**POST MOCK 2019**

***Kenya Certificate of Secondary Education (KCSE)***
***TERM 3 2019***
**MARKING SCHEME**

**BIOLOGY PAPER 3**

**PRACTICAL**

1. You are provided with specimen A and B
   a) Name the sub-division to which the specimens belong

      (1mk)

      ***Angiospermae/Angiospermaphyta***

   b) Name the class to which the specimens belong

      (2mks)

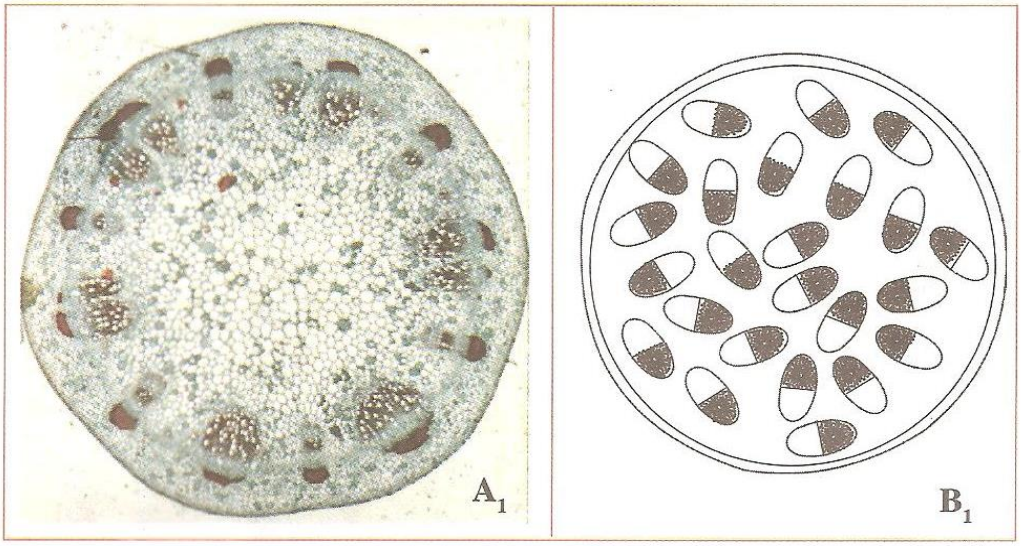
      ***A- Dicotyledonae***

      ***B - Monocotyledonae***

   c) State three observable differences between the leaves of specimen A and B

      (3mks)

| **Leaves A** | **Leaves B** |
|---|---|
| ***Network veined*** | ***Parallel veined*** |
| ***Has a petiole*** | ***Has a sheath*** |
| ***Broad lamina/leaf blade*** | ***Narrow lamina / leaf blade*** |



d) The diagram below show the cross-sections of stems obtained from specimens A and B

(i) Match the stem cross-section with the specimen

(2mks)

***A-$A_1$***

***B-$B_1$***

(ii) Outline three differences between the two stems

(3mks)

| **Specimen $A_1$** | **Specimen $B_1$** |
|---|---|
| ***Vascular bundles arranged in a ring*** | ***Vascular bundles scattered in the stem*** |
| ***Has a distinct cortex and pith*** | ***Pith and cortex absent*** |
| ***Vascular cambium present*** | ***Vascular cambium absent*** |

e) Suggest the agent of pollination of the flowers of specimen A

(1mk)

