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

**School ………………………………………………... Candidate’s Signature ……………………… Date ………………...........................………..**

**231/3**

**BIOLOGY**

**PAPER 3**

**(PRACTICAL)**

**TIME: 13/4 HOURS**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the spaces provided
2. Answer **ALL** the questions in spaces provided.
3. You are required to spend the first 15 minutes of the 1 allowed for this paper reading the whole paper carefully before commencing your work.
4. Additional pages must not be inserted.

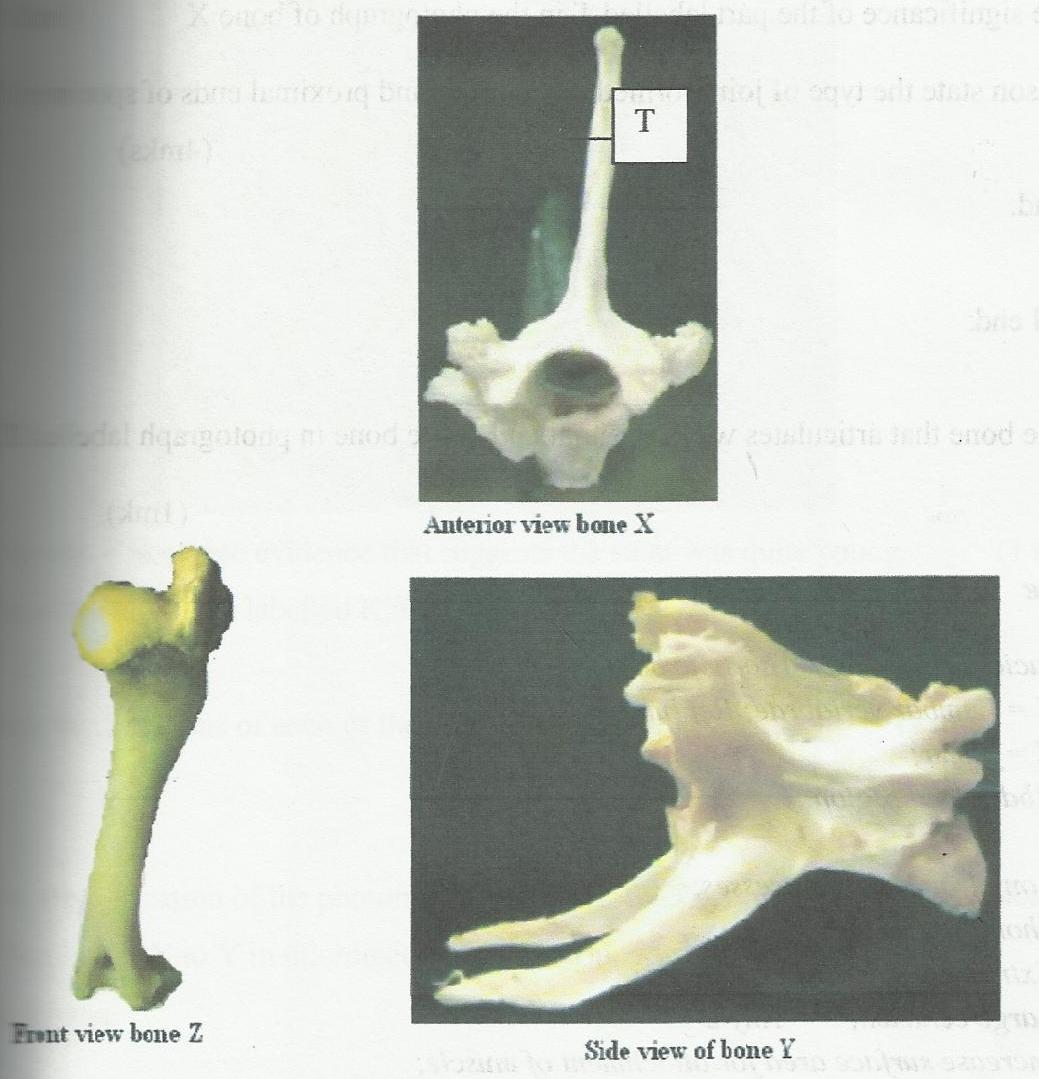
**FOR EXAMINER’S USE ONLY**

|  |  |  |
| --- | --- | --- |
| **Question** | **Max. Score** | **Candidate’s score** |
| **1** | 12 |  |
| **2** | 13 |  |
| **3** | 15 |  |
| **40** | **TOTAL SCORE** |

***This paper consists of 6 printed pages.***

***Candidates should check to ensure that all the three questions are printed as indicated and no questions are missing.***

1. The photographs below are bones obtained from different regions of a mammalian body. The photographs are of different views.



**Anterior view of bone X**

**Front view of bone Z**

**Side view of bone Y**

1. Identify the bones. (3 marks)

X……………………………………………………………

Y……………………………………………………………

Z……………………………………………………………

1. Name the regions from which bone Y was obtained from. (1 marks)

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

1. State **two** distinguishing features of the bones in photograph labeled Y. (2 marks)

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1. State the significance of the part labeled T in the photograph of bone X. (1 mark)

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1. With reason state the type of joint formed at the distal and proximal ends of specimen Z.( 4 marks)
2. Distal end ……………………..……………………………………

Reason

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

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1. Proximal end. ……………………..……………………………………

