Total No. of Questions : 8]

SEAT No. :

P1258

[Total No. of Pages : 2

[5436]-11
M.Sc.-I (Under Faculty of Science)
BOTANY
BO-1.1 : Systematics of Non Vascular Plants
(2008 Pattern) (Semester-I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions, taking at least two questions from each section.***
2) ***Answer to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION-I

Q1) Describe the concept, structural, Biochemical and molecular systematics. **[16]**

Q2) a) Explain range of thallus in chlorophyta. **[8]**

b) Give an account of heterocyst in cyanophyta. **[8]**

Q3) Write short answers of the following. **[16]**

a) Write a note on Indian Bryology.

b) Comment on algal reserve food.

Q4) Write short notes on any two of the following. **[16]**

a) Sexual reproduction in Rhodophyta

b) Gametophyte of Marchantiales

c) Algal habitats

P.T.O.

SECTION-II

Q5) Give an account of Zygomycotina with reference to reproductive structures. **[16]**

Q6) a) Explain parasexuality and compatibility in fungi. **[8]**

b) Give life cycle pattern in Basidiomycotina. **[8]**

Q7) Write short answers of the following. **[16]**

a) Describe mycelium of fungi.

b) Explain spore producing organs in Ascomycotina.

Q8) Write short notes on any two of the following. **[16]**

a) Economic significance of Bryophytes.

b) Sporophyte of Sphagnum.

c) Evolution of Sex in fungi.

✓ ✓ ✓

Total No. of Questions :8]

SEAT No. :

P1259

[Total No. of Pages :2

[5436] - 12

M.Sc. - I

BOTANY

BO - 1.2 : Plant Physiology and Biochemistry

(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks :80*

Instructions to the candidates:

1) ***Answer any five questions taking atleast two questions from each section.***
2) ***Answer to the two sections should be written in SEPARATE answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn WHEREVER necessary.***

SECTION - I

Q1) Give an account of Photorespiration. Add a note on C_4 pathway.

Q2) Discuss:

a) Biosynthesis of cytokinins.

b) Abiotic stress in plants.

Q3) Explain:

a) Nerst equation.

b) Aquaporins

Q4) Write notes on Any Two:

a) Electron transport chain in chloroplast.

b) ATP synthesis.

c) Metabolic changes during fruit ripening.

P.T.O.

SECTION - II

Q5) Give an account of Alkaloid biosynthesis pathway.

Q6) Disucss:

a) Redox potential and activation energy.

b) Biological nitrogen fixation.

Q7) Explain:

a) Ramchandran plot.

b) Biosynthesis of starch.

Q8) Write notes on Any Two:

a) Factors affecting enzyme activity.

b) β - oxidation of fats.

c) Classification of Amino acids & proteins.

Total No. of Questions : 8]

SEAT No. :

P1260

[Total No. of Pages : 2

[5436]-13

M.Sc. - I

BOTANY

BO - 1.3 : Genetics and Plant Breeding

(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions, taking at least two questions from each section.***
2) ***Answer to the two sections should be written in SEPARATE answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn WHEREVER necessary.***

SECTION - I

Q1) What is gene mapping? Explain the mechanism of ordered tetrad analysis in Neurospora.

Q2) a) Explain mechanism of cytoplasmic male sterility.

b) Give an account on Hardy-Weinberg equation.

Q3) Explain:

a) Inhibitory gene interaction with example.

b) Inheritance of corolla length in Nicotiana.

Q4) Write note on any two:

a) Chloroplast genome

b) B-Chromosome

c) Post - Mendelian genetics

P.T.O.

SECTION - II

Q5) Give an account on mechanism of action of physical & chemical mutagens.

Q6) a) Discuss on genetic diversity in plants.

b) Write on incompatability.

Q7) Explain:

a) Genetic basis of breeding.

b) Role of mutation in plant breeding.

