mitosis is important in living organisms (3mks)

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1. Give the characteristics which adapt flowers for wind pollination (4mks)

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1. Name one waste product that is :

(a) Almost absent in the renal vein but is present in the renal artery (1mk)

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(b) Transported in the blood but not removed by the kidneys (1mk)

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1. State two functions of the large intestines in human beings (2mks)

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1. Identify the mode of feeding of the animal whose dental formula is given below.

i, C, Pm, M =32.

a) Mode of feeding (1mk)

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b) Give a reason for your answer in (a) above. (2mks)

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1. Name the agent that causes:-

(a) Cholera (1mk)

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(b) Typhoid fever (1mk)

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(c) Amoebic dysentery (1mk)

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1. Outline three roles of active transport in the human body (3mks)

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1. State three ways in which nitrogen in the air is made available for plant use (3mks)

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1. In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later , 620 were captured 75 of which were marked.

a) What is the name of the sampling method described above. (1mk)

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b) Calculate the approximate size of the weaver bird population in the woodland. (2mks)

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c) Give one disadvantage of this method. (1mk)

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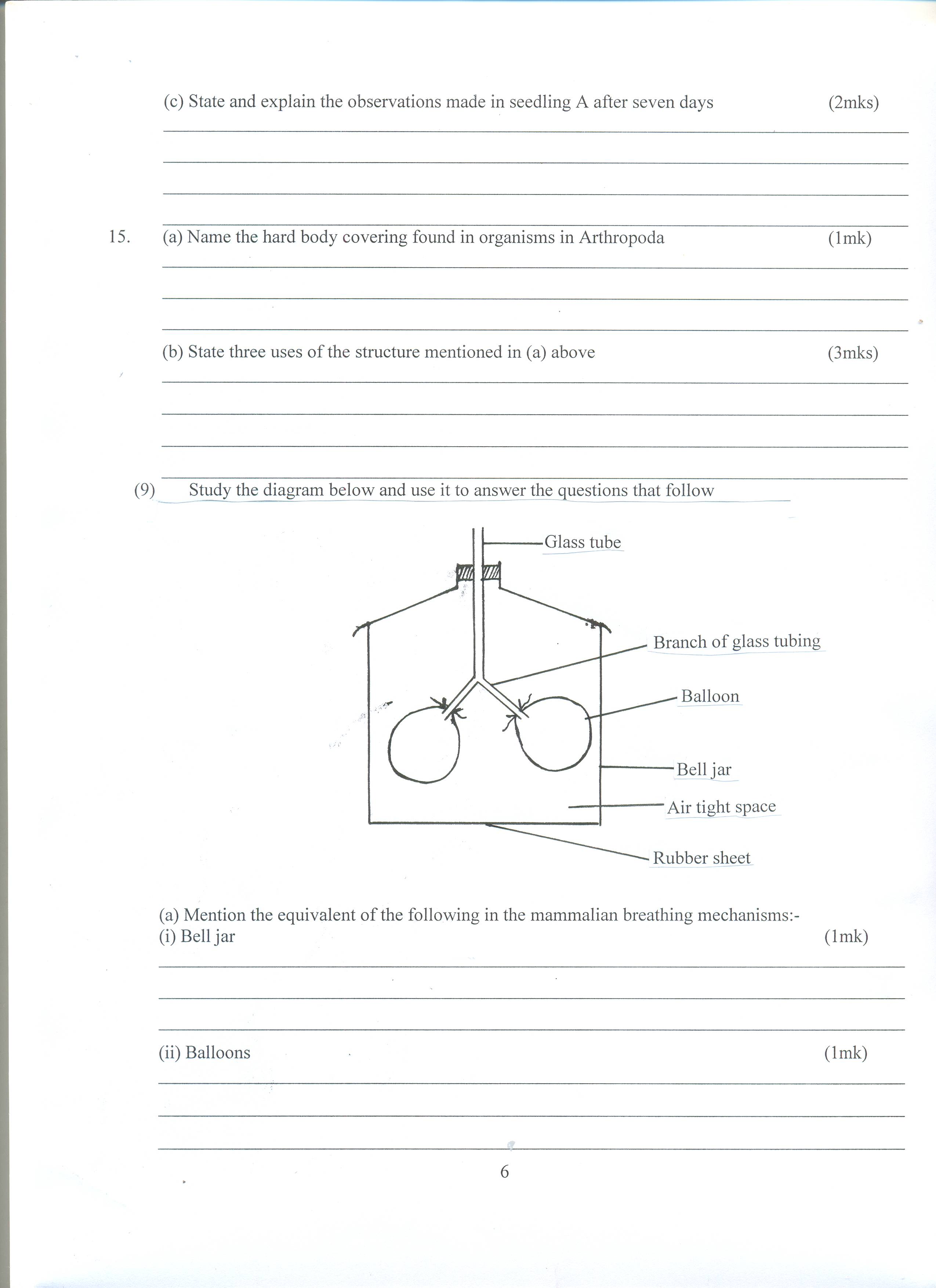
1. (a) Name the hard body covering found in organisms in Arthropoda (1mk)

