**Name………………………………………………… ADM No. …………………….**

**School ………………………………………………... Date……. …………………….**

**Sign……. …………………….**

231/3

BIOLOGY

**PAPER 3**

**PRACTICAL**

**Time: 1 ¾ Hours**

**FORM 4**

Kenya certificate of secondary education (K.C.S.E)

## INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided

- Sign and write the date of examination in the spaces provided above.

- Answer all questions in the spaces provided in the question paper.

- You are required to spend the first 15 minutes of 1 ¾ hours allowed for this paper reading the whole paper before commencing your work.

- Answers MUST be written on the spaces provided after each question.

- Candidates may be penalized for recording irrelevant information and incorrect spelling especially of technical terms.

**FOR EXAMINERS USE ONLY**

|  |  |  |
| --- | --- | --- |
| **QUESTION** | **Max Score** | **Candidate Score** |
| 1 | 12 |  |
| 2 | 15 |  |
| 3 | 13 |  |
| **TOTAL SCORE** | 40 |  |

1. a). You are provided with a sample of food labeled P in solution form. Using the

reagents provided, carry out tests on the food sample to identify the type of food

substances present. **(6 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Food substance** | **Procedure** | **Observation** | **Conclusion** |
|  |  |  |  |
|  |  |  |  |

b). Suggest the regions of the human digestive system where the foods tested are

digested. **(2 marks)**

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c).State enzyme involved in the digestion of the foods tested. **(2 marks)**

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d). Name the deficiency diseases of each of the food tested. **(2 marks)**

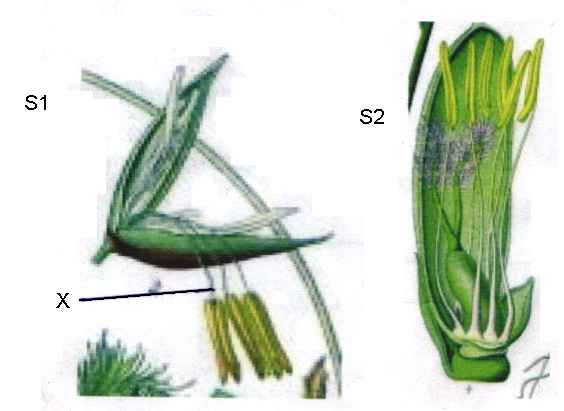
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…………………………………………………………………………………………………………………

2. Below are photographs of specimens obtained from plants. Examine the photographs



**R**



1. For each of the specimens, name the mode of pollination and the features that adapt the specimen to the mode of pollination.

***Specimen R***

-Mode of pollination  **(1mark)**

......................................................................................................................................................................

-Adaptive features. **(2marks)**

i)............................................................................................................................................................................................................................................................................................................................................

ii)...........................................................................................................................................................................................................................................................................................................................................

***Specimen S1***

-Mode of pollination  **(1mark)**

......................................................................................................................................................................

-Adaptive features **(2marks)**

i).............................................................................................................................................................................................................................................................................................................................................

ii)............................................................................................................................................................................................................................................................................................................................................

b) Label any **four** parts on specimen R **(4 marks)**

c). Name the structure labeled X on specimen S1. **(1 mark)**

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d).Using observable features, only state **two** differences between R and S. **(2marks)**

