

F-6381

Sub. Code

7MBO1C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Botany

**PLANT DIVERSITY (ALGAE, FUNGI, LICHENS,
BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS
AND PALEOBOTANY)**

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Name the food reserve of green algae and red algae.
2. What are the types of photosynthetic pigments of algae?
3. Homothalism.
4. Sporocarp.
5. List our four important fossil bryophytes.
6. Gemmae.
7. List out any four group of fossil pteridophytes.
8. Sorus.
9. Incrustation.
10. Paleopalynology.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write notes on modes of perennation of fresh water algae.

Or

- (b) Write notes on economic importance of algae.

12. (a) Give comparative account of fungi and algae.

Or

- (b) Write notes on various stages of parasexual cycle of fungi.

13. (a) Write notes on reproduction in Marchantiales.

Or

- (b) Write notes on evolution of gametophytes in bryophytes.

14. (a) Illustrate alternation of generations in pteridophytes.

Or

- (b) Write short notes on stellar types and evolution in pteridophytes.

15. (a) Write notes on economic importance of gymnosperms.

Or

- (b) Write notes on age determination and methods of study of fossils.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on general account of Chlorophyceae algae.
17. Write an essay on classification of fungi according to C.J. Alexopoulos, 1979.
18. Write an essay on morphology, vegetative structure, reproduction and life cycle of Funariales.
19. Write an essay on morphology, structure, reproduction and evolution of gametophytes and sporophytes of Psilotales.
20. Write an essay on habit, habitat, morphology, anatomy and reproduction of Gnetum.

F-5435

Sub. Code

7MBO1C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Botany

METHODS IN BOTANY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Biosafety cabinet
2. Magnification
3. Mordant
4. Photomicrography
5. Absorption maximum
6. Rf value
7. Centrifugal force
8. Autoradiogram
9. Questionnaire
10. Secondary data

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define resolving power and enlist the factors which determine the resolution of a specimen in light microscopic observation.

Or

- (b) Enlist the applications of flow cytometry.

12. (a) Write a short note on dehydration of specimens.

Or

- (b) Define and explain the features of temporary and permanent mount.

13. (a) State and explain Beers-Lambert law.

Or

- (b) Explain the applications of muffle furnace in ash analysis.

14. (a) Write a short note on the principle, method and applications of ultracentrifugation.

Or

- (b) Outline the applications of autoradiography.

15. (a) Outline the importance of floristic survey in botanical research.

Or

- (b) Write a short note on stomatal index calculation.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the working principle and applications of confocal and fluorescence microscopes.
 17. Discuss about the methods of specimen preparation for electron microscopy.
 18. Explain the principle and applications of HPLC.
 19. Explain the principle, methods and applications of agarose gel electrophoresis.
 20. Explain about the study of plant morphological parameters and their applications in botanical research.
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F-5436

Sub. Code

7MBO1C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Botany

MICROBIOLOGY AND PLANT PATHOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Virions
2. Mycoplasma
3. Archaeobacteria
4. Sexduction
5. Etiology
6. Mycotoxins
7. Leaf galls
8. Root knot
9. Elicitors
10. Transformation

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the structure of Virus.

Or

- (b) Describe the economic importance of microbes.

12. (a) Explain the methods used in bacterial culture techniques.

Or

- (b) Describe the process of bacterial transformation.

13. (a) Describe the concept of Koch's postulates.

Or

- (b) Give an account of the organisms and causal factor responsible for plant diseases with examples.

14. (a) Describe the causative organism and control measures of Citrus Canker.

Or

- (b) Explain the etiology of Anthracnose of Mango.

15. (a) Write account on pathogen induced diseases in animals and plants.

Or

- (b) Describe the process of cell fusion in both normal and abnormal cells.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the five kingdom system by Whittaker.
 17. Write a detailed account on Bergey's system of bacterial classification and its significance.
 18. Explain the types of defense mechanisms in plants.
 19. Describe the causal organism, symptoms and control measures affecting Brinjal and Cotton plants.
 20. Discuss in detail the 'host parasite interaction' with examples.
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F-5437

Sub. Code

7MBO1C4

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Botany

CELL BIOLOGY AND BIOPHYSICAL CHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Osmosis
2. Peroxisomes
3. Transposons
4. Heterochromatin
5. *Van der Waals* force
6. Glycogen
7. Isozymes
8. Calomel
9. Z-DNA
10. Bond angle

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the structure and functions of plasma membrane with diagram.

Or

- (b) Describe the structure and functions of chloroplast.

12. (a) Describe the structure of chromosome with neat diagram.

