

B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31321

Course Code : SHBOT-301C-5(P)

Course Title: Morphology and Anatomy of Angiosperms

Instructions to the Examiners:

1. Material 'A' to be given from the prescribed syllabus of Anatomy. Materials may be selected from Dracaena stem, Strychnos stem, Boerhaira stem, Bignoma xerophytes, hydrophytes. 6
[Distribution of marks: Preparation —1, Drawing —2, labelling —1, Comment —2]
2. Material 'B' and 'C' to be selected from the prescribed syllabus. 1½×2=3
[Distribution of marks: Identification —½, reasons —1] × 2
3. Laboratory Note books. 3
[Morphology —1, Anatomy —2]
Credit should be given to the candidate's whose records are found to be regularly endorsed.
4. Viva-voce should be conducted jointly by more than one examiner. 4
5. A key to the material supplied with endorsement by the concerned examiners must be enclosed with the answer scripts.
6. Names and address of the examiners who conducted the examination is to be submitted to the Authorities / University along with answer scripts.
7. After assessment, marks and answer scripts are to be submitted to the Authority / University.

B.Sc. 3rd Semester (Honours) Examination, 2019-20**BOTANY****Course ID : 31312****Course Code : SHBOT-302C-6**

Course Title: Economic Botany and Pharmacognosy

Time: 1 Hour 15 Minutes**Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* of the following: 1×5=5
- (a) What are non-drying oils?
 - (b) Give the scientific name of ground nut.
 - (c) Mention one byproduct of sugarcane industry.
 - (d) What is coir fibre?
 - (e) Name two active constituents of *Adhatoda*.
 - (f) Give the scientific name and family of Teak.
 - (g) State the morphological nature of Saffron.
 - (i) What is Black tea?
2. Answer *any two* of the following: 5×2=10
- (a) Mention any two different species of cotton. What is Fuzz fibre? Give the extraction procedure of cotton fibre. 1+1+3=5
 - (b) What is the native place of Para-rubber? Briefly describe the processing and two uses of Para-rubber. 1+3+1=5
 - (c) Mention the scientific name, family and economic importance of Black pepper. 1+1+3=5
 - (d) What is essential oil? What are the difference between essential oil and Fatty oils? Mention the scientific name and useful part of one essential oil yielding plant. 1+3+1=5
3. Answer *any one* of the following: 10×1=10
- (a) Describe microscopic characters of *Cinchona* bark. Mention active principles and therapeutic uses of *Cinchona*. 4+4+2=10
 - (b) Describe the cultivation procedure of rice. Where CRRI is located? 9+1=10

B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**BOTANY****Course ID : 31322****Course Code : SHBOT-302C-6(P)**

Course Title: Economic Botany and Pharmacognosy

Time: 2 Hours**Full Marks: 15***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words
as far as practicable.*

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|-----------|--|----------|
| 1. | Identify the plant drug materials 'A' (Organoleptic and Microscopic) | 5 |
| | Preparation : 1 | |
| | Drawing and Labelling : 2 | |
| | Comment : 2 | |
| 2. | Perform the biochemical test of sample 'B' | 5 |
| | Demonstration : 1 | |
| | Procedure : 2 | |
| | Comment : 2 | |
| 3. | Practical notebook | 2 |
| 4. | Viva-voce | 3 |
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B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31322

Course Code : SHBOT-302C-6(P)

Course Title: Economic Botany and Pharmacognosy

Instructions to the Examiners:

1. Not more than 20 examinees should be taken in a batch.
 2. Material should be changed for each batch.
 3. Key to the materials supplied should be submitted along with the examined answer scripts to the Controller of Examinations, BKU within 7 days after the completion of examinations.
 4. For Q. No-1, materials should be from those specified in the syllabus (Fresh material of ginger rhizome) Fresh material of *Adhatoda* leaf or Fresh or preserved material of *Strychnos* seeds). Two specimens should be selected and given to the candidates alternately for each day.
 5. Experiments for the question no. 2 are given below. Examiners are requested to make card from the following experiment.
 - (a) Bio chemical test for Protein.
 - (b) Bio chemical test for Carbohydrate.
 - (c) Bio chemical test for Fat.
 6. Laboratory records should be separately assessed and examiners are requested to check the regular endorsement of the practical record books by the concerned teacher(s).
 7. Viva voce should be conducted jointly by the examiners. The time should be limited to maximum often minutes for each candidate. Candidates should be called on one at a time, for Viva voce.
 8. Endorsement by the concerned examiner(s) is a must during examination process.
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B.Sc. 3rd Semester (Honours) Examination, 2019-20**BOTANY****Course ID : 31313****Course Code : SHBOT-303C-7**