Q8) Write note on any two:

a) Karyotypes

b) Plant breeding in India

c) Hybridization & its role

✪✡✪✡

Total No. of Questions : 8]

SEAT No. :

P1261

[Total No. of Pages : 2

[5436]-21

M.Sc. - I

BOTANY

BO - 2.1 : Systematics of Vascular Plants

(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions, taking atleast two questions from each section.***
2) ***Answer to the two sections should be written in separate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagram must be drawn whenever necessary.***

SECTION - I

Q1) Describe structure of gametophyte and sporophyte of ophioglossales. **[16]**

Q2) Draw and describe external and internal morphology of sporophyte and gametophyte of cycadales. **[16]**

Q3) a) Comment on salient features of Angiosperms.

b) Describe merits and demerits of Takhtajan system.

[16]

Q4) Write short notes on any two of the following : **[16]**

a) Psilotales

b) Heterospory

c) Tools of Taxonomy

SECTION - II

Q5) Justify gymnosperm as prospective ancestor of angiosperms. **[16]**

Q6) a) Write on Taxonomic hierarchy.

b) Give affinities of Ginkgoales with cycadales.

[16]

P.T.O.

Q7) a) Give salient features of Welwitschiales.

b) Describe conservation and utilisation of diversity of Angiosperm.

[16]

Q8) Write short notes on any two of the following : **[16]**

a) Ecad and Ecotypes

b) Pollination in gymnosperms

c) Palynology

Total No. of Questions : 8]

SEAT No. :

P1262

[Total No. of Pages : 2

[5436]-22
M.Sc. - I
BOTANY
BO - 2.2 : Cell Biology and Instrumentation
(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt a total of five questions from the following, selecting at least two questions from each section.***
2) ***Answers to the questions from each section should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat labelled diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Describe the ultrastructure of endoplasmic reticulum and add a note on its functions. **[16]**

Q2) a) Describe properties and organization of cytoplasmic matrix. **[8]**

b) Explain structure of chromosome. **[8]**

Q3) a) Give the working of uv-vis spectrophotometer. **[8]**

b) Comment on the role of photoproteins in cell signaling in plants. **[8]**

Q4) Write explanatory notes on ANY TWO of the following : **[16]**

a) Dosage compensation

b) Ultrastructure of plasma membrane

c) Ultracentrifugation

P.T.O.

SECTION - II

Q5) Describe the construction and working of compound microscope. **[16]**

Q6) a) Explain in brief plant wound signaling pathway. **[8]**

b) Give ultrastructure of nucleus. Add a note on its functions. **[8]**

Q7) a) Explain the concept of 'apoptosis'. **[8]**

b) Describe various types of plastids. **[8]**

Q8) Write explanatory notes on any two of the following : **[16]**

a) Ribosomes

b) Giant chromosomes

c) Phase contrast microscope.

Total No. of Questions : 8]

SEAT No. :

P1263

[Total No. of Pages : 2

[5436]-23
M.Sc. (Part - I)
BOTANY
BO - 2.3 : Molecular Biology and Genetic Engineering
(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt a total of five questions, selecting at least two questions from each section.***
2) ***Answers to the questions from each section should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat labeled diagrams must be drawn wherever necessary.***

SECTION - I

Q1) What is transcription? Describe in detail the structure of transcription apparatus in eukaryotes. **[16]**

Q2) a) Discuss the structure of prokaryotic gene. **[8]**

b) Explain the rolling circle model of DNA replication in prokaryotes. **[8]**

Q3) a) Write on positive and negative control of Lac operon. **[8]**

b) State the role of chaperones in the folding and processing of proteins. **[8]**

Q4) Write explanatory notes on any two of the following. **[16]**

a) Recombination repair.

b) Tryptophan operon.

c) Targetting of organelle proteins.

SECTION - II

Q5) What is DNA reassociation kinetics? Explain moderately repetitive and highly repetitive classes of DNA. **[16]**

P.T.O.

Q6) a) Explain structure of Ri plasmid. **[8]**

b) Give the structure and properties of any one plasmid used as a cloning vector. **[8]**

Q7) a) Write in brief the concept of c-DNA libraries. **[8]**

b) What is DNA cloning? Explain the role of various enzymes used for DNA cloning. **[8]**

Q8) Write explanatory notes on any two of the following. **[16]**

a) Direct gene transfer in plants.

b) Restriction mapping.

c) Bioinformatics.

