

**NEW**

**Part-II 3-Tier**

**2015**

**BOTANY**

**(General)**

**PAPER—III**

**(PRACTICAL)**

*Full Marks : 100*

*Time : 5 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**Answer all questions.**

- 1. Make a microscopic preparation of the specimen 'A'. Draw, label and identify the specimen with comment. Name the genus only. Leave your preparation for examination.**

10

*[ Staining and mounting-3, Labelled diagram-3,  
Comment-3, Name of the genus-1 ]*

2. Make a microscopic preparation of the specimen 'B'. Draw, label and identify the specimen with comment. Name the genus only. Leave your preparation for examination. 10

*[ Staining and mounting-3, Labelled diagram-3,  
Comment-3, Name of the genus-1 ]*

3. Draw, label and describe the specimen 'C' in botanical terms. Dissect the flower and display the floral parts, write the floral formula and draw the floral diagram. Identify the family with reasons. Leave your preparation for examination. 15

*[ Labelled diagrams-3, Description-4, Dissection &  
display-2, Floral formula-1, Floral diagram-2,  
Identification-1, Reasons-2 ]*

4. Prepare a requisition slip to carry out the experiment as mentioned in the card drawn by you. Set the experiment. Write down the procedure. Indicate/write the result(s) and inference. 12

*[ Requisition-2, Setting up of the experiment-3,  
Procedure-3, Result-2, Inference-2 ]*

5. Cut a thin T.S. of the specimen 'D'. Stain the T.S. by double staining method and prepare a permanent slide. Draw a labelled sketch of the preparation. Identify the specimen with reasons. Leave your preparation for examinations.

10

*[Section cutting-1, Staining-1, Mounting-1, Labelled diagram-3, Identification-1, Reasons-3]*

6. Prepare a uniform squash with the supplied specimen material 'E'. Show any (single) stage of mitotic division to the invigilator and get your drawing endorsed. Draw and label another mitotic stage observed in the slide.

7

*[Squash preparation-2, Mitotic stage observation-2, Drawing and labelling-3]*

7. (a) Identify the specimens — F, G, H, I, J and K with reasons. (2×6)

12

*[Identification-1, Reasons-1]*

- (b) Identify the specimens L, M and N. (2×3)

6

*[Genus-1, Family-1]*

8. Laboratory Note Books, Field records, Herbarium and prepared slides. 13

*[Laboratory Note Books-4, Herbarium specimens-3,  
Field Note Books-4, Slides-2]*

9. Viva-voce. 5
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Answer all questions.

**[Instructions to the Examiners]**

**“A” General**

1. All answer scripts (including loose sheets) must bear the signature of both the examiners.
2. Evaluation should be done jointly by both the examiners and must always show part marking for each question in the following manner : Q. No. 1 — 2 + 2 + 2 + 1 = 7
3. Separate loose sheets should be used for :
  - (i) Q. No. 4—one for requisition slip only.
  - (ii) Q. No. 7—one for Q. No. 7(a) and one for Q. No. 7(b).
4. The key to the Specimen(s) containing the list of specimen(s) allotted to each batch should bear the date(s) of examination, the full name (in block letters), signature and official address of all the examiners.

*(Turn Over)*

5. Repetition of the specimens allotted should be avoided as far as practicable.
6. Marks should be sent in printed award sheets received from the University and in separate sealed covers (not in answer script packets).
7. Marks, answer scripts packets, remuneration bills and attendance statements may be sent in the hands of an authorized messenger or by registered parcel to the Head Examiner at his official / residential address.

### **"B" Question wise**

1. Two specimen from Algae/Fungi as prescribed in the syllabus should be supplied alternately to the candidates of the same batch.
2. Two specimen from Bryophytes/Pteridophytes as prescribed in the syllabus should be supplied alternately to the candidates of the same batch.
3. Two specimens with flowers should be selected from the angiospermic plants belonging to the different dicotyledonous families prescribed in the syllabus and to be supplied alternately to the candidates of the same batch.
4. At the start of the examination, the examinees shall draw two cards containing the names of physiological experiments to be performed. The name of any one experiment selected by the examinee is to be written on the answerscript. A requisition slip along with the name of the selected experiment should be submitted in a separate loose sheet supplied to the candidate immediately after selection.

**[List of Experiments]**

- (i) Determination of the rate of transpiration per unit area of a leaf by weighing method.
  - (ii) Determination of the rate of CO<sub>2</sub> evolution during aerobic respiration by germinating seeds or coloured petals.
  - (iii) Determination of rate of oxygen evolution during photosynthesis.
  - (v) Comparison of imbibition of water by starchy and proteinaceous seeds.
5. Two of the following specimens should be allotted alternately to each batch of students :
- Root — Gram, Orchid.
  - Stem — Sunflower, Maize.
  - Leaf — *Nerium*, Wheat.
6. Pretreated root tips of *Allium cepa* suitable for squash preparation should be supplied to the students.
7. (a) Six specimen should be selected as follows :
- Cryptogams : (any two excluding the ones selected for Q. No. 1 & Q. No. 2)
- (i) *Oedogonium* — Vegetative thallus showing capcell / oogonium with nanandrium.
  - (ii) *Penicillium* — Conidiophore with conidia (Penicilus).
  - (iii) *Mucor* — Zygospore.
  - (iv) *Anthoceros* — L.S. of sporophyte.
  - (v) *Funaria* — L.S. of capsule.
  - (vi) *Lycopodium* — Macroscopic display of portion of a plant (sporophyte) with strobili.
  - (vii) *Selaginella* — L.S. of strobilus.

Gymnosperm (any one) :

- (i) *Cycas* — Megasporophyll.
- (ii) *Pinus* — Female cone.
- (iii) *Gnetum* — L.S. of ovule.

Morphology (any one) :

- (i) Inter petiolar stipule.
- (ii) Verticillaster inflorescence.
- (iii) Capsule.
- (iv) Samaroid fruit of sal.

Anatomy (any one) :

- (i) Velamen tissue.
- (ii) Pith.
- (iii) Stomata.
- (iv) Bulliform cell.

Cytology (any one) :

- (i) Mitotic anaphase.
- (ii) Mitotic metaphase.

- (b) Flowering or fruiting twigs of three dicotyledonous plants (other than those selected for Q. 3) one each from different families prescribed in the theoretical syllabus should be selected.

8. Laboratory Note Books and Field records should be signed properly by the teachers and atleast 10 herbarium specimens are to be submitted by each candidate.
9. Candidates are to be asked any questions related to practical and theoretical syllabus.
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