

NEW

Part-III 3-Tier

2015

BOTANY

(Honours)

PAPER—VIII

(PRACTICAL)

Full Marks : 100

Time : 6 Hours

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

[Instruction to the Examiners]

1. Cytology (Specimen 'A') : Pretreated and prefixed and pre stained root tips of *Allium cepa* to be given to all candidates.
2. Biometry (Specimen 'B') : Only two classes of samples are to be supplied. Sample lots are to be made as per the ratios mentioned in the syllabus. (ie 3 : 1, 1 : 1, 9 : 7, 13 : 3, and 15 : 1)
3. Plant Physiology : Students should be asked to draw one card from the given lot. Each card must indicate two experiments 3a and 3b. Each experiment is required to be performed and results should be recorded from the following experiments mentioned in the card.

(Turn Over)

For 3a :

- (i) Determination of DPD with the help of storage tissue.
- (ii) Determination of the effects of CO_2 concentration on the rate of photosynthesis in aquatic plant.
- (iii) Determination of the effect of respiratory inhibitors (Na-flouride/Malonic acid) on the rate of respiration.
- (iv) Determination of the effect of KNO_3 / ABA on stomatal opening and closing.
- (v) Comparison of inhibition of water by starchy, proteinaceous and fatty seeds.
- (vi) Determination of stomatal frequency and loss of water per stomata per hour.
- (vii) Determination of percentage of seed viability using TTC method.

For 3b :

- (i) Determination of thermal death point of protoplasm.
- (ii) Experiment to prove that Xylem is the path of conduction of water.

4. Biochemistry Specimen 'C' → At least two different types of samples according to the syllabus (one reducing and one non-reducing sugar and one organic acid or combination of any two of them) should be supplied to each batch for qualitative test. For qualitative test, at least two different concentrations of samples must be provided to each batch. The drawn card must contain one of the following experiments.

- (i) Identify the organic acid/sugar/Protein present in the supplied sample 'C'.
- (ii) Estimate the amount of glucose present in the supplied solution.

5. Ecology : One card is to be drawn from the given lot. The drawn card must contain one tick-marked (\checkmark) experiment from the following :
 - (i) Determination of minimum size and no. of the quadrat.
 - (ii) Determination of organic carbon content of the supplied soil samples (two samples).
6. Plant Breeding : Students would be asked to draw one card from the given lot and one tick-marked (\checkmark) experiment is required to be demonstrated from the following :
 - (i) Demonstration of T-budding / I-budding in rose.
 - (ii) Demonstration of grafting (wedge / v / tongue / side) air layering in suitable plant specimens.
7. Identification from permanent cytological slides : Three slides (D, E, F), preferably one from normal mitotic phases ; one from meiotic phases and one from abnormal / special stage (out of ring chromosome, chairs, laggard and anaphase bridge) of cell division should be given for identification purpose.
8. Laboratory Note Book (Plant Physiology, Cytology, Ecology, Nursery Techniques, Biometry and Field Report).
9. Viva Voce.

[Special Instructions]

1. Each student should be asked to draw the card twice, one for Q. No. 3 and 5 (in the same card) and the subsequent draw for Q Nos 4 and 6 (in other single card).
2. Separate sheets would be provided to each student for requisitions for Q. Nos. 3, 4, and 5 and also Identification Q. No. 7 .
3. In the cards Combinations such as 3b(i), 5(i) and 3b(ii), 5(ii) are recommended.

4. After the commencement of the examination, card drawing for Q Nos. 3 & 5 is recommended. Another card containing Q Nos. 4 and 6 may be drawn 30 minutes after the first draw.
5. In Viva-Voce examination, at least six questions should be asked covering the entire syllabus.
6. Laboratory note books should be prepared incorporating the experiments done as per the syllabus.

[General Instructions]

1. Discipline and the sanctity of the examination must be maintained in the examination hall and laboratories.
2. A list of specimens / samples supplied to each batch of students should be recorded. It should bear full names and signatures of all examiners.
3. All loose sheets should bear the signature of at least one examiner.
4. Evaluation should show part marking and be made by all the examiners.
5. Marks should be sent in printed award sheets in separate sealed covers (not in answer-script packet).
6. Marks and answerscripts should be sent to the Head Examiner/the co-ordinator within 15 days after the examination is over.
7. Laboratory records should be signed by teacher at regular intervals.
8. Answer-script's packet must bear a question paper and instructions to the examiners.
9. Remuneration bill should be sent along with answer-^dscripts in a separate cover.

NEW

Part-III 3-Tier

2015

BOTANY

(Honours)

PAPER--VIII

(PRACTICAL)

Full Marks : 100

Time : 6 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 suitably stained squash preparation of the pretreated and prefixed root tip material 'A'. Determine the mitotic index of the specimen supplied. Draw, label and count the chromosomes from a scattered metaphase plate. 15

*[Squash preparation—3 ; Calculation (mitotic index)—5 ;
Preparation of Metaphase plate—3 ; Drawing and labelling—3 ;
Chromosome Count—1]*

(Turn Over)

2. Calculate the Segregation ratio of the sample 'B' and determine the 'Goodness of fit' from the specimen supplied. 8

[Calculation—6 ; Conclusion—2]

3. Perform two physiological experiments as indicated (3a, 3b) in the card to be drawn from a lot. Write in brief the experimental procedures, results and inferences. 15+5

[For 3a : Requisition—2 ; Set up—2 ; Procedure—5 ; Result—4 ; Inference—2]

[For 3b : Requisition—1 ; Set up—1 ; Procedure—1 ; Result & Comments—2]

4. Perform the qualitative/quantitative (Sample 'C') test(s) as indicated in the card drawn from a lot. 10

[Requisition—2 ; Procedure & Result—6 ; Inference—2]

5. Perform the plant ecology experiment as indicated in the card drawn from the lots. Write down requisition, brief experimental procedure, results and inference of the experiment. 15

[Requisition—4 ; Experimental Procedure—5 ; Results & Inferences—6]

6. Demonstrate the plant breeding experiment as mentioned in the card to be drawn from a lot. Write the experimental procedure in brief. 3+3

[Demonstration—3 ; Procedure—3]

7. Identify the slides D, E and F with necessary comments.

2×3

[Identification—1 ; Comments—1]

8. Laboratory Note Book. 8

9. Viva-Voce. 12

[Instruction to the Students]

- (i) Requisitions for Q. No. 3 (a & b), Q. No. 4 and Q. No. 5 must be written in separate sheets and duly endorsed by an examiner/invigilator.
- (ii) Requisition sheet for Q. No. 3 (a & b) and Q. No. 5 must be submitted within 20 minutes of commencement of examination.

(iii) Names of the experiments as indicated in card drawn from lots for Q. No. 3 (a & b), Q. No. 4, Q. No. 5 and Q. No. 6 as well as lot no. of Sample B (Q. No. 2) must be written on the first page of the main answer script and endorsed by an examiner/invigator.

(v) All observations and experimental set up must be endorsed by an examiner/invigator.