Course Title: Genetics

Time: 1 Hour 15 Minutes**Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* of the following: 1×5=5
- (a) What is non-allelic gene interaction?
 - (b) How does a double trisomy differ from tetrasomy?
 - (c) What is Frame-Shift mutation?
 - (d) State the law of purity of gametes.
 - (e) Distinguish between back cross and test cross.
 - (f) What is dosage compensation?
 - (g) What is reciprocal translocation?
 - (h) What is sympatric speciation?
2. Answer *any two* of the following: 5×2=10
- (a) What is inversion? Distinguish between Paracentric and Pericentric inversion with suitable diagrams. 1+4=5
 - (b) Explain Multiple allelism in Human citing example of ABO blood group system. What do you mean by codominant allele? 4+1=5
 - (c) What are pseudoalleles? Briefly explain cis-trans complementation test for functional allelism. 1+4=5
 - (d) Distinguish between sex-linked traits, sex influenced traits and sex-limited traits.
3. Answer *any one* from the following questions: 10×1=10
- (a) How do you distinguish traits controlled by nuclear genes and those by extra-chromosomal genes? Explain with suitable diagrams, the inheritance of infective 'Kappa' particles in *Paramecium*. 4+6=10

- (b) A cross was made between purple (pl), glossy seedling (gl), dwarf (t) variety and a wild type. F₁ plants were test crossed and the following proportions were obtained when a sample of 1000 plants were counted.

Wild type (+ + +)	-	475
plgt	-	469
pl + +	-	8
+ gl t	-	7
pl + t	-	18
+ gl +	-	23
+ + t	-	0
plgl +	-	0

Determine the order of 3 genes and prepare a chromosomal map. Find out the co-efficient of coincidence. 8+2=10

B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31323

Course Code : SHBOT-303C-7(P)

Course Title: Genetics

Time: 2 Hours

Full Marks: 15

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

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

1. Consider that the supplied sample 'A' represents seeds of F_2 generation from the selfed F_1 plants. Apply chi-square test and comment on the mode of inheritance of the seed coat colour and seed size. 4+3=7
 2. Comment on supplied specimen / photograph 'B' and 'C'. 1½+1½=3
 3. Laboratory records. 2
 4. Viva voce 3
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B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31323

Course Code : SHBOT-303C-7(P)

Course Title: Genetics

Instructions to the Examiners

1. All experimental setups and drawings must be endorsed by one of the examiners.
2. A key to the materials supplied question wise and candidate wise, should be submitted to the Controller of Examinations along with the answer-scripts.
3. Marks should be entered in separate OMR sheets or as supplied by the University.
4. Internal Examiners are requested to keep ready the materials, reagents and chemicals required for the experiments.
5. For Question No. 1: Beads of different colours and sizes should be used. Sample size (not less than 64 and should be in multiples of 16) and deviation from the expected values (9:3:3:1, dihybrid phenotypic ratio) should be varied as far as practicable.
6. For Question No. 2, examiners are requested to select from the following photographs / slides—
 - (a) Translocation ring;
 - (b) Laggard chromosome;
 - (c) Inversion bridge;
 - (d) Meiotic stages;
 - (e) Down's syndrome (Chromosome complement);
 - (f) Klinefelter's syndrome (Chromosome complement);
 - (g) Turner's syndrome (Chromosome complement)
7. Practical records should be separately assessed.
8. Viva voce should be taken by both the examiners. Candidate should be called on one at a time for viva.
9. Answer-scripts are to be sent to the controller of Examinations in sealed covers within a week from the date of completion of examination.

B.Sc. 3rd Semester (Honours) Examination, 2019-20
BOTANY

Course ID : 31314

Course Code : SHBOT-304GE-3

Course Title: Genetics and Plant Breeding
(Alternative-1)

Time: 1 Hour 15 Minutes

Full Marks: 25

*The figures in the right hand side margin indicate marks.
Candidates are required to give their answers in their own words
as far as practicable.*

*দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।*

1. Answer any five questions from the following:

1×5=5

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

- (a) What is linkage?
লিংকেজ বলতে কী বোঝো?
- (b) What are mutagens?
মিউটাজেনস কাদের বলে?
- (c) What do you mean by incomplete dominance?
Incomplete dominance বলতে কী বোঝো?
- (d) What is a clone?
Clone কী?
- (e) State the significance of linkage map.
Linkage map এর তাৎপর্য কী?
- (f) What is the advantage of self pollination?
Self pollination-এর উপকারিতা কী?
- (g) What is frame shift mutation?
Frame shift mutation কাকে বলে?
- (h) What is hybridization?
Hybridization কী?