Reason

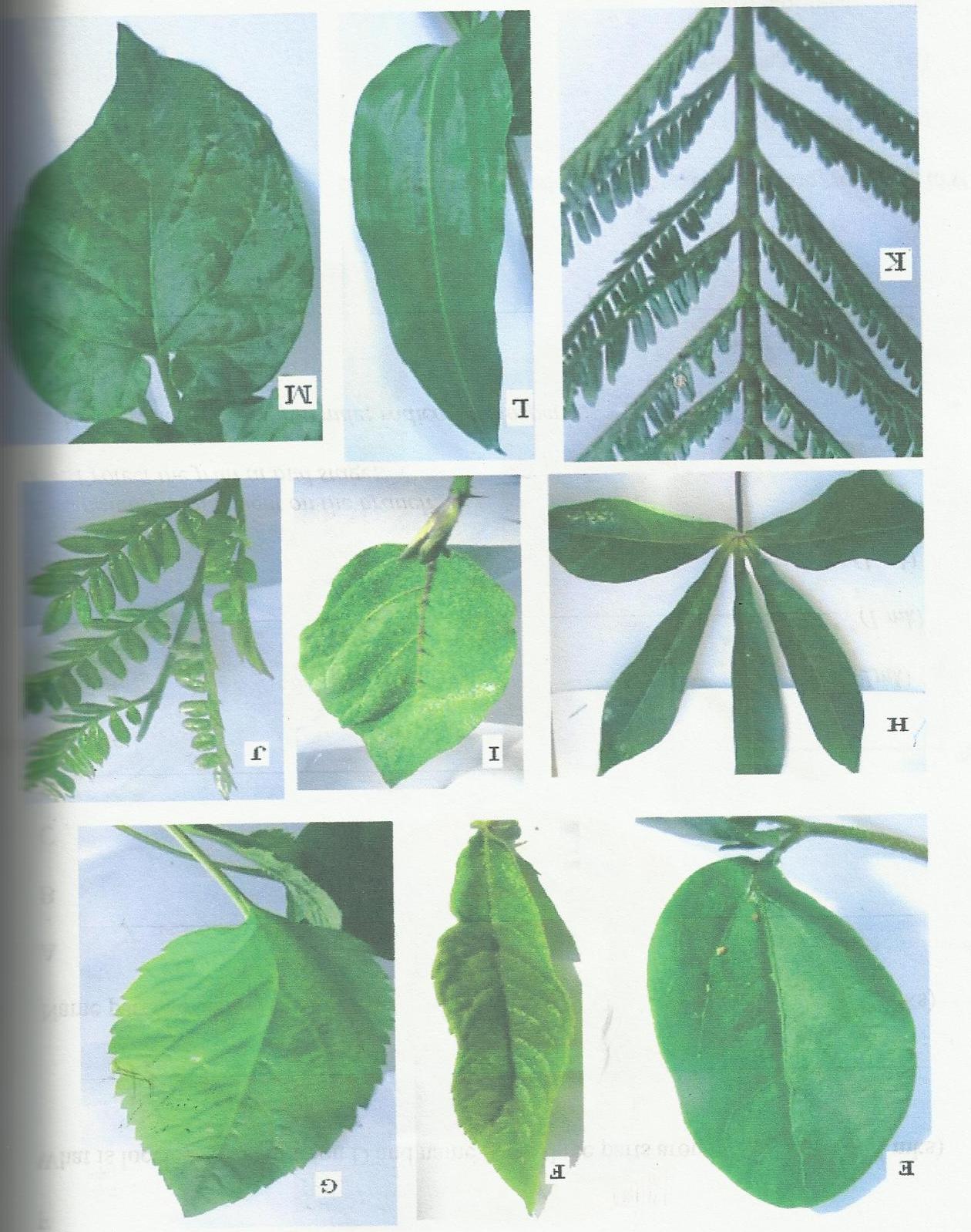
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1. Name the bone that articulates with the proximal end of the bone in photograph labelled Z. (1 mark)

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

1. You are provided with photographs E, F,G,H,I,J,K,L and M below. Study them carefully to answer the questions that follow.



**M**

**L**

**K**

**J**

**I**

**H**

**G**

**F**

**E**

Using the observable features in the photographs, complete the dichotomous key given below. (4 marks)

1. a) Simple leaf ………………………………Go to 2

b) Compound leaf……………………………Go to 7

1. a) Leaves with parallel pains…………………*Mexican marigold*

b) ……………………………………….……Go to 3

1. a) Leaves notched at the base ………………*Phaseolus vulgaris*

b) Leaves not notched at the base………… Go to 4

1. a) Leaves with smooth margin ………………*Croton megalocarpous*

b) Leaves with serrated margin ………………Go to 5

1. a) ……………………………………….……*Solanumincunum.*

b) Leaves smooth without hairs……………Go to 6

1. a) Leaves shape cordate……………………*Bidenspilosa.*

b) Leaves shape linear ………………………*Prunusdomestica*

1. a) Leaves palmate …………………………. *Manihotesculentum*

b) ……………………………………….……Go to 8

1. a) ……………………………………….……*Acacia Meansii*

b) Leaflets rounded at tip…………………….*Jacaranda Mimosifolia*

b) Use the completed dichotomous key to identify the family to which each plant belongs. (9 marks)

Photograph Identity Steps followed

E ……………………………… …………………………………………………..

F ……………………………… …………………………………………………..

G ……………………………… …………………………………………………..

H ……………………………… …………………………………………………..

I ……………………………… …………………………………………………..

J ……………………………… …………………………………………………..

K ……………………………… …………………………………………………..

L ……………………………… …………………………………………………..

M ……………………………… …………………………………………………..

3. You are provided with suspension S.

1. Using the materials provided, identify the food substances present in the suspension.

Record the procedures,observations and conclusions in the table below. (10 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| FOOD SUBSTANCE | PROCEDURE | OBSERVATIONS | CONCLUSION |
|  |  |  |  |

1. Using the deductions in (a) above state and explain ways in which a human body could benefit from suspension S. (5 marks)

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