Total No. of Questions : 8]

SEAT No. :

P1264

[Total No. of Pages : 2

[5436]-31
M.Sc.-II
BOTANY
BO-3.1 : Developmental Botany and Plant Tissue Culture
(2008 Pattern) (Semester-III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions taking at least two questions from each section.***
2) ***Answer to the two sections should be writtern in seprate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat labelled diagrams must be drawn wherever necessary.***

SECTION-I

Q1) What is fertilization? Explain double fertilization and triple fusion in Angiosperm. **[16]**

Q2) a) Write on megasporogenesis **[8]**

b) Comment on cell-cell interaction during plant development **[8]**

Q3) Write short answers of followings. **[16]**

a) Explain the concept of cell fate mapping and cell lineage

b) Write on importance of hormonal signaling during plant development

Q4) Write short notes on any two of the following. **[16]**

a) Programmed cell death

b) Juvenility

c) Polarity & Symmetry

P.T.O.

SECTION-II

Q5) What is organogenesis? Explain direct and indirect organogenesis **[16]**

Q6) a) Give an account of somatic hybridization **[8]**

b) Write an role of PGRS in PTC. **[8]**

Q7) Write short answer of following. **[16]**

a) Give an account of somaclonal variations.

b) Comment on haploid production.

Q8) Write short notes on any two of the following. **[16]**

a) GM Crops

b) Cybrids

c) Application PTC in Agriculture

✓ ✓ ✓

Total No. of Questions :8]

SEAT No. :

P1265

[Total No. of Pages :2

[5436] - 32

M.Sc. - II

BOTANY

Bo - 3.2 : Environmental Botany and Plant Diversity

(2008 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks :80*

Instructions to the candidates:

1) ***Answer any five questions, taking, at least two questions from each section.***
2) ***Answer to the two sections should be written in SEPERATE answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn WHEREVER necessary.***

SECTION - I

Q1) What is water pollution? Give its types and sources. Add a note on eutrophication. **[16]**

Q2) a) Comment on ecological succession with its types and mechanism. **[8]**

b) Give concept of biosphere and add a note on GPS. **[8]**

Q3) Write short answers of the following.

a) Describe phytogeographic regions of India. **[8]**

b) Comment on population growth and its limits. **[8]**

Q4) Write short notes on any two of the following. **[16]**

a) Physiognomy.

b) Acid - rain.

c) Global warming.

P.T.O.

SECTION - II

Q5) What is EIA? Give its scope, process and necessity in thermal study. **[16]**

Q6) a) Define biodiversity. Give concept and types of biodiversity. **[8]**

b) Comment on heavy metal pollution and add a note on its effects. **[8]**

Q7) Write short answers of the following.

a) What is photo-accumulation in remediation of waste water with examples. **[8]**

b) Comment on grassland ecosystem. Add a note on its biotic and abiotic components. **[8]**

Q8) Write short notes on <u>any two</u> of the following. **[16]**

a) Biogeochemical cycles.

b) Ecological pyramids.

c) CBD.

Total No. of Questions :8]

SEAT No. :

P1266

[Total No. of Pages : 2

[5436]-34
M.Sc. -II
BOTANY
BO-3.32: Mycology and Plant pathology-I
(2008 Pattern) (Semester-III) (Special Paper-I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt total of five questions from the following. Select at least two questions from each section.***
2) ***Answer to the questions from each section should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat labelled diagrams must be drawn wherever necessary.***

SECTION-I

Q1) Mention general characters of fungi and give an account of Ainsworth's system of fungi classification. **[16]**

Q2) Answer the following:

a) Comment on plasmodiophoromycetes. **[8]**

b) Explain sporangia to conidia evolution in mucorales. **[8]**

Q3) a) Discuss fruit body pattern in Ascomycotina. **[8]**

b) Write briefly on smut fungi **[8]**

Q4) Write short notes on (any two). **[16]**

a) Lichen thallus.

b) Algal and protozoan ancestra of fungi.

c) Flagellated fungi

P.T.O.