2. Give brief answers to *any two* of the following: 5×2=10

যে কোনো দুটি প্রশ্নের উত্তর দাও :

(a) Describe briefly with suitable examples about domestication of crop plants.

Domestication of crop plants এর উদাহরণ সহযোগে সংক্ষেপে বর্ণনা দাও।

(b) What is heterosis? State the application. 4+1=5

Heterosis কী? এর ব্যবহারিক দিকগুলি বর্ণনা করো।

(c) Describe the bridges experiment briefly.

Bridges experiment সম্পর্কে সংক্ষেপে বর্ণনা দাও।

(d) What is crop improvement? Describe briefly the selection methods for vegetatively propagated plants. 1+4=5

Crop improvement কী? Vegetatively propagated plants-এর চয়ন পদ্ধতি সম্পর্কে সংক্ষেপে ব্যাখ্যা দাও।

3. Answer *any one* questions from the following: 10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাওঃ

(a) Describe with suitable diagram about complete and incomplete linkage. What is linkage map? 8+2=10

Complete and Incomplete linkage সম্পর্কে চিত্রসহ বর্ণনা দাও। Linkage map কাকে বলে?

(b) What is euploidy? Describe euploidy briefly. 2+8=10

Euploidy কী? Euploidy সম্পর্কে ব্যাখ্যা করো।

B.Sc. 3rd Semester (Honours) Examination, 2019-20**BOTANY****Course ID : 31314****Course Code : SHBOT-304GE-3**

Course Title: Cell and Mol. Biology

(Alternative-2)

Time: 1 Hour 15 Minutes**Full Marks: 25**

*The figures in the right hand side margin indicate marks.
Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer *any five* of the following: 1×5=5
- (a) What is secondary lysosome?
 - (b) What is STEM?
 - (c) In which stage of meiosis crossing over occur?
 - (d) Why mitochondria is called semiautonomous body?
 - (e) What is t-RNA?
 - (f) What is GERL system?
 - (g) Why cell membrane is fluid in nature?
 - (h) What is CAP?
 - (i) What is the function of RNA polymerase?
2. Give brief answers to *any two* of the following: 5×2=10
- (a) Describe the ultrastructure of chloroplast with neat sketches. 3+2=5
 - (b) Distinguish euchromatin and heterochromatin.
 - (c) Describe the structure of DNA proposed by Watson and Crick.
 - (d) What is genetic code? Describe the properties of genetic code. 1+4=5

3. Answer *any one* of the following:

10×1=10

(a) Describe the DNA replication process in prokaryotes. Why it is semidiscontinuous? 8+2=10

(b) What is operon? Describe the negative control lac-operon.

2+8=10

B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31324

Course Code : SHBOT-304GE-3(P1)

Course Title: Genetics and Plant Breeding

(Alternative-1)

Time: 2 Hours

Full Marks: 15

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

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

1. Consider that the supplied sample 'A' having different seeds of F_2 generation obtained after selfing of F_1 plants. Apply Chi-square test and comment on mode of inheritance of seed coat colour and seed size. 4+3=7
 2. Identify with reasons for the Sample "B" and "C" 1½+1½=3
 3. Practical records 2
 4. Viva voce 3
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B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31324

Course Code : SHBOT-304GE-3(P2)

Course Title: Cell and Mol. Biology

(Alternative-2)

Time: 2 Hours

Full Marks: 15

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

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

1. Prepare plasmolysed cell from the supplied material and sucrose solution. Comment on your experiment. 2+3=5
 2. Identify with reasons of Sample "B" and "C" 2½×2=5
 3. Practical Note Book 2
 4. Viva voce 3
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B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**BOTANY****Course ID : 31324****Course Code : SHBOT-304GE-3(P1)**

Course Title: Genetics and Plant Breeding
(Alternative-1)

Instruction to the Examiners***Questionwise Instruction***

1. Sample 'A'— Find out the Goodness of fit of Mendelian ratio applying Chi-square

(a) Break up of marks:

Calculation	4
Comments	3
	Total = 6

2. Sample "B" and "C"— Identifying with reasons 1½+1½ = 3
3. Practical records 2
4. Viva Voce 3

Grand Total: 15

General Instruction

- Fifteen (15) examinees be examined in a batch.
- For No. 1 seeds of different colour and sizes should be used as sample size (should be in multiply of 16 or 4) and deviation from the expected values (9:3:3:1 or 3:1 ratio) should be varied of far as practicable.
- Probability Table to be supplied to the examinees from the centre.
- Documents materials for Sample "B" and "C" should be given in accordance with practical syllabus (Photo plates of Down's syndrome/Turner's syndrome/Translocation ring/Laggard Chromosome/Inversion Bridge).
- Key to the materials supplied should be prepared batch wise and submitted along with the examined answer scripts.
- Full name, specimen signature and address with contact number of examiners should be given in the Key submitted.
- Examined script should be arranged batch wise but marks should be entered in the OMR.
- Marks for the Question No. 3 and 4 should be entered strictly in the main answerscript.

9. Examined scripts and OMR mark-slip should be signed by the examiners.
 10. Examined answer scripts and Key should be sent to the University within a week (seven days) after completion of examination.
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B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**BOTANY****Course ID : 31324****Course Code : SHBOT-304GE-3(P2)**

Course Title: Cell and Molecular Biology

(Alternative-2)

Instruction to the Examiners

1. Examiners are requested to supply Rhoeo leaf, 1M sucrose solution to perform experiment said in Question no-1.
 2. Examiners are requested to choose from the following for identification:
 - (a) Metaphase stage of mitosis
 - (b) Anaphase stage of mitosis
 - (c) Diakinesis of meosis
 - (d) Metaphase-I and anaphase-I of meiosis
 3. Evaluated answerscripts within sealed packet would be submitted within seven days after completion of exam to the controller of Examination, Bankura University.
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B.Sc. 3rd Semester (Honours) Examination, 2019-20**BOTANY****Course ID : 31315****Course Code : SHBOT-305-SEC-1**

Course Title: Biofertilizer (Alternate-1)

Time: 2 Hours**Full Marks: 40***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* of the following: 2×5=10
 - (a) What do you mean by biofertilizer?
 - (b) Name two carrier for the preparation of carrier based inoculant.
 - (c) Why BGA is important in rice cultivation?
 - (d) What is ectomycorrhiza?
 - (e) Name one test by which Rhizobium can be identified.
 - (f) Which medium is used for isolation of Azospirillum?
 - (g) What do you mean by BOD?
 - (i) What is crop response to inoculum?

2. Answer *any four* of the following: 5×4=20
 - (a) Why blue green alga can fix N₂? Give a short note about the importance of Azolla in rice cultivation. 1+4=5
 - (b) Describe the process of carrier based inoculant preparation with reference to Rhizobium. 5
 - (c) What is VAM? Mention its influence on growth and yield crop. 1+4=5
 - (d) Distinguish associated N₂-fixation and symbiotic N₂ fixation. Give example of one associative N₂-fixer. 1+4=5
 - (e) Describe the mass multiplication process of *Azospirillum*. 5
 - (f) Describe the making methods of biocomposting. 5

3. Answer *any one* of the following: 10×1=10
 - (a) Describe the isolation process of Rhizobium in laboratory. Give example of actinorrhizal symbiosis. 8+2=10
 - (b) What do you mean by organic farming? Briefly describe the method of vermicomposting. 2+8=10

B.Sc. 3rd Semester (Honours) Examination, 2019-20

BOTANY

Course ID : 31315

Course Code : SHBOT-305-SEC-1

Course Title: Herbal Technology (Alternate-2)

Time: 2 Hours

Full Marks: 40

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

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

1. Answer *any five* of the following: 2×5=10
 - (a) What is siddha system?
 - (b) What is pharmacognosy?
 - (c) Mention medicinal use of ginger.
 - (d) Name two active principles of *Catharanthus roseus*.
 - (e) What do mean by drug adulteration?
 - (f) Name two phenolic compound found in plant.
 - (g) Mention medicinal uses of Ashoka.
 - (i) Name a plant which is used against rheumatic disease.

