BIOLOGY

Paper – 2

(PRACTICAL)

Three hours and a quarter

(The first 15 minutes of the examination are for reading the paper only.

Candidates must NOT start writing during this time).

All workings, including rough work, should be done on the same sheet as, and adjacent to, the rest of the answer in the answer script.

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

Question 1. **[5]**

Examine the given specimen **D-41** provided and answer the following:

(a) Describe specimen D-41 in semi-technical terms (details of the individual whorls not required).

(b) With the help of forceps remove the corolla from D-41 and tabulate its characteristics as shown in the table given below.

Number of petals	
Aestivation	
Corolla shape	

(c) With the help of forceps, remove the androecium from D-41 and tabulate its characteristics as shown in the table given below.

Number of stamens	
Arrangement of androecium	
Nature of attachment of anther	

(d) (i) Take the pistil. Cut the ovary transversely and draw a labelled diagram of its cut surface.

(ii) Name the type of placentation.

(e) Take a fresh flower and with the help of a sharp razor blade, cut a longitudinal sectio of D-41. Draw a labelled diagram of its cut face.

Show the section to the External Examiner.

(f) Write the floral formula of specimen D-41.

(g) Draw the floral diagram of specimen D-41.

(h) Name the family to which the specimen D-41 belongs to and give ***two*** reasons to support your answer.

(i) Write ***two*** economic importance of the family of specimen D-41.

(j) Mention the scientific names of any ***two*** economically important plants belonging to the family of specimen D-41.

Question 2. **[6]**

You are provided with the following materials:

- ✓ beaker
- ✓ funnel
- ✓ bee-hive shelf
- ✓ test-tube
- ✓ measuring cylinder
- ✓ water
- ✓ sodium bicarbonate solution
- ✓ **specimen D-42**

(a) Carry out the experiment as per the instructions given below.

Step 1 Take the bee-hive shelf and place it in the beaker.

Step 2 Place D-42 in the funnel and invert it over the bee-hive shelf.

Step 3 Fill the beaker with water in such a way that the stem of the funnel is under water.

Step 4 Fill the test-tube with water and invert it over the stem of the funnel. There should not be any air space in the test-tube when you set-up the experiment.

(b) Add 20 ml of sodium bicarbonate solution in the experimental set-up after every minute for three minutes. Count the number of gas bubbles evolved each time you add 20 ml of sodium bicarbonate solution and record your results as shown in the table given below.

Time	Volume of sodium bicarbonate	Number of bubbles evolved

(c) Comment on your observation.

(d) What is the aim of the experiment?

(e) Draw a neat labelled sketch of your experimental set-up.

Question 3. **[4]**

Make a temporary stained mount of a transverse section of the given specimen **D-43** and follow the procedure given below:

(a) Cut a thin transverse section of D-43. Stain it with safranin. Blot out the excess stain and put a drop of glycerine, and cover it with a cover slip.
Show your slide to the External Examiner under a low microscope.

(b) Identify the specimen D-43. Give ***two*** reasons to support your answer.

(c) Draw a neat labelled diagram. Your diagram should be an enlarged portion showing cellular details.

Question 4. **[5]**

You will be given **three** minutes each to identify the given specimens **A** to **E**. Take back your answerscripts to your working table and complete the rest of the work. Draw a neat labelled diagram of each specimen and give ***two*** reasons to support your answer in each case.
In case of models, mention the role of the part pointed in the model instead of writing points of identification.