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(b) State three uses of the structure mentioned in (a) above (3mks)

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1. Study the diagram below and use it to answer the questions that follow



(a) Mention the equivalent of the following in the mammalian breathing mechanisms:-

(i) Bell jar (1mk)

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(ii) Balloons (1mk)

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(b) Does the diagram represent inhalation or exhalation? Give one reason for your answer (2mks)

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1. Explain two advantages of endoderms like man over ectoderms like lizards (2mks)

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1. (a) Name the property that enables lipids to be stored in tissues of organisms (1mk)

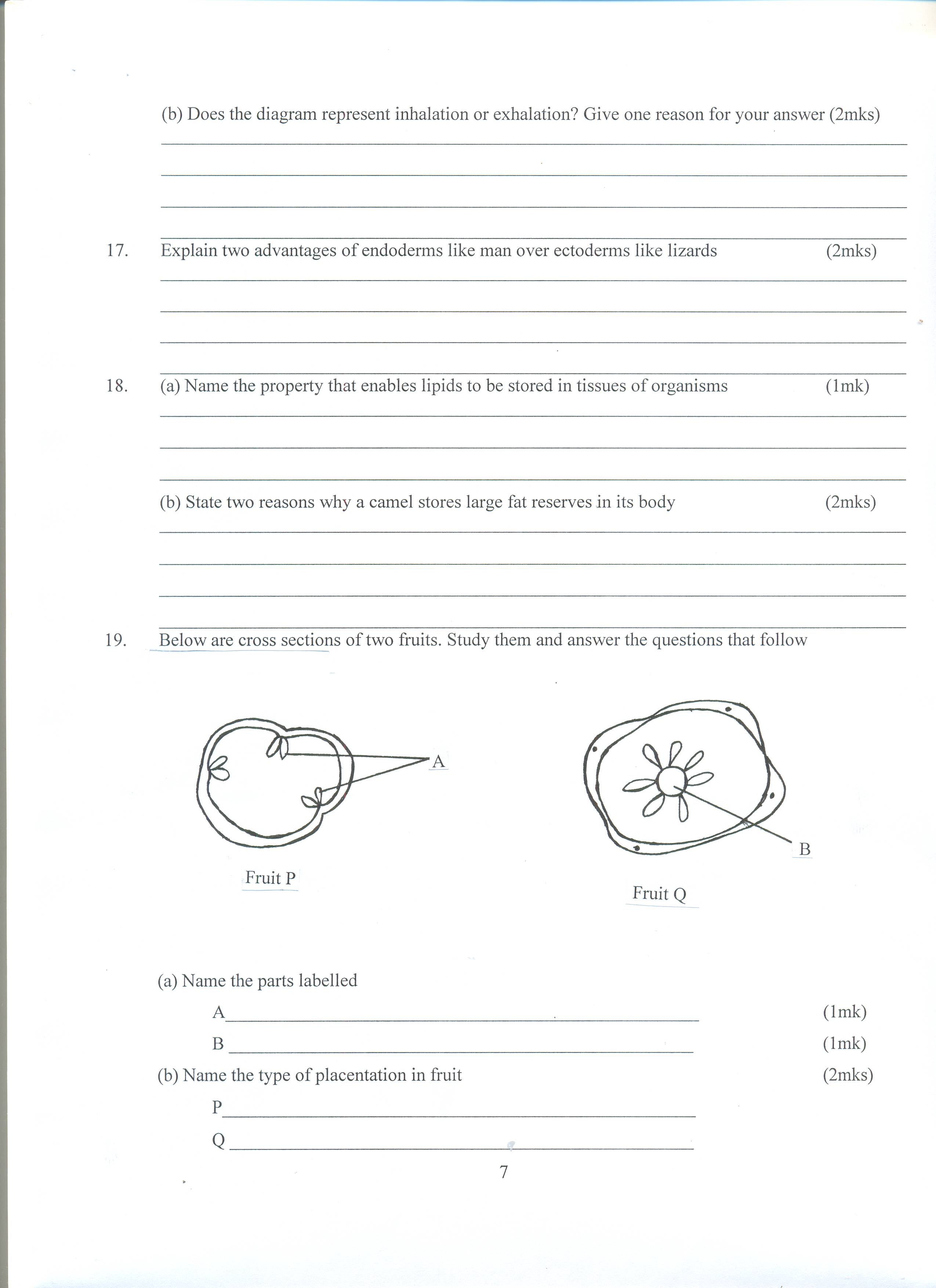
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(b) State two reasons why a camel stores large fat reserves in its body (2mks)