 2. Answer *any four* of the following: 5×4=20
 - (a) Mention the medicinal uses of Tulsi. What is the scientific name of the plant. 3+2=5
 - (b) What are the active principles of *Withania somnifera*. Mention their uses. 2+3=5
 - (c) Give a short note about future of pharmacognosy. 5
 - (d) Mention active principles and uses of *Clerodendron phlomoides*. 2+3=5
 - (e) Mention medicinal uses of Indian Goose berry and Fenugreek. 2½×2=5
 - (f) What is flavonoids and steroid? Mention their importance on the perspective of medicine. 2+3=5

 3. Answer *any one* of the following: 10×1=10
 - (a) Describe the micropropagation of medicinal plant with special reference to neem. 10
 - (b) Briefly describe the phytochemical and biological testing of herbal drugs. 10
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B.Sc. 3rd Semester (Honours) Examination, 2019-20

BOTANY

Course ID : 31315

Course Code : SHBOT-305-SEC-1

Course Title: Floriculture (Alternate-3)

Time: 2 Hours

Full Marks: 40

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

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

1. Answer *any five* from the following questions: 2×5=10
 - (a) What is floriculture?
 - (b) Write two hybrid varieties of rose.
 - (c) Write two indoor plants glow best at day temperature range.
 - (d) Define a nursery.
 - (e) What is bonsai?
 - (f) What do you mean by vegetative propagation?
 - (g) Name two species of ornamental cacli.
 - (h) What are flower beds?

 2. Write short notes on *any four* of the following: 5×4=20
 - (a) Water garden
 - (b) Pot cultivation of plants
 - (c) Functions of landscaping home
 - (d) Pest control of ornamental plants
 - (e) Off season cultivation practice of *Chrysanthemum*
 - (f) Soil sterilization of nursery.

 3. Answer *any one* of the following: 10×1=10
 - (a) Write the cultivation process of marigold. What are the market trading process of rose? 8+2=10
 - (b) What is lawn? What are the major advantages of lawn? Explain different methods of flower arrangement. 2+3+5=10
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B.Sc. 3rd Semester (Honours) Examination, 2019-20

BOTANY

Course ID : 31315

Course Code : SHBOT-305-SEC-1

Course Title: Nursery and Gardening (Alternate-4)

Time: 2 Hours

Full Marks: 40

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

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

1. Answer *any five* from the following questions: 2×5=10
 - (a) Define gardening.
 - (b) Differentiate between manure and fertilizer.
 - (c) Why pruning is adopted in certain fruits like apple?
 - (d) How will you select a stock for grafting?
 - (e) What is seed bank?
 - (f) Write the function of glass house in nursery.
 - (g) What are the methods of indoor gardening?
 - (h) What is meant by seed bid?

 2. Answer *any four* out of six questions: 5×4=20
 - (a) What is landscaping? Write the applications of computer in landsaping. 2+3=5
 - (b) What is seed dormancy? Write the causes and methods of breathing dormancy? 2+1+2=5
 - (c) What is pest? Mention the different pests of garden plants. Write the different measures to control such pests. 2+1+2=5
 - (d) Give an account of vegetative propagation methods practice in gardening purpose. 5
 - (e) What are parks? Describe the components of a park. 2+3=5
 - (f) Distinguish between seed and seeding. Discuss the process of transplanting of seedlings.

 3. Answer *any one* of the following: 10×1=10
 - (a) Describe the cultivation process of brinjal. Mention the market trading process of it. 8+2=10
 - (b) What is nursery? What are the objectives of nursery? Write the different steps of nursery management. 2+2+6=10
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B.Sc. 3rd Semester (Programme) Examination, 2019-20

BOTANY

Course ID : 31318

Course Code : SPBOT-301C-1C

Course Title: Genetics and Plant Breeding

Time: 1 Hour 15 Minutes

Full Marks: 25

*The figures in the right hand side margin indicate marks.
Candidates are required to give their answers in their own words
as far as practicable.*

*দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।*

1. Answer any five questions from the following:

1×5=5

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

(a) What is crossing over?

Crossing over কী?

(b) Name one chemical and physical mutagen.

Chemical এবং physical mutagen-এর একটি করে উদাহরণ দাও।

(c) What do you mean by complete dominance?

Complete dominance বলতে কী বোঝো?

(d) What is acclimatization?

Acclimatization কী?

(e) State the significance of mutation.

Mutation-এর তাৎপর্য কী?

(f) What is the advantage of cross pollination?

ইতর পরাগযোগ এর সুবিধা কী?

