

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 answers in the answer script.

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

Question 1.

[6]

Examine the given specimens **Q-41** and **Q-42** provided and answer the following:

- (a) Describe the general floral structure of the specimens in semi-technical terms (details of the individual whorls not required).
- (b) Observe the details of calyx and corolla of Q-41 and Q-42 and draw labelled sketches of these parts.
- (c) Compare the reproductive parts of the specimens of Q-41 and Q-42. Proceed as follows:
 - (i) With the help of a pair of forceps remove the androecium.
Draw a neat labelled diagram of a single stamen of Q-41 and Q-42.
 - (ii) Cut a longitudinal section of Q-41 and Q-42 with a sharp razor blade and *show it to the Visiting Examiner*. Draw a neat labelled diagram of the LS of Q-41 and Q-42.
- (d) Write the floral formula of Q-41 and Q-42.
- (e) Name the family to which the specimens belong. Mention *two* features that are peculiar to each of the family.
- (f) Give the scientific name of *one* economically important plant from each of the family.

Question 2.

With the help of a sharp scalpel peel the outer skin of both **Q-43** provided. Cut one end flat and from the other end scoop a cavity nearly down to the bottom for both the Q-43.

- (a) Follow the procedure mentioned below:
- (i) Place the two specimens in 2 separate petri dishes and label them as A and B.
 - (ii) Pour solution S_1 in the cavity of the specimen kept in petri dish A.
 - (iii) Pour solution S_2 in the cavity of the specimen kept in petri dish B.
 - (iv) Pour solution S_2 in petri dishes A and B.
 - (v) Mark the initial level of the solutions in the cavities of both specimens with a pin.
 - (vi) *Show the set-up to the Visiting Examiner.*
- (b) Copy the table shown below and record your observations after an hour.

Petri dish	Level of solution/liquid with respect to indicator pin
A (specimen containing S_1 solution in its cavity)	
B (specimen containing S_2 in its cavity)	

- (c) Account for the changes that you have observed.
- (d) From your observations, what conclusion can you make about the tonicity of S_1 and S_2 ?

Question 3.**[5]**

Make a temporary stained mount of a transverse section of the given specimen **Q-44**.

- (a) Follow the procedure given below:
- (i) Cut many thin transverse sections of the specimen Q-44 provided.
 - (ii) Select a good section and stain it and wash off the excess stain if necessary.
 - (iii) Mount it in glycerine on a slide.
- (b) *Show it to the Visiting Examiner* under a microscope.
- (c) Draw a neat labelled diagram of the mount as seen under the low power objective of the microscope.
- (d) Which stain did you use?
- (e) Identify the specimen. Give *two* points of identification to support your answer.

Question 4.

You will be given **three** minutes each to identify the given specimens **A to E**. Take back your Answer scripts 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.