SECTION-II

Q5) Explain ruderal and stress tolerant colonisation strategies in fungi. **[16]**

Q6) Answer the following:

a) How fungi are symbiotically associated with higher plants? **[8]**

b) Comment on soil fungi. **[8]**

Q7) a) Discuss genetical aspects of pathogenecity, host resistance and virulence. **[8]**

b) Write briefly on fungal habitats. **[8]**

Q8) Write short notes on (any two). **[16]**

a) Heterothallism.

b) Mycotoxins

c) Air borne fungi.

Total No. of Questions :8]

SEAT No. :

P1267

[Total No. of Pages : 2

[5436]-35
M.Sc.
BOTANY
BO-3.33: Angiosperms -I
(2008 Pattern) (Semester-III) (Special Paper-I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions. Select at least two questions from each section.***
2) ***Answer to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION-I

Q1) Give an account of any two botanical gardens of the world. **[16]**

Q2) Explain: **[16]**

a) Botanical gardens as multipurpose institute.

b) Role of Herbarium in research.

Q3) a) Give aims and objectives of biosystematic investigation.

b) Describe the multidisciplinary approach of systematics.

[16]

Q4) Write short notes on (any two): **[16]**

a) Major herbaria in the world

b) Typification

c) Effective and valid publication

P.T.O.

SECTION-II

Q5) Give the floristic composition of the world with special reference to Biodiversity of angiosperms. **[16]**

Q6) Explain : **[16]**

a) Effective characters of embryology in systematics.

b) Primitive features of Ranunculaceae.

Q7) Describe the method for biosystematics investigation. **[16]**

Q8) Write short notes (any two): **[16]**

a) Santalaceae

b) Utility of anatomical characters in systematics

c) Digital Herbarium

Total No. of Questions : 8]

SEAT No. :

P1268

[Total No. of Pages : 2

[5436]-36
M.Sc. - II
BOTANY
BO - 3.34 : Plant Physiology - I
(2008 Pattern) (Special Paper - I) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions, taking at least two questions from each section.***
2) ***Answer to the two sections should be written in separate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) What is stress? Discuss on abiotic stress. **[16]**

Q2) a) Explain the mechanism of flooding tolerance in plants. **[8]**

b) Comment on Saline-alkaline and sodic soils. **[8]**

Q3) a) Discuss the drought resistance mechanism in plants. **[8]**

b) Comment on effect of salt stress on plant metabolism. **[8]**

Q4) Write note on any two : **[16]**

a) Stress induced proteins.

b) Causes of water logging.

c) Scope of stress physiology.

P.T.O.

SECTION - II

Q5) What is Xenobiotic stress? Describe the effects of pollutants on plant metabolism. **[16]**

Q6) a) What are the effects of free radicals on plant growth? **[8]**

b) Explain the effects of Zn on plant metabolism. **[8]**

Q7) a) Describe the effects of UV-A radiation on plant metabolism. **[8]**

b) Give an account of photoinhibition. **[8]**

Q8) Write note on any two : **[16]**

a) Importance of Xenobiotic stress study.

b) Radiation stress.

c) Generation of ROS.

Total No. of Questions : 8]

SEAT No. :

P1269

[Total No. of Pages : 2

[5436]-37
M.Sc. - II
BOTANY
BO - 3.35 : Genetics, Molecular Biology & Plant Breeding - I
(2008 Pattern) (Special Paper - I) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions taking at least two questions from each section.***
2) ***Answer to the two sections should be written in separate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Explain mechanism of genetic recombination in bacteria. **[16]**

Q2) a) Comment on alien gene transfer method in Wheat crop. **[8]**

b) Describe production of auto polyploids. **[8]**

Q3) Explain :

a) Special types of chromosomes. **[8]**

b) Relationship of genetics to other areas of biology. **[8]**

Q4) Write notes on any two : **[16]**

a) Genetic Markers.

b) BAC.

c) Transmission genetics.

P.T.O.

SECTION - II

Q5) Explain methods of hybrid seed production using cytoplasmicgenic male sterility in crop plants. **[16]**

Q6) a) Discuss on completely randomized Block design. **[8]**

b) Comment on Screening of mutants in crop plants at various levels. **[8]**

Q7) Explain :

a) Role of simple correlation method in crop improvement. **[8]**

b) Chi-square method with more than one degree of freedom. **[8]**

Q8) Write note on any two : **[16]**

a) Null hypothesis.

b) Production of hybrid seeds.

c) Objectives of plant breeding.

