BIOLOGY
PAPER - 2
(PRACTICAL)

(*Three hours*)

(*Candidates are allowed additional 15 minutes for only reading the paper.*

***They must NOT start writing during this time.*)**

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*Answer **all** questions.*

All working including rough work should be done on the same sheet as the rest of the answer.

The intended marks for questions or parts of questions are given in brackets [ ]

Note: Q4 (Spotting) is to be attempted on a separate continuation sheet. The continuation sheet is to be handed over to the Supervising Examiner after the last observation. This continuation sheet should be attached to the main answer booklet of the candidate after the examination.

Question 1 [5]

(a)   Observe the given flower specimens **D41** and **D42** carefully. Describe the floral characteristics of each in semi-technical terms (Details of individual whorls are not required).

(b)   Cut a longitudinal section of each flower specimen with a sharp razor blade and show them **to the Visiting Examiner.**

(c)   Make a neat labelled diagram of one cut surface of specimen **D42**.

(d)   Observe the cut surfaces of each specimen and record the following features in a tabular form:

   (i)   **Androecium**:

      (1)   Relation of stamens to petals.

      (2)   Relation to each other.

      (3)   Number of stamens.

(ii) **Gynoecium**:

    (1)   Nature of stigma.

    (2)   Position of ovary in relation to other whorls.

    (3)   Type of placentation.

(e)   Write the floral formula of each specimen.

(f)   Draw the floral diagram of **D41**.

(g)   Name the family to which each specimen belongs.

(h)   Give the botanical name of one economically important plant of each family you have mentioned in (g).

Question 2 [5]

You are provided with a well-watered geranium plant (or any other medium-sized leafy plant can be used) and a few dry cobalt chloride papers in a covered Petri dish.

(a)   Place the dry cobalt chloride papers, one each on the upper and lower surface of a selected leaf, with the help of a forceps. Immediately, cover the papers with glass slides.

(b)   Hold the glass slides together with clothes' pegs (provided) or rubber bands.

(c)   Place a dry cobalt chloride paper between two glass slides. Press the slides together with clothes pegs or rubber bands. Keep this aside. **Show the entire set up to the Visiting Examiner.**

(d)   Observe the two surfaces of the experimental leaf (a) and the cobalt chloride paper covered with slides (c) every two minutes and record your observations as shown below:

Time (Minutes)	Experimental Leaf (a)		Cobalt Chloride Paper in Slides (c)
	Upper Surface	Lower Surface	
2			
4			
6			
8			
10			

(e)   Continue your observations till you observe a change in the colour of the papers.

(f)   Explain your observation of the two papers on two surfaces of the leaf (a) and in slides (c).

(g)   What do you conclude from the experiment?

(h)   Define the physiological process that you have observed while performing the above experiment.

Question 3   **[5]**

(a)   With the help of a sharp razor/blade, cut thin sections of **D43**. Select a good transverse section and stain it with safranin. Mount the section in glycerine. **Show your slide to the Visiting Examiner under a low power microscope.**

(b)   Draw a neat labelled outline of the mount as observed under the microscope. (Cellular details are not required.)

(c)   Identify the specimen and mention at least three important characteristics.

Question 4   **[5]**

Identify the given specimens A to E. Give *two* reasons to support your answer in each case. Draw a neat labelled diagram of each specimen. You are not allowed to spend more than three minutes for each spot.

Note: *Hand over your continuation sheets to the Supervising Examiner after you finish answering this question.*

Question 5

Show the following to the Visiting Examiner for assessment:

(a)   Project   **[7]**

(b)   Biology Practical File.   **[3]**

BIOLOGY

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(PRACTICAL)

List of Items for Spotting

Spotting:

1. T.S. of monocot stem - slide

2. Capitulum inflorescence

3. Experiment to show transpiration in a plant kept under a bell-jar.

4. T.S. of blastula - slide

5. Plasmodium - slide