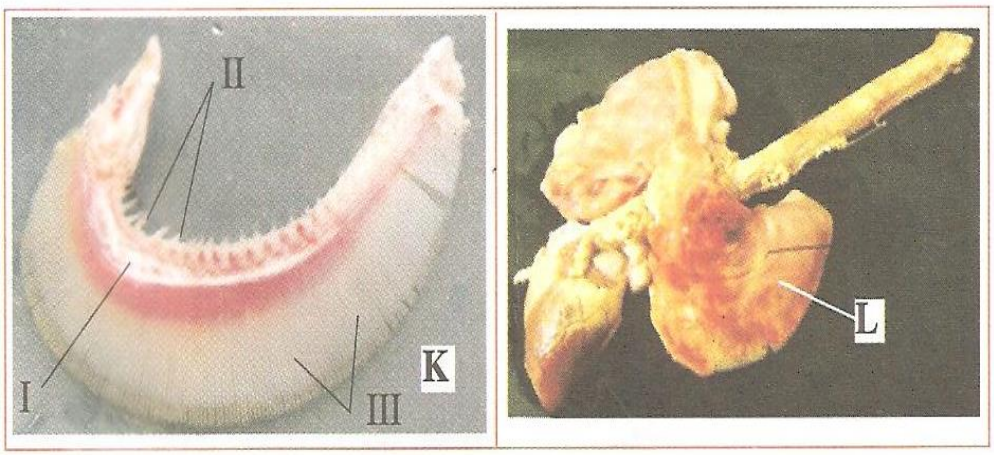
***Insect***

Give reason for your answer

(1mk)

***Brightly coloured petals to attract insects***

2. You are provided with photographs of specimens labeled **K (gills)** and **L (lungs).** Examine them and answer the questions that follow.




(a) Name the class of organisms from where the specimens were obtained

(2mks)

| Specimen | Class |
|---|---|
| ***K*** | ***Pisces*** |
| ***L*** | ***Mammalia*** |

(b) Label all the parts of specimen K on the photograph

(3mks)

***I. Gill bar***

***II. Gill rakers***

***III. Gill filaments***

(c) State the functions of each of the parts you have labeled in (b) above

(3mks)

***Gill bar - Supports the gill filament***

***Gill filaments - Form the site of gaseous exchange***

***Gill rankers - Protect the delicate gill filaments from damage by solid particles***

(d) State three ways in which the part labeled L is adapted to its functions

(6mks)

- ***Made of spongy elastic tissue that expands to accommodate a large volume of***

***air***

- ***Made up of numerous alveoli to provide a large surface area for gaseous exchange***
- ***Supplied with numerous blood capillaries to maintain a high concentrated gradient for quick transportation of gases***

(e) State the functional relationship between specimens K and L

(1mk)

***Both are gaseous exchange organs in the organisms where they are found***

3. You are provided with:

- 1ml Olive oil
- $K_1$ (Concentrated sodium hydrogen carbonate solution)
- $K_2$ (1% starch solution)
- Irish potato
- Test tube
- Iodine solution

Label two test tube s X and Y. Into each test tube; put $2cm^3$ of water and 8 drops of Olive oil. To the test tube labeled X, add 8 drops of Liquid $K_1$. Shake both test tubes and allow the contents to stand for 2 minutes

a)(i) Record your observation in:

(2mks)

Test tube X

***Liquid becomes cloudy/turbid, suspension formed/oil broken up into small droplets which are dispersed throughout the liquid. The oil becomes emulsified.***

Test tube Y

***Oil floats on the water/two separate /immiscible layers are formed***

(ii) Name the process that has taken place in test tube X

(1mk)

***Emulsification***

(iii) Stage the significance of the process named in (a) (i) above in digestion

(1mk)

***Increases surface area for action of lipase enzyme***

(iv) Name the:

I. Digestive juice in human beings that has the same effect on oil as liquid

$K_1$ (1mk)

II.

***Bile***

III. Region of alimentary canal where the juice is secreted

(1mk)

***Duodenum.****rej small intestines*

b) Label two test tubes E and F. place $2cm^3$ of liquid $K_2$ into each. Add a drop of iodine solution into each test tube

(i) Record your observations

(1mk)

***Iodine solution changes from brown to blue-black***

(ii) Suggest the identity of liquid $K_2$

(1mks)

***Starch solution***

(iii) Cut out a cube whose sides are 1cm from the irish potato provided. Crush the cube to obtain a paste and place the paste in the test tube labeled E. Leave the set up for at least 30minutes

Record your observations

(2mks)

***Content of F remain unchanged/blue black colour in E***

***disappears/fades/change to pale/light yellow/light/light brown/orange***

Account for the results in (b) (iii) above

(2mks)

***Enzyme /amylase in potato breaks down***

***starch/converts/hydrolyse/changes/digest starch into maltose/reducing sugars/simple sugars that do not give a blue black colour with iodine.***