**MAGS 2 CYCLE 7 EXAM.**

**MARCH/ APRIL.**

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

Signature …………..……….

**BIOLOGY** Date: …………………………**….**

**231/1**

**Biology**

**Paper 1**

**2 hours**

**INSTRUCTIONS TO CANDIDATES**

* *Write your name, Index number and school in the spaces provided above.*
* *Answer All questions in the spaces provided on the question paper.*
* *Sign and write the date of examination in the spaces provided above.*
* *Additional pages must NOT be inserted*.

**FOR EXAMINER’S USE ONLY**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum Score** | **Candidate’s Score** |
| **1-31** | **80** |  |

*This paper consists of 7 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.*

1. What is meant by the term sex linkage. (1mk)

………………………………………………………………………………………………

1. Part of one strand of DNA molecule was found to have the following sequence

**G-C-C- G – A – T- T – T – A – C – G – G**

What is the sequence

(i) of the complimentary DNA strand? (1mk)

………………………………………………………………………………………………

(ii) On a m-RNA strand copied from this DNA portion? (1mk)

………………………………………………………………………………………………

1. State two regions in a plant where the end products of photosynthesis are translocated to? (2mks ……………………………………………………………………………………………

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1. With reference to circulatory system only give **two** reasons why birds and mammals are more active compared to other organisms? (2mks)

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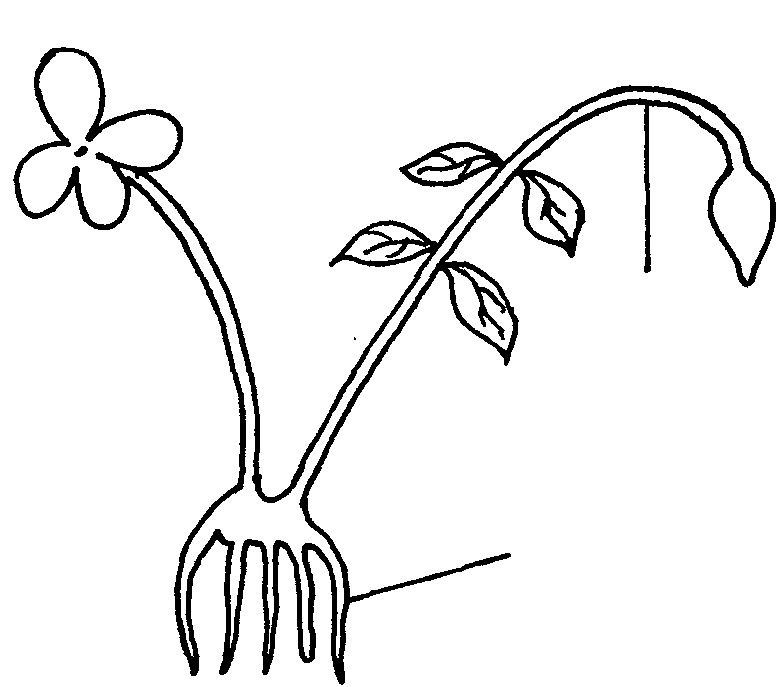
1. (a) What **three** characteristics are used to divide the phylum Arthropoda into classes? (3mks)

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(b) The diagram below shows an organisms from a division in Kingdom plantae. Study it and answer the questions that follow.



**Y**

**X**

1. Identify the division from which the plant was obtained. (1mk)

…………………………………………………………………………………………

(ii) Name the parts labelled **X** and **Y** (2mks )

**X**…………………………………………………………..

**Y**……………………………………………………………

1. What is the relationship between a genus and a species? (1mk)

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1. A drawing of 3 cm was made of a giant spider whose actual length was 7cm. calculate the magnification of the drawing? (3mks)
2. Explain why osmosis is described as a special type of diffusion? (1mk)

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………………………………………………………………………………………………

1. The following table shows the estimated number of organisms recorded in a dam.

|  |  |
| --- | --- |
| **Organisms** | **Number** |
| **Small fish** | **3500** |
| **Microscopic algae** | **12000** |
| **Crocodiles** | **100** |
| **Large fish** | **950** |
| **Mosquito larvae** | **8900** |

1. Construct a possible food chain for the dam? (1mk)
2. Construct a pyramid of numbers for the given data? (1mk)
3. Explain the shape of pyramid obtained? (2mks)

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1. (a) Explain why leaves of most plants are thin and broad. (2mks)

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(b) State the function of the following enzymes during digestion in the stomach?

(i) Pepsin (1mk)

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(ii)Renin (1mk)

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1. Explain the following:
2. Respiratory surface must be moist? (1mk)

………………………………………………………………………………………………

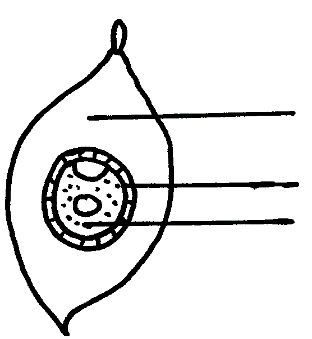
1. Respiratory surface must be thin (1mk)

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1. Palisade cells are cylindrical shaped and arranged with long axis perpendicular to the leaf surface. (1mk)

………………………………………………………………………………………………….

12.The diagram below represents the vertical section of a fruit.



**Fibrous Mesocarp**

**Hard waterproof endocarp**

**Endosperm**

1. Suggest the possible agent of dispersal of this fruit. (1mk)

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…………………………………………………………………………………………

1. Explain **two** observable features that adapt the fruit to its mode of dispersal. (2 mks)

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13.Explain why the body temperature of a healthy person rises slightly during humid days? (2mks) …………………………………………………………………………………………………..

