

**NEW**

**Part II 3-Tier**

**2018**

**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.

10

*[Work out—2, Camera lucida drawing (with magnification)—3, Description—3, Identification—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.

10

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

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

5

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

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

10

*(Dissertation and mounting—2, Labelled sketches—2,  
Description—3, Identification—1, Reasons—2)*

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

10

*(Dissertation and mounting—2, Labelled sketches—2,  
Description—3, Identification—1, Reasons—2)*

7. (a) Dissect and display the morphological parts of the specimen 'G'. Give labelled sketches of the parts displayed and give detail description.

8

*(Dissertation and display—2, Labelled sketches—3,  
Description—3)*

- (b) Comment with reasons on the types of specimen 'H' and 'I'.

2+2

8. Identify and comment on the specimen 'J', 'K', 'L'.

3×2

9. Submission of preserved or dry specimen. 5
10. Laboratory note books. 7
- [(i) Microbiology, Algae ; (ii) Fungi, Plant Pathology ;  
(iii) Bryophytes, Pteridophytes, Morphology.]*
11. Tour report + Slide. 3+2
12. Viva-voce. 10
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*Full Marks : 100*

*Time : 6 Hours*

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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.

*(Turn Over)*

*Vaucheria* spp. — With sex organs.

*Ectocarpus* spp. — Thallus with gametangia/  
sporangia.

*Polysiphonia* spp. — Thallus with cystocarp/  
Tetrasporangia.

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  
zygospore.

*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, *Calotropis* flower, *Nymphaea* flower ; inflorescence of *Tridax* sp., *Eupatorium* 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 :

inflorescence, 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.

Fungi : (Excepting the specimen 'C')

*Rhizopus* — Sporangia/Zygosporangium.

*Penicillium* — Conidiophore and Conidia.

*Ascobolus* — V. S. of ascocarp.

*Agaricus* — Section through the gills showing basidia and basidiospores.

Bryophyta : (Excepting the specimen 'D')

*Riccia* — V. S. through antheridia/archegonia.  
T.S. through sporophyte bearing thallus

*Marchantia* — V. S. through Antheridiophore/  
Archaeogoniospore/Gemma Cup.

*Anthoceros* — V. S. through antheridia/sporophyte.

*Funaria* — L. S. of capsule/T.S. of gametophyte.

Pteridophyte : (Excepting the specimen 'E')

*Lycopodium* — T.S. of stem/L.S. of strobillus.

*Selaginella* — T.S. of stem/L.S. of strobillus.

*Equisetum* — T.S. of stem/L.S. of strobillus.

*Marsilea* — L.S./T.S. of sporocarp.

8. Laboratory note books, Field note book and Records should be properly signed by the concerned teachers.

9. Examiners should ask any question related to practical and theoretical syllabus. (for question no. 12).

**[General Instruction]**

1. Nobody except the examiners are allowed to enter the examination hall after the commencement of examination. When required, Laboratory attendents/assistants must do their jobs in presence of examiner(s) only.
2. Repeation of specimens in the very next day should be avoided as far as practicable.
3. Evaluation should always show part marking and should be done jointly by all the examiners.
4. A list of specimens allotted to each batch should accompany the answerscripts (batch-wise). The list should bear the signature and full names (in block letters) of all the examiners.
5. Separate loose sheets should be used for Q. No. 7b and Q. No. 8.
6. Answerscripts and all loose sheets should bear the signature of the examiner.
7. Marks should be sent in the printed award sheets supplied by the University and in separate sealed covers.
8. Answerscripts should be sent in separate sealed cover.

9. Marks and answerscripts in sealed packets should be sent by internal examiner messenger to the Head Examiner / Co-ordinator at his / her residence or official address, within two weeks after examination.
  10. Remuneration bills should be sent along with the answerscripts in a separate cover.
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