Total No. of Questions :8]

SEAT No. :

P1270

[Total No. of Pages : 2

[5436]-38
M.Sc. -II
BOTANY
BO-3.36: Plant Biotechnology -I
(2008 Pattern) (Semester-III) (Special Paper-I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt a total of five questions. Select at least two questions from each section.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat labelled diagrams must be drawn wherever necessary.***

SECTION-I

Q1) What are objectives of plant tissue culture? Add a note on meristem culture. **[16]**

Q2) Answer the following:

a) What is somatic embryogenesis? **[8]**

b) Comment on haploids in agriculture. **[8]**

Q3) a) Give importance of cryopreservation. **[8]**

b) Write on Green House technology. **[8]**

Q4) Write short notes on (any two). **[16]**

a) SCP.

b) Stress tolerance by transgenics

c) Micropropagation.

P.T.O.

SECTION-II

Q5) What are biofertilizers? Add a note on BGA. **[16]**

Q6) Answer the following:

a) Write briefly on phyto remediation. **[8]**

b) Comment on mycorrhizae biofertilizers. **[8]**

Q7) a) State the role of growth regulators in tissue culture. **[8]**

b) Comment on somaclonal variation. **[8]**

Q8) Write short notes on (any two). **[16]**

a) Methods of cryopreservation.

b) Morphogenesis.

c) Axillary bud culture.

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Total No. of Questions : 8]

SEAT No. :

P1271

[Total No. of Pages : 2

[5436]-39
M.Sc. - II
BOTANY
BO - 3.37 : Plant Biodiversity - I
(2008 Pattern) (Special Paper - I) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions taking at least two questions from each section.***
2) ***Answers to the two sections should be written in separate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Give an overview of variety of life farms. Add a note on Global distribution of biodiversity. **[16]**

Q2) Comment on : **[16]**

a) Concept and scope of Biodiversity.

b) Genetic diversity Vs Transgenic organisms.

Q3) Explain : **[16]**

a) Techiques of monitoring plant and fish biodiversity.

b) Biodiversity of India.

Q4) Write notes on any two of the following : **[16]**

a) Temparate Forest Ecosystem.

b) Darwinian Evidence for natural selection.

c) Comparison of species diversity of different sites.

P.T.O.

SECTION - II

Q5) Describe Angiosperm and Lichen diversity w.r.t. habit, habitat distribution and evolutionary success. **[16]**

Q6) Explain : **[16]**

a) Marine Ecosystems.

b) Dispersal and diversification diversities in domesticated species.

Q7) Comment : **[16]**

a) Algal diversity w.r.t. number of species habit, habitat distribution and evolutionary success.

b) Artic and Alpine Ecosystems.

Q8) Write notes on any two of the following : **[16]**

a) Classification of Ecosystems.

b) Problems in inventorying species.

c) Origin of species.

Total No. of Questions : 8]

SEAT No. :

P1272

[Total No. of Pages : 2

[5436]-40
M.Sc. - II
BOTANY
BO - 3.38 : Seed Technology - I
(2008 Pattern) (Special Paper - I) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions taking at least two questions from each section.***
2) ***Answer to the two sections should be written in separate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Give an account of development and structure of male gametophyte. **[16]**

Q2) a) Describe factors affecting seed germination. **[8]**

b) Explain methods of breaking seed dormancy. **[8]**

Q3) a) Give economic importance of seed borne diseases. **[8]**

b) Discuss relevance of dormancy to seed production. **[8]**

Q4) Write notes on any two of the following : **[16]**

a) Goal and opportunities of seed technology.

b) Chemical composition of seed.

c) Seed quality characteristics.

P.T.O.

SECTION - II

Q5) Give an account of life cycle pattern of sugarcane pest. Add a note on its control measure. **[16]**

Q6) a) Comment on preventive measures of seed deterioration. **[8]**

b) Give general principles of seed storage. **[8]**

Q7) a) Discuss insect as a vector for plant diseases. **[8]**

b) Explain seed health testing methods. **[8]**

Q8) Write notes on any two of the following : **[16]**

a) Cold storage.

b) quaratine for seed.

c) Seed longevity.