(g) What is translocation?

Translocation কী?

(h) What is Co-dominance?

Co-dominance কাকে বলে?

2. Give brief answers to *any two* of the following: 5×2=10

যে কোনো দুটি প্রশ্নের উত্তর দাও :

(a) Describe briefly with suitable examples about role of mutation in crop improvement.

Crop improvement-এ mutation-এর ভূমিকা উদাহরণসহ ব্যাখ্যা দাও।

(b) What is hybridization? State the application. 1+4=5

Hybridization কী? এর ব্যবহারিক দিকগুলি বর্ণনা লেখো।

(c) Describe briefly the linkage maps based on two and three factor cross.

Two factor এবং Three factor cross-এর ভিত্তিতে linkage map-এর ব্যাখ্যা দাও।

(d) What is breeding in crop improvement? Describe briefly the selection methods for cross pollinate crops. 1+4=5

Breeding in crop improvement কী? ইতরপরাগযোগী crops-এর চয়ন পদ্ধতি সংক্ষেপে বর্ণনা করো।

3. Answer *any one* questions from the following: 10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাওঃ

(a) What is acclimatization? Describe briefly the selection methods for self pollinated crops..

What do you mean by Inbreeding depression? 2+6+2=10

Acclimatization কী? ইতরপরাগযোগী ও স্বপরাগযোগী crops-এর চয়ন পদ্ধতি সংক্ষেপে বর্ণনা করো।

(b) What is polyploidy? Describe the role of biotechnology in crop improvement briefly.

2+8=10

Polyploidy কী? Crop improvement-এ biotechnology-এর ভূমিকা বর্ণনা করো।

B.Sc. 3rd Semester (Programme) Practical Examination, 2019-20

BOTANY

Course ID : 31328

Course Code : SPBOT-301C-1C(P)

Course Title: Genetics and Plant Breeding

Time: 2 Hours

Full Marks: 15

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

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

1. Consider that the supplied Sample 'A' having different seeds of F_2 generation obtained after selfing F_1 plants. Chi-square test and comment on mode of inheritance of seed coat colour and seed size. 4+3=7
 2. Identify with reasons for the supplied Sample "B" and "C" 1½+1½=3
 3. Practical records 2
 4. Viva voce 3
-

B.Sc. 3rd Semester (Programme) Practical Examination, 2019-20**BOTANY****Course ID : 31328****Course Code : SPBOT-301C-1C(P)**

Course Title: Cell and Molecular Biology

*Instruction to the Examiners**Questionwise Instructions*

1. Sample 'A'— Find out the Goodness of fit of Mendelian ratio applying Chi-square

(a) **Break up of marks:**

Calculation	4
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Comments	3
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Total = 7

- | | |
|---|---------------------------------|
| 2. Sample "B" and "C"— Identifying with reasons | $1\frac{1}{2}+1\frac{1}{2} = 3$ |
|---|---------------------------------|

- | | |
|----------------------|---|
| 3. Practical records | 2 |
|----------------------|---|

- | | |
|--------------|---|
| 4. Viva Voce | 3 |
|--------------|---|

Grand Total: 15

General Instruction

1. Not more than twenty examinees be examined in a batch.
2. For question no. 1 beads of different colours and sizes should be used. Sample size (should be in multiples of 16 or 4) and deviation from the expected values (9:3:3:1 or 3:1 ratio) should be varied far as practicable.
3. Probability Table to be supplied to the examinees from the centre.
4. Working out materials for Sample "B" and "C" should be given in accordance with practical syllabus (Photo plates of Down's syndrome/Turner's syndrome/Translocation ring/Laggard Chromosome/Inversion Bridge).
5. Key to the materials supplied should be prepared batch wise and submitted along with the examined answer scripts.
6. Full name, specimen signature and address with contact number of examiners should be given in the Key submitted.

7. Examined script should be arranged batch wise but marks should be entered in the mark slip roll number wise and in serial order.
 8. Marks for the Question No. 3 and 4 should be entered strictly in the main answer script.
 9. Examined scripts and OMR mark-slip should be signed by the examiners.
 10. Examined answer scripts and Key should be sent to the University within a week (seven days) after completion of examination.
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SP-III/Botany/304/SEC-1/19

B.Sc. 3rd Semester (Programme) Examination, 2019-20
BOTANY

Course ID : 31310

Course Code : SPBOT-304-SEC-1

Course Title: Biofertilizer
(Alternative-1)

Time: 2 Hours

Full Marks: 40

*The figures in the right hand side margin indicate marks.
Candidates are required to give their answers in their own words
as far as practicable.*

*দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।*

1. Answer any five of the following:

2×5=10

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

(a) Mention one identifying biochemical test of *Rhizobium* Sp.*Rhizobium* Sp. শনাক্তকরণের জন্য একটি পরীক্ষার নাম লেখো।

(b) What is BOD?