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14(a) (i) Name the respiratory surface in insects. (1mk)

………………………………………………………………………………………………

(ii)State any **one** feature that adapts the structure named in a(i) above to its function. (1mk)………………………………………………………………………………………………

1. Why are the fish gills highly vascularized? (1mk)

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15State the function of the following organelles:

(i) Granulated Endoplasmic reticulum (1mk)

………………………………………………………………………………………………

(ii) Nucleolus (1mk)

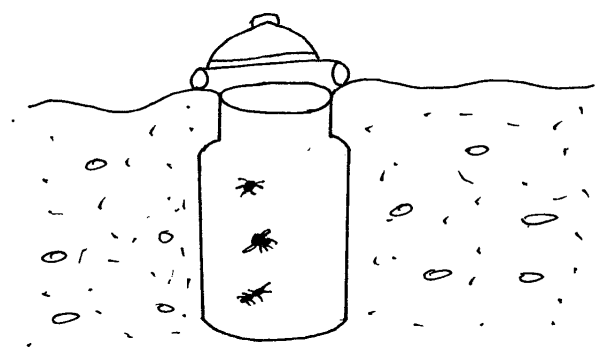
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1. State **two** gaseous exchange sites in plants? (2mks)

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1.  The diagram below shows an apparatus used during collection of specimen in biological study.
2. Identify the apparatus? (1mk)

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1. What is the use of the apparatus named above? (1mk)

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1. List **three** limitations of fossil records as an evidence of organic evolution? (3mks)

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1. Distinguish between enzyme co-factors and co-enzymes? (2mks)

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1. Give **two** reasons for the rapid growth during the exponential phase of growth curve? (2mks)

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1. Give **two** reasons why *Carolus* *Linneaus* preferred the use of latin language in the scientific naming of living organisms. (2mks)

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1. State **three** roles played by active transport in living organisms. (3mks)

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1. List **three** factors affecting the rate of respiration? (3mks)

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1. Study the diagram below and answer the questions that follow.



**W**

**Y**

**X**

**Nucleus**

**Xytoplasm**

1. Identify the cell (1mk)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

1. Label the parts **X,Y** and **W** (3mks)

**X**……………………………………………………………………………………………

**Y**……………………………………………………………………………………………

**W**……………………………………………………………………………………………

1. Explain why it is becoming more difficult to treat malaria using chloroquine? (2mks)

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1. State **two** ways by which the ileum is adapted for absorption of food materials? (2mks)

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1. Name **two** processes that contribute to variation during gamete formation? (2mks)……………………………………………………………………………………

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28.Damage to the mammalian liver may lead to indigestion of fats. Explain this observation. (2 mks) ………………………………………………………………………………………………….

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29.Name the disease of blood characterized by

i) Abnormally large number of white blood cells. (1 mk)

………………………………………………………………………………………………………

ii) Cresent-shaped haemoglobin instead of the normal biconcave shape. (1 mk)

………………………………………………………………………………………………………

30. During a strenuous exercise the chemical process represented by the equation below takes place in the human muscle cells.

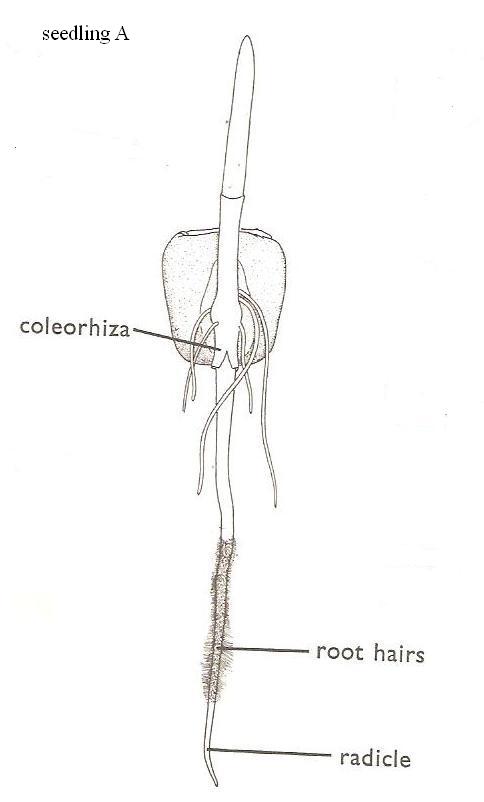
C6H12O6 2CH3CH(OH)COOH+150KJ

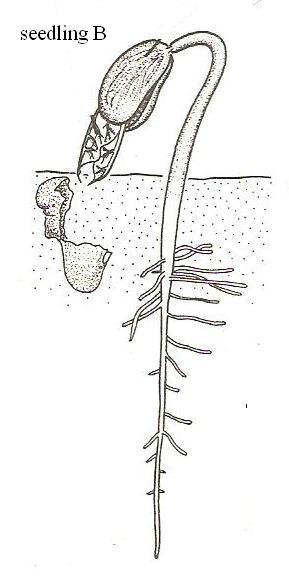
(Substance X)

1. Name the process represented above . (1 mk) ……………………………………………………………………………………………

b)Name substance X ………………………………………………........................................ (1mk)

31. The diagram below represents a stage of growth in two different seeds.





[a] Identify the type of germination exhibited by seedlings A and B. [2 marks]

Seedling A…………………………………………………………………………………………………………………….

Seedling B……………………………………………………………………………………………………………………

[b] State the role of oxygen during germination. [1 mark] ……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

[c] Account for the loss of weight in cotyledons in germinating seeds. [1 mark] ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

[d] (i) State the role of juvenile hormone during metamorphosis in insects. [1 mark]

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(ii) Name the glands that secrete juvenile hormone [1mark]

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