Total No. of Questions : 8]

SEAT No. :

P1273

[Total No. of Pages : 1

[5436]-41
M.Sc.
BOTANY
BO - 4.1 : Plant Resources and Evolution
(2008 Pattern) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions taking atleast two questions from each section.***
2) ***Answer to the two sections should be written on separate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat labelled diagram must be drawn whenever necessary.***

SECTION - I

Q1) Explain the methods of phytochemical investigation of secondary metabolites.

Q2) Justify "Chemotaxonomy is useful tool in criminology".

Q3) Explain
a) Therapeutic use of different parts of plants.
b) Phytochemical investigation by Advance techniques.

Q4) Write note (any two)
a) Plant as source of timber
b) Secondary metabolites
c) Gums, resins and dyes

SECTION - II

Q5) Describe Lamarckism concept of evolution. Add note on Natural selection.

Q6) Comment on evolution of eukaryotic cell.

Q7) Explain :
a) Origin of new genes and proteins
b) Protein and nucleotide sequence analysis.

Q8) Write note (any two) :
a) Convergent evolution
b) Spontaneous mutation
c) Evolutionary time scale

Total No. of Questions : 8]

SEAT No. :

P1274

[Total No. of Pages : 2

[5436]-42
M.Sc. - II
BOTANY
BO - 4.2 : Applied Botany
(2008 Pattern) (Old Course) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions, taking atleast two questions from each section.***
2) ***Answer to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat labelled diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Describe in detail mass production of Spirulina. Add a note on its nutritive value.

Q2) a) Give the role of fungi in production of biomolecules.

b) What is X^2–test. Add a note on its applications.

Q3) a) Explain the role of fungi in bioremediation.

b) Give an account of role of algae as indicators of water quality.

Q4) Write explanatory notes on ANY TWO of the following :

a) Fungi as mycoweedicide

b) BGA & its commercial applications.

c) Fungal Allergy

P.T.O.

SECTION - II

Q5) a) Explain role of mycorrhizal fungi in Agriculture.

b) What is ANOVA? Write a note on its significance.

Q6) What are measures of central tendency? Explain Arithmetic mean and mode with suitable example.

Q7) a) Scope of Bioinformatics : Discuss.

b) t-test : Comment on.

Q8) Write notes on ANY TWO :

a) Non-Parametric statistics

b) Fungi in Ayurvedic medicine

c) Fungi in paper industry

Total No. of Questions : 8]

SEAT No. :

P1275

[Total No. of Pages : 2

[5436]-44

M.Sc. - II

BOTANY

BO 4.42 : Mycology and Plant Pathology - II

(2008 Pattern) (Semester - IV) (Special Paper - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt a total of five questions from following, select atleast two questions from each section.***
2) ***Answers to the questions form each section should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat laballed diagrams must be drawn wherever necessary.***

SECTION - I

Q1) State difference between primary and secondary metabolites. Explain submerged and shallow fermentation. **[16]**

Q2) a) Discuss in detail organic acid fermentation. **[8]**

b) Write on antitumour and antiviral agents from fungi. **[8]**

Q3) a) Comment on fermented food of fungal origin. **[8]**

b) Explain types of mycorrhiza. **[8]**

Q4) Write notes on any two. **[16]**

a) Fungi in biocontrol

b) Fungi in homeopathy and ayurvedic medicines.

c) White rot fungi in bioremediation.

P.T.O.

SECTION - II

Q5) Discuss with suitable example mycetoma. Write briefly on cryptococosis. **[16]**

Q6) a) Briefly write on useful activities of fungi. **[8]**

b) Comment on pathogenesis. **[8]**

Q7) a) Write role of biotechnology in plant pathology. **[8]**

b) Comment on downy mildews and white rusts. **[8]**

Q8) Write explanatory notes on any two of the following. **[16]**

a) Contributions of any four mycologists.

b) Physiology of diseased plant

c) Smuts and bunts.