BOD কী?

(c) What do you mean by crop response?

Crop response কী?

(d) What is the role of mycorrhiza?

মাইকোরইজা ভূমিকা লেখো।

(e) What is BGA?

BGA কী?

(f) What is biofertilizer?

বায়োফার্মিলাইজার কী?

(g) Which medium is used for isolation of *Azospirillum*?*Azospirillum* পৃথক করার জন্য কোন মিডিয়া ব্যবহৃত হয়?

(h) Name two carrier for the preparation of carrier based inoculant.

বাহক ইনকুল্যান্ট তৈরি করার জন্য দুটি বাহকের নাম লেখো।

2. Answer any four of the following:

5×4=20

যে কোনো চারটি প্রশ্নের উত্তর দাও :

- (a) Describe the process of biocomposting.
বায়োকম্পোস্টিং তৈরি পদ্ধতি বর্ণনা করো।
- (b) Give a short note about Azolla-Anabaena symbiosis and its importance in Agriculture.
Azolla Anabaena মিথোজীবী সম্বন্ধে বর্ণনা করো এবং কৃষিবিদ্যায়—এর গুরুত্ব সম্বন্ধে লেখো।
- (c) Describe the process of carrier based inoculant preparation with refernce to *Rhizobium*.
Rhizobium সংক্রান্ত বাহক যুক্ত ইনকুল্যান্ট তৈরির পদ্ধতি বর্ণনা করো।
- (d) Describe the process of mass multiplication of *Azospirillum*.
Azospirillum-এর মাস মাল্টিপ্লিকেশন পদ্ধতি সম্বন্ধে বর্ণনা করো।
- (e) Distinguish association N_2 fixation and symbiotic N_2 fixation. Give example of one associative N_2 -fixer. 4+1=5
সহকারী N_2 -সংবন্ধন এবং মিথোজীবী N_2 -সংবন্ধনের পার্থক্য লেখো। একটি সহকারী N_2 -সংবন্ধনকারীর নাম লেখো।
- (f) What is VAM? Mention its influence on growth and yield of crop. 1+4=5
VAM কী? ক্রম উদ্ভিদের বৃদ্ধি এবং প্রাপ্তিতে-এর ভূমিকা কী?

3. Answer any one of the following:

10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও:

- (a) What is vermicomposting? Briefly describe the method of vermicomposting. 2+8=10
ভার্মিকম্পোস্টিং কী? ভার্মিকম্পোস্টিং পদ্ধতি সংক্ষেপে বর্ণনা করো।
- (b) Describe the isolation process of *Rhizobium* in laboratory. Give example of actinorrhizal symbiosis. 8+2=10
ল্যাবরেটরিতে *Rhizobium* sp. -এর পৃথকীকরণ পদ্ধতি সংক্ষেপে বর্ণনা করো। অ্যাকটিনোরাইজাল মিথোজীবীর একটি উদাহরণ দাও।

B.Sc. 3rd Semester (Programme) Examination, 2019-20**BOTANY****Course ID : 31310****Course Code : SPBOT-304-SEC-1**

Course Title: Herbal Technology

(Alternative-2)

Time: 2 Hours**Full Marks: 40**

*The figures in the right hand side margin indicate marks.
Candidates are required to give their answers in their own words
as far as practicable.*

*দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।*

1. Answer any five of the following:**2×5=10**

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

(a) What is drug adulteration?

ড্রাগ মিশ্রণ কী?

(b) In which family Ashoka belongs? Give its scientific name.

অশোক গাছ কোন গোত্রভুক্ত এবং এর বিজ্ঞানসম্মত নাম লেখো।

(c) What is siddha system?

সিদ্ধা সিস্টেম কাকে বলে?

(d) What is pharmacognosy?

ফার্মাকগনোসি কাকে বলে?

(e) Name two active principles of *Catharanthus roseus*.*Catharanthus roseus* এর দুটি সক্রিয় উপাদানের নাম লেখো।

(f) Mention medicinal uses of ginger.

