

OLD

Part II 3-Tier

2016

BOTANY

(Honours)

PAPER—V

(PRACTICAL)

Full Marks : 100

Time : 6 Hours

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

Answer all questions.

1. Prepare a fixed smear of the specimen 'A' and stain it suitably following Gram staining procedure. Observe under oil immersion objective to draw, label and comment on the specimen of your preparation.

10

*(Preparation of the smear—1, Staining—3,
Drawing—3, Labelling—1, Comment—2)*

(Turn Over)

2. Work out the morphology of specimen 'B' and give 'drawing prism-aided' sketches with labelling and magnification. Identify the genus with reasons. Leave your preparation after wax sealing.

12

[Drawing prism aided sketches and magnification with label—7 (3+2+2), Identification—1, Reasons—2, Preparation—2]

3. Work out the morphology of specimen 'C' and describe the specimen with labelled diagrams. Measure the reproductive structure. Identify the genus with reasons. Leave your preparation after wax-sealing.

12

[Labelled sketches—2, Measurement of reproductive structures (Standardization of Microscope—2, Measurement of Reproductive parts—2), Description—3, Identification—1, Reasons—1, Preparation—1]

4. Make a suitable preparation of specimen 'D'. Draw, label and describe the specimen. Identify the genus with reasons. Leave your preparation.

10

[Sketches—2, Labelled—1, Description—3, Identification—1, Reasons—2, Preparation—1]

5. Draw, label and describe the specimen 'E'. Identify the genus with reasons. Leave your preparation.

10

[Sketches—2, Label sketches—1, Description—3,
Identification—1, Reasons—2, Preparation—1]

6. Draw a card from the lot and perform the work accordingly as written on the drawn card (F).

5

[(Requisition—2, Demonstration—3), / (Label drawing—2,
Identification with reason—2, Preparation—1)]

7. Identify and comment on the specimen 'G', 'H', 'I', 'J' and 'K'.

10

[Identification— $\frac{1}{2}$, Comment—1 $\frac{1}{2}$]

8. Laboratory note books.

10

(Algae, Fungi—3, Plant Pathology, Microbiology—3, Bryophyta,
Pteridophyta, Gymnosperm, Palaeobotany—4).

9. Submission of preserved or dry specimen.

6

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| 10. Tour report. | 3 |
| 11. Submission of slides. | 2 |
| 12. Viva-voce. | 10 |
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[Instructions to the Examiners]

1. Specimen 'A' — Bacterial suspension/curd should be supplied to all students of a batch.
2. For each Batch of candidates two specimens (B) with reproductive structures should be selected. Alternate specimens should be supplied to the candidates of the same batch from the following algae :
 - Oedogonium* spp. — Macrandrous thallus with oogonium.
 - Chara* spp. — Thallus with nucule and globule.
 - Vaucheria* spp. — With sex organs.
 - Ectocarpus* spp. — Thallus with gametangia/
sporangia.
 - Polysiphonia* spp. — Thallus with cystocarp/
Tetrasporangia.

(Turn Over)

3. Any two specimens (C) of the following fungi with reproductive structures should be selected and supplied alternately to the candidates of the same batch :

Rhizopus spp. — Thallus with sporangia and zygosporangia.

Penicillium spp. — Thallus with conidia.

Ascobolus spp. — Fruit body.

Agaricus spp. — Mature basidiocarp.

4. *Annexure 1* :

Specimen 'D' — Any one specimen from the part of syllabus, hence in below, be supplied alternately to the candidates of the same batch.

(i) Identification of causal organism by cutting section of diseased plant parts - Black stem rust of wheat (uredospore, teleutospore) ; Brown spot rice ; Tikka disease of ground nut.

5. Specimen 'E' — Any two specimen should be selected and supply alternately to the candidates of the same batch from the following Bryophytes :

Riccia spp. — Thallus with sporophyte.

Marchantia spp. — Thallus with Antheridiophore/
Archigoniophore.

Anthoceros spp. — Gametophyte thallus bearing sporophyte.

Funaria spp. — Thallus with sporophyte.

6. Specimen 'F' — Any two specimens should be selected and supplied alternately to the candidates of the same batch from the following Pteridophytes :

Lycopodium spp.

Selaginella spp.

Equisetum spp.

Marsilea spp.

Adiantum spp.

Supply the suitable sized plants with reproductive structure.

A card from a batch must be drawn by each candidate. A separate sheet should be provided to them for the work (Plant Pathology) as instructed in the drawn card. Each card must contain one of the following instructions (a or b):

- (a) Demonstrate the sub-culturing techniques and submit your requisition slip before demonstration.

[Requisition—2, Demonstration—3]

- (b) Work out the specimen 'F', identify the disease and the causal organism. Leave your preparation.

[Label drawing—2, Identification with reason—2,
Slide preparation—1]

- * Candidates must submit requisition slip before demonstration. PDA slant, any stock culture of a fungus and the demanded equipments are to be supplied after the submission of the requisition slip.

- ** Specimen 'F' — Any two specimen should be provided to all the candidates of the same batch from the following :

Brown spot of rice — infected leaves.

Black stem rust of wheat (uredospore/teleutospore) — infected leaves.

Tikka disease of ground nut — infected leaves.

7. Any three permanent slides/microscopic materials for specimens 'J', 'K' and 'L' from the following groups (not more than one from any group) :

Algae : (Excepting the specimen 'B')

- (a) For morphological studies any two specimens (*Canna* flower, *Calotropic* flower, *Nymphaea* flower ; inflorescence of *Tridax* sp., *Eupatrorium* sp. and *Oryza* sp.) should be selected alternately for each batch of examinees.
- (b) For morphological comments any three specimens should be selected for each batch from the following items :

inflourescence, stipules, cohesion and adhesion of stamens and carpels, fruits, and modification of leaves.

Anabaena — Thallus with akinete/heterocyst.

Oedogonium — With oogonia/antheridia/dwarf male.

Chara — With sex organs.

Vaucheria — Thallus with sex organs.

Ectocarpus — Unilocular/plurilocular sporangia.

Polysiphonia — Cystocarp/spermatangia/
Tetrasporangia.