Total No. of Questions : 8]

SEAT No. :

P1276

[Total No. of Pages : 2

[5436]-45

M.Sc. - II

BOTANY

BO 4.43 : Angiosperms - II (Special Paper - II)

(2008 Pattern) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answers any five questions, taking at least two questions form each section.***
2) ***Answer to the two sections should be written in SEPARTE answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagram must be drawn wherever necessary.***

SECTION - I

Q1) Give an account of experimental & applied palynology.

Q2) What is arboretum? Discuss the organization, function & importance of arbosefum.

Q3) Explain-

a) Structure of wood elements.

b) Androgenesis.

Q4) Write notes on any two.

a) In vitro fertilization

b) Ultrastructure of any one wood element.

c) Properties & uses & woods.

P.T.O.

SECTION - II

Q5) Give an account of gross structure & organization of wood.

Q6) What is polyembryony? Give details of embryogenesis.

Q7) Explain :

a) Pollen biochemistry.

b) Somatic embryogenesis.

Q8) Write notes on Any Two:

a) Agro forestry

b) Ultrastructure & pollen

c) Bee forage plants.

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Total No. of Questions : 8]

SEAT No. :

P1277

[Total No. of Pages : 2

[5436]-46
M.Sc. - II
BOTANY
BO - 4.44 : Plant Physiology - II (Special Paper - II)
(2008 Pattern) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answers any five questions, taking at least two questions form each section.***
2) ***Answers to the two sections should be written inseparate answer book.***
3) ***All questions carry equal marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Discuss the effect of elevated level of CO_2 and O_2 on net assimilation rate and plant metabolism. **[16]**

Q2) Explain the mechanism of biosynthesis and degradation of chlorophyll. **[16]**

Q3) a) Explain the effect of global warming on plant metabolism. **[8]**

b) Give an account of deplection of ozone layer and its effect on crop yield. **[8]**

Q4) Write notes on any two: **[16]**

a) Recent research on crop physiology.

b) Role of carotenoids in plant.

c) Photochemical reaction.

SECTION - II

Q5) Describe, how fungal and bacterial infection affect plant metabolism. **[16]**

P.T.O.

Q6) Explain the defence mechanism developed in Bt-cotton & Bt-Brinjal against insect. **[16]**

Q7) a) Give photochemical and biochemical properties of phytochrome. **[8]**

b) Comment on effect of allelochemicals on crop productivity under monoculture. **[8]**

Q8) Write notes on Any Two: **[16]**

a) Photoperiodism and its significance.

b) Structural defence.

c) Bt-tomato.

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Total No. of Questions :8]

SEAT No. :

P1278

[Total No. of Pages : 2

[5436]-47
M.Sc.
BOTANY
BO-4.45: Genetics, Molecular Biology and Plant Breeding-II
(2008 Pattern) (Semester-IV)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Attempt a total of five questions from the following, Selecting at least two questions from each section.***
2) ***Answers to the questions from each section should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Neat labeled diagrams must be drawn wherever necessary.***

SECTION-I

Q1) What are molecular markers? Describe RFLP and RAPD in detail. Write a note on its applications. **[16]**

Q2) a) Explain mechanism of genetic mapping. **[8]**

b) Describe method of colony hybridization. **[8]**

Q3) a) Discuss method of southern blotting . **[8]**

b) Write an account on concept of genomic libraries. **[8]**

Q4) Write notes on any two of the following: **[16]**

a) Chromosome walking

b) Organelle genome

c) Gene-environment interactions.

P.T.O.