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19. Below are cross sections of two fruits. Study them and answer the questions that follow



(a) Name the parts labelled

A……………………………………………………………………. (1mk)

B …………………………………………………………………… (1mk)

(b) Name the type of placentation in fruit (2mks)

P……………………………………………………………………

Q……………………………………………………………………

1. Which region of mammalian digestive tract does digestion of fats begin? (1mk)

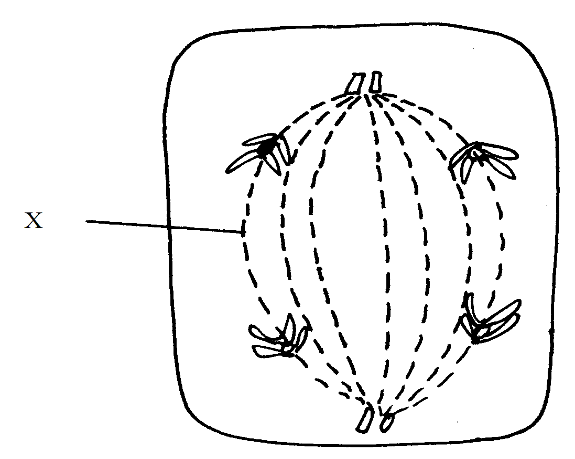
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1. A Rhesus positive man, heterozygous for the trait is married to a rhesus negative woman.

Carry out a genetic cross to show the offsprings of this couple

1. The diagram below represents a stage during cell division.



i) Identify the stage of cell division. (1mk)

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ii) Give two reasons for your answer (a)i) above (2mks)

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iii) Name the structure labelled M. (1mk)

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1. State two organelles absent in members of kingdom monera but present in members of

kingdom protoctista (2mks)

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1. Name the substance produced during anaerobic respiration in animals and state why it

should be got rid off immediately (2mks)

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1. What makes it difficult for seeds to germinate at the following temperatures:

(a) 00c

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(b) 470c

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1. State two major functions of adipose tissue (fat) in mammals (2mks)

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1. Below is an equation for respiration

C57H104O6 + 80O2 57CO2 + 52H2O + Energy

(i) Name the type of respiration taking place (1mk)

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(ii) Calculate the respiratory quotient (RQ) (2mks)

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(iii) Identify the type of food being metabolized. (1mk)

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1. State one significance of interphase in cell division (1mk)

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1. (a) What is the role of light in the light stage of photosynthesis? (1mk)

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(b) What are the products of the light stage of photosynthesis? (2mks)

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