আদার ঔষধি ব্যবহার লেখো।

(g) Name two phenolic compound found in plant.

উদ্ভিদে পাওয়া যায় এরূপ দুটি ফেনালিক বস্তুর নাম লেখো।

(h) Name a plant which is used against rheumatic disease.

একটি উদ্ভিদের নাম লেখো যাহা বাতরোগে চিকিৎসাতে ব্যবহৃত হয়।

2. Answer any four of the following:

5×4=20

যে কোনো চারটি প্রশ্নের উত্তর দাও :

- (a) Mention medicinal uses of Tulsi. What is the scientific name of this plant? 3+2=5
তুলসী গাছের ঔষধি ব্যবহার লেখো। এই গাছের বিজ্ঞানসম্মত নাম লেখো।
- (b) What are the active principles of *Withania somnifera*. Mention their uses. 2+3=5
Withania somnifera উদ্ভিদের সক্রিয় উপাদানের নাম লেখো। ঐ উপাদানের ব্যবহার উল্লেখ করো।
- (c) What are flavonoids and steroid? Mention their importance on the perspective of medicine. 3+2=5
ফ্ল্যাভনয়েড ও স্টেরয়েড কী? ঔষধিতে এদের ভূমিকা লেখো।
- (d) Mention medicinal uses of Indian Gooseberry and Fenugreek. 2½×2=5
ভারতীয় গুস্ বেরী ও ফেনুগ্রীকের ঔষধি ব্যবহার লেখো।
- (e) Mention active principles and uses by *clerodendron phlomoides*. 2+3=5
Clerodendron phlomoides-এর ঔষধি ব্যবহার উল্লেখ করো।
- (f) Give a short note about future of pharmacognocny.
ফার্মাকগনসির ভবিষ্যৎ সম্বন্ধে লেখো।

3. Answer any one of the following:

10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও:

- (a) Describe the micropropagation of medicinal plant with special reference to neem.
ঔষধি উদ্ভিদের মাইক্রোপ্রোপাগেশন সম্বন্ধে লেখো নিম্ন উদ্ভিদের উল্লেখসহ।
- (b) Briefly describe the phytochemical and biological testing of herbal drugs.
হার্বাল ড্রাগের ফাইটোকেমিক্যাল ও বাইয়োলজিক্যাল শনাক্তকরণ সম্বন্ধে সংক্ষেপে লেখো।

B.Sc. 3rd Semester (Honours) Examination, 2019-20**BOTANY****Course ID : 31311****Course Code : SHBOT-301C-5**

Course Title: Morphology and Anatomy of Angiosperms

Time: 1 Hour 15 Minutes**Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* of the following: 1×5=5
- (a) What do you mean by Schimpes-Brown Series?
 - (b) What is a drupe?
 - (c) What is stylopdium?
 - (d) What are statoliths?
 - (e) Name a monocotyledonous plant where secondary growth is found.
 - (f) What is the main difference between P-type and S-type plastids?
 - (g) What is primordial meristem?
 - (i) What is plastochyon?
2. Answer *any two* of the following: 5×2=10
- (a) Describe in brief with diagram the phylogenetic relationship of different types of placentation. 3+2=5
 - (b) Describe different special types of condensed cymose inflorescence with examples. 5
 - (c) Compare the internal structures of dicot stem with that of monocot stem. 5
 - (d) What are ergastic substances? Describe in brief the different types of ergastic materials of plants. 2+3=5
3. Answer *any one* of the following: 10×1=10
- (a) What is Cambium? How does it originate? Give an account of its activity in the stem of monocotyledonous plant with sketches. 2+2+6=10
 - (b) What are Xerophytes? Describe the various anatomical modification in the Xerophytes. Distinguish between sap wood and heart wood. 2+6+2=10
-

B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20

BOTANY

Course ID : 31321

Course Code : SHBOT-301C-5(P)

Course Title: Morphology and Anatomy of Angiosperms

Time: 2 Hours

Full Marks: 15

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

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

1. Make a temporary anatomical preparation of the supplied material 'A' and draw labelled sketch.
Comment on it. 6
(Preparation —1, Drawing —2, labelling —1, Comment —2)
 2. Identify the specimen 'B' and 'C' with reasons. (1½+1½)=3
(Identification — ½, reason—1)
 3. Practical records 2
 4. Viva-voce 4
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