SECTION-II

Q5) Give an account of breeding for nutritional quality with reference to protein. **[16]**

Q6) a) Describe procedure for the production of somaclonal variants. **[8]**

b) Explain, Importance of crop management. **[8]**

Q7) a) Comment on relationship between drought resistance traits and yield characters. **[8]**

b) Give importance of genetic engineering in breeding techniques. **[8]**

Q8) Write explanatory notes on any two of the following: **[16]**

a) QTL

b) Genome size

c) DNA sequencing

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Total No. of Questions :8]

SEAT No. :

P1279

[Total No. of Pages : 2

[5436]-48
M.Sc. II
BOTANY
BO - 4.46: Plant Biotechnology-II
(2008 Pattern) (Semester-IV) (Paper-II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Attempt any five questions selecting at least two questions from each section***
2) ***Answers to the questions from each section should be written in separate answer books.***
3) ***Neat labeled diagrams must be drawn wherever necessary.***
4) ***All questions carry equal marks.***

SECTION-I

Q1) Explain chemical & enzymatic method of DNA sequencing. **[16]**

Q2) a) Write comparative account of structural & functional genomics. **[8]**

b) Comment on public acceptance of agrobioproduct. **[8]**

Q3) a) Discuss western blotting technique. Write its uses. **[8]**

b) Mention any four enzymes & their uses in recombinant DNA technology. **[8]**

Q4) Write notes on any two of the followings: **[16]**

a) Bioethics

b) DNA libraries

c) Use of biotechnology in wastewater treatment.

P.T.O.

SECTION-II

Q5) Explain various strategies & methodologies of proteomics. **[16]**

Q6) a) Write about any two vectors & their selection methods. **[8]**

b) Enumerate the steps in PCR. Write its applications. **[8]**

Q7) a) Describe any two strategies for whole genome analysis. **[8]**

b) Discuss applications of proteomics in characterization of novel proteins. **[8]**

Q8) Write notes on any two of the followings: **[16]**

a) Chromosome jumping.

b) Techniques in restriction mapping.

c) Agricultural Biotechnology.

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Total No. of Questions :8]

SEAT No. :

P1280

[Total No. of Pages : 2

[5436]-49
M.Sc. -II
BOTANY
BO 4.47: Plant Biodiversity (Special Paper-II)
(2008 Pattern) (Semester-IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any five questions, taking at least two questions from each section.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***
4) ***Neat diagram must be drawn wherever necessary.***

SECTION-I

Q1) Explain the factors affecting ecosystem degradation and loss. Add a note on reasons for loss of diversity of tropical forests. **[16]**

Q2) Give an account of the role of universities and other educational institutions in biodiversity conservation. **[16]**

Q3) Explain: **[16]**

a) In-Situ conservation

b) Biodiversity legislation and convention

Q4) Write explanatoary notes on any two of the following: **[16]**

a) Environmental protection Act.

b) Demographic bottlenecks.

c) Role of UNESCO and FAO in plant diversity Management

P.T.O.

SECTION-II

Q5) Explain with suitable examples the advantages and limitations of use of biotechnologies in plant conservation. **[16]**

Q6) Explain the methodologies for evaluation of biodiversity. Add a note on ecotourism. **[16]**

Q7) Explain:

a) Emerging international policies. **[16]**

b) Economic value of biodiversity.

Q8) Write notes on any two of the following: **[16]**

a) Biopiracy.

b) Plant biodiversity as a source of carbon sinks.

c) Biological invasions and its ecological and economic impacts.

Total No. of Questions :8]

SEAT No. :

P1281

[Total No. of Pages : 2

[5436]-50
M.Sc.
BOTANY
BO-4.48: Seed Technology
(2008 Pattern) (Semester-IV) (Special Paper-II) (Old)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer any Five questions selecting atleast two questions from each section.***
2) ***Answer to the two sections should be written in separate answer books.***
3) ***All questions carry equal marks.***

SECTION-I

Q1) Give brief account of seed production in wheat and tomato.

Q2) a) Explain seed village concept.

b) Describe construction and working of seed grader.

Q3) a) Give an account of true potato seed production.

b) Comment on construction and working of colour separators.

Q4) Write short notes on any two of the following:

a) RAPD and RFLP

b) Seed certification board.

c) DNA Finger printing.

SECTION-II

Q5) Explain general procedure for seed certification. Add a note on specific seed certification standards.

Q6) a) Comment on artificial seed production.

b) Describe construction and working of air screen cleaner.

P.T.O.

Q7) a) Give history and development of seed testing.

b) Explain concept and objectives of seed processing.

Q8) Write short notes on <u>any two</u> of the following:

a) Classes of seeds.

b) Characteristics and importance of quality seed.

c) Types of seed sampling.

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