Or

- (b) Describe the process of Mitosis with neat diagram.

13. (a) Explain the uses of vitamins.

Or

- (b) Give an account on hydrophobic interaction and its significances.

14. (a) Describe the laws of thermodynamics.

Or

- (b) Describe the Michaelis Menten equation.

15. (a) Write account on Ramachandran plot and its significance.

Or

- (b) Describe the structure of tRNA with neat diagram.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on structure and functions of Mitochondria.
17. Write a detailed account on meiosis and its significance with neat diagrams.
18. Explain the metabolism of lipids with examples.
19. Describe in detail the process of Glycolysis.
20. Discuss in detail the conformational tests for nucleic acids.

F-5438

Sub. Code

7MBO1E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Botany

Elective – MUSHROOM CULTIVATION

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List out the binomial of any two edible mushrooms of India.
2. How will you identify a poisonous mushroom?
3. What is inoculation loop?
4. Define Sterilization.
5. List out the fungal diseases of mushrooms.
6. Name the nematodes that infect mushrooms.
7. Bring out the minerals present in mushrooms.
8. Mushrooms are the rich source of amino acids – Justify.
9. What do you mean by export value?
10. Name any two mushroom research centres of India.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the nutritional value of edible mushrooms.

Or

- (b) Explain the medicinal values of mushrooms.

12. (a) Comment on the composting technology in mushroom cultivation.

Or

- (b) Describe the factors affecting mushroom bed preparation.

13. (a) Outline the economics of mushroom cultivation.

Or

- (b) How are the fungal pathogens of mushrooms managed?

14. (a) Discuss the methods of short term storage of mushrooms.

Or

- (b) Explain the preparation of mushroom pickles and papads.

15. (a) Bring out the Cost-benefit ratio of mushroom cultivation.

Or

- (b) Analyze the present status of mushroom industry in India.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the types of edible mushrooms in India.
 17. Explain the technique of spawn preparation.
 18. Describe the method of cultivation of white button mushroom.
 19. Describe the methods used in long term storage of mushrooms.
 20. How are mushrooms marketed in India?
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F-5439

Sub. Code

7MBO1E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Botany

Elective – ETHNOBOTANY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define indigenous medicine.
2. Mention the distribution of Paliyar tribes.
3. Who wrote the book on “Glimpses of Indian Ethnobotany”?
4. What are the need of Herbarium in ethnobotanical research?
5. Mention the source of Azadirachtin.
6. Name any two modern medicine from *Rauwolfia*.
7. Mention any two common Sthalavirukshas in Tamil Nadu.
8. What do you mean endangered taxa?
9. Give note on ethnodiversity.
10. What is biopiracy?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the objectives of ethnobotany.

Or

- (b) Enlist the tribal food plants in India.

12. (a) Briefly mention the Herbarium techniques.

Or

- (b) How do you find out ethnobotany from ancient literature?

13. (a) Explain the ethnobotanical importance of *Gloriosa*.

Or

- (b) Elucidate the role of ethnobotany in discovery of modern medicine.

14. (a) Expound the ecological role of sthalavirukshas.

Or

- (b) Evidence the conservation of plant genetic resources by ethnic knowledge.

15. (a) Discovery of Jeevani as community medicine - Explain.

Or

- (b) Write an account on importance of protection of traditional knowledge by IPR.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the life-style of major tribals in Western Ghats.
 17. How do you prepare the schedule for ethnobotanical investigation?
 18. Write an account on medico-ethnobotanical sources in India with relevant examples.
 19. Elucidate the role of sacred grooves in conservation of plant genetic resources
 20. Ethnobotany as a tool for protection of tribal wealth - Justify.
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F-5443

Sub. Code

7MBO3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

PLANT PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define hydroponics
2. Name the physical forces by which water molecules are translocated from soil and across cells
3. What is Emerson's enhancement effect?
4. Comment on Leghaemoglobin
5. Define biological clock
6. What do you mean by phosphorescence?
7. What are tropic movements?
8. Comment on vernalization.
9. Programmed cell death.
10. Define salt stress.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write an essay on ascent of sap.

Or

- (b) Explain Bulk flow hypothesis.

12. (a) Comment on Non cyclic photophosphorylation.

Or

- (b) Draw Calvin cycle.

13. (a) Explain the concept of Bioluminescence.

Or

- (b) Classify plants on the basis of photoperiod required.

14. (a) Describe the applications of Auxins in Agri-horticulture.

Or

- (b) Comment on the causes of dormancy and the methods of breaking it.

15. (a) Bring out the importance of secondary metabolites.