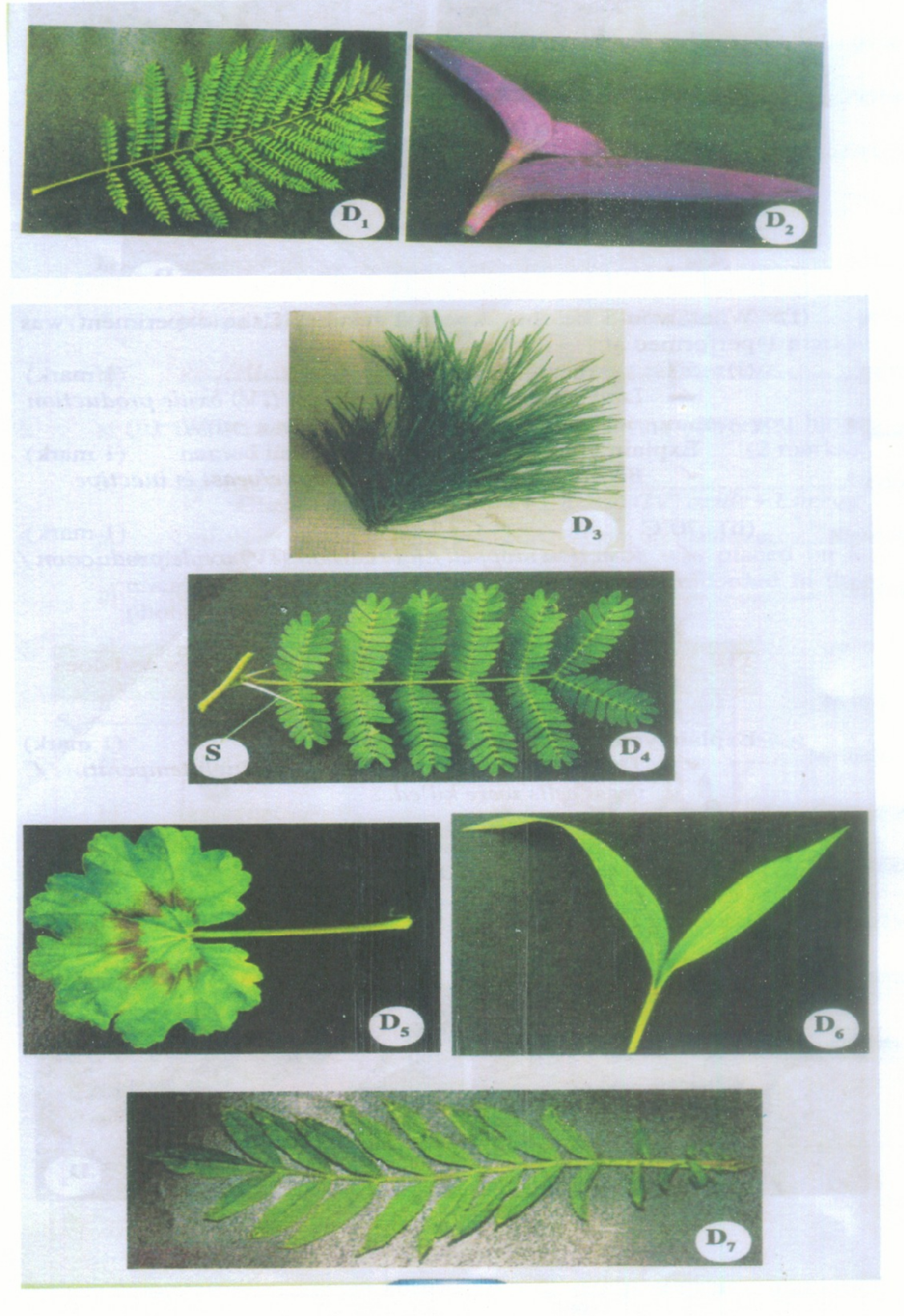
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e).With a reason, name the class of the spermatophyta to which specimen R belongs. **(2marks)**

Class..........................................................................................................................................................................

Reason..........................................................................................................................................................................................................................................................................................................................................................

3.You are provided with seven, photographs of plans specimen. They are labelled specimen D1D2D3 D4,D5 D6 and D7



**Key.**

1. a) Leaves needle like ……………………………………………………………..go to 2

b) Leaves broad ………………………………………………………………….. go to3

2. a) Leaves arranged in clusters on stem………………………………………….. Pinnacea

b) Leaves not arranged in clusters on stem ……………………………………..Araucariaceac

3. a) Leaves compound…………………………………………………………….. go to 4

b) Leaves simple………………………………………………………………… go to 7

4. a) Leaflets pointed at the end …………………………………………………….go to 5

b) Leaflets rounded at the end……………………………………………………go to 6

5. a) Leaflets attached to many small stalks that join the main one ……………….Mimosaceae

b) Leaflets attached to one stalk …………………………………………………Rosaceae

6. a) Leaflets attached to many small stalks that join the main one………………. Bignonaceae

b) Leaflets attached to one stalk …………………………………………………Compositae

7. a) Leaves green ………………………………………………………………….go to 8

b) Leaves purple ……………………………………………………………….. go to 9

8. a) Leaves parallel veined ………………………………………………………..Graminae

b) Leaves net veined ……………………………………………………………. Geranaceae

9. a) Leaves parallel veined ……………………………………………………Commelinaceae

b) Leaves net veined ………………………………………………………….Euphorbiaceae

**a)** Use the dichotomous key to identify the taxonomic group specimensD1D3 and D5 photographs provided. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ **{6 marks}**

|  |  |  |
| --- | --- | --- |
| **Specimen** | **Steps followed** | **Identity** |
| D1 |  |  |
| D3 |  |  |
| D6 |  |  |

**b)** (i) Suggest the likely natural habitat for specimen D4. **{l mark}**

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(ii) Explain one observable feature that adapts specimens D4 to the habitat you have mentioned in

(b) (i) above. **(2marks)**

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iii) What is the importance of the structure marked S in specimen D4? **{l mark}**

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**c)** (i) If the stem of specimen D2 was squeezed strongly, state the expected

observations. **{l mark}**

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(ii) From your observation in c (i) above, suggest how specimen D2 is adapted to its habitat. **(2marks)**

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***END***