Or

- (b) How do plants respond to water stress?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the role of macro and micro elements in plants.

17. Draw and explain Citric acid cycle.

18. Analyse the role of phyto and cryptochromes in plant functioning.
 19. Discuss the physiological role and practical applications of Gibberellins.
 20. Describe the biosynthesis of terpenes.
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F-5444

Sub. Code

7MBO3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

**DEVELOPMENTAL BIOLOGY AND PLANT
BIOTECHNOLOGY**

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Gametogenesis
2. Scutellum
3. Phyllotaxy
4. Trichomes
5. Cosmids
6. S1 nucleases
7. Reporter genes
8. Antisense RNA
9. Interferons
10. Biopiracy

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the development of dicot embryo with diagram.

Or

- (b) Describe the different methods to overcome incompatibility.

12. (a) Explain the anatomical features of primary structure of dicot stem.

Or

- (b) Describe the types of nodal anatomy with diagrams.

13. (a) Describe the genetic organization of Ti plasmid with neat diagram.

Or

- (b) Give an account on cDNA library and its significances.

14. (a) Describe in brief RAPD techniques and its applications.

Or

- (b) Explain the procedure involved in Western blotting techniques and its applications.

15. (a) Write account on site directed mutagenesis.

Or

- (b) Discuss in brief the role of IPR in biotechnology.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the different types of endosperms in angiosperms.
 17. With labeled diagram describe the root- stem transition.
 18. Explain the physical methods used in gene transfer techniques.
 19. Explain in detail the eukaryotic gene expression with neat diagrams.
 20. Describe in detail the sequencing methods.
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F-5445

Sub. Code

7MBO3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

PLANT ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Biome
2. Estuary
3. Humus
4. Ecomorph
5. Dispersion
6. Predation
7. Mutualism
8. Ecotones
9. Noise pollution
10. Biofilm

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the structure of an ecosystem.
Or
(b) Explain the energy flow in ecosystem.
12. (a) Comment on grazing and its impact on environment.
Or
(b) Write notes on deforestation.
13. (a) Give the details of k- selection.
Or
(b) Discuss the concept of age structure in a population.
14. (a) Enumerate positive interactions of biotic components.
Or
(b) Discuss about xerosere succession.
15. (a) List the impacts of soil pollution.
Or
(b) Write the sources of water pollution.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the structure and function of marine ecosystem
17. Discuss about the physical factors influencing the environment.

18. Describe the population growth curve.
 19. Explain the quadrat analysis of vegetation.
 20. Write an essay on various toxins polluting the environment.
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F-5446

Sub. Code

7MBO3E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

**Elective – BIODIVERSITY CONSERVATION,
PHYTOGEOGRAPHY AND REMOTE SENSING**

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Endangered species
2. Gamma Biodiversity
3. Sacred Groves
4. Social Forestry
5. Wild life Protection Act
6. Forest Conservation Act
7. Savanas
8. Age and Area Hypothesis
9. Electromagnetic Spectrum
10. GIS

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out any five endangered species of India.

Or

- (b) Briefly explain the role of Shannon – Weiner index of Biodiversity conservation.

12. (a) Give a detailed account on Afforestation.

Or

- (b) Briefly explain the role of Gene Bank in Biodiversity Conservation.

13. (a) Highlight the importance of Wildlife Protection Act.

Or

- (b) Give a detailed account on Decentralization of Forest Public Administration.

14. (a) Write a short notes on human influence on Post Glacial Change.

Or

- (b) Write a short note on Endemism with special reference to Insular floras.

15. (a) List out the name of Satellite used in Biodiversity Conservation of India.

Or

- (b) How Landscape Mapping used in Biodiversity Conservation in India?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain about the measurement of Biological diversity.
 17. Write an essay on *Ex Situ* conservation methods.
 18. Give a detailed account on Sustainable Forest Management.
 19. Write an essay on Phytogeographical Classification of India.
 20. List out the role of GIS and GPS in Biodiversity Conservation.
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F-5447

Sub. Code

7MBO3E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

Elective – HORTICULTURE AND LAND SCAPING

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Arboriculture
2. Scion
3. Astroturf
4. Ornamental plants
5. Water garden
6. Terrace garden
7. Perennial vegetables
8. Propagation methods of *Rose*
9. *Alphonsa*
10. Canning *Grapes*

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly explain the scope of Horticulture.

Or

- (b) Explain the different methods of Ground Layering.

12. (a) Write short notes on Hydroponics and its importance.

Or

- (b) List out the common Green House Plants.

13. (a) Give a detailed account on Hanging Basket. What is the uses of Hanging Basket in indoor Gardening.

Or

- (b) Give a detailed account of Floral Arrangement Technique.

14. (a) What is Olericulture? Explain the importance of Olericulture to Mankind.

Or

- (b) Write short notes on cultivation practices of Rose.

15. (a) Give a detailed account of cultivation of *Eucalyptus*.

Or

- (b) Write short notes on cultivation of Grapes.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What is Horticulture? Explain the divisions of Horticulture.
17. Write an essay on Lawn making and its Maintenance Tips.
18. Write a brief account of Rockery. List out the important plants being grown in Rockery. Give the management tips of Rockery.
19. Write an essay on Kitchen Garden. Add notes on its importance to Mankind.
20. List out the important *Mango* varieties grown in Tamil Nadu. Explain the cultivation methods of *Mango*.

F-5448

Sub. Code

7MBO3E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

Elective – COMMERCIAL PLANT TISSUE CULTURE

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. *In vitro* differentiation
2. Gamborg medium
3. Shoot meristem
4. Organogenesis
5. Pre embryonic tissue
6. Haploid plant
7. Chemostat culture
8. Macerozyme
9. Biotransformation
10. Deep freezing

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on the requirements and organization of plant tissue culture lab.

Or

- (b) Discuss about the requirements for the establishment of a low cost tissue culture lab.

12. (a) Write a short note on the selection of elite germ plasm for tissue culture.

Or

- (b) Define and explain about somaclonal variation.

13. (a) Write a short note on androgenesis.

Or

- (b) Explain the stages and applications of pollen culture.

14. (a) Enlist the advantages of continuous culture.

Or

- (b) Discuss about the induced electrofusion of Protoplast.

15. (a) Enlist the advantages of immobilized cell cultures.

Or

- (b) Discuss about the applications of plant tissue culture in forestry.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the organic supplements and growth regulators used in plant tissue culture.
 17. Describe the stages of organogenesis *in vitro*.
 18. Explain the principle, method and applications of anther culture.
 19. Illustrate the principle, methods and applications of somatic hybridization.
 20. Illustrate the methods, advantages and limitations of cryopreservation.
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F-5449

Sub. Code

7MBO3E4

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

Elective – PLANT BREEDING

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Inbred
2. Ecotype
3. Pollinators
4. True-to -type plant
5. NBPGR
6. Hardening
7. Mutant
8. Elite gene
9. Genetic stability
10. Inbreeding

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short notes on traditional methods of plant breeding.

Or

- (b) Outline the methods of test cross.

12. (a) Define hybridization and enlist its advantages in plant breeding.

Or

- (b) Outline the features of apomictic plants.

13. (a) Write a short note on the strategies for domestication of crop plants.

Or

- (b) Enlist the selection criteria in self pollinated plants.

14. (a) Write a short note on the causes and effects of mutation in plants.

Or

- (b) Explain the features of autopolyploidy in plants.

15. (a) Write a short note on monogenic inheritance.

Or

- (b) Discuss about the advantages of back crossing.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note on the achievements and consequences of plant breeding in India.
 17. Explain the strategies for breeding in self pollinated plants.
 18. Give a detailed account on the status and conservation of plant genetic resources in India.
 19. Discuss about the strategies for polyploidy induction and applications in plant breeding and improvement.
 20. Discuss about the concept, mechanism and applications of quantitative inheritance.
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F-5450

Sub. Code

7MBO3E5

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Botany

**Elective – RESEARCH METHODOLOGY,
BIOINFORMATICS, BEHAVIOUR AND
TEACHING SKILLS**

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Descriptive research
2. Copy right
3. Median
4. Student "t" test
5. Intranet
6. EMBL
7. Altruism
8. Navigation
9. Soft skill
10. Group discussion

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define and distinguish: applied and fundamental research.

Or

- (b) Discuss about the components of a thesis.

12. (a) Define and explain probability analysis.

Or

- (b) Discuss about the measure of dispersion and its applications in botanical research.

13. (a) Write a short note on the applications of bioinformatics.

Or

- (b) Discuss about the applications of power point in scientific presentation.

14. (a) Write a short note on Kin selection in biological science research.

Or

- (b) Discuss about the features of proximate causation.

15. (a) Enlist the basic skills required for a good teacher.

Or

- (b) Discuss about the importance of seminars in exploration of knowledge.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the basic requirements and advantages of laboratory research in botany.
17. Explain about the methods of calculation and applications of central tendency in biological science research.
18. Discuss about different types and applications of protein data bases.
19. Discuss about different strategies in studying biological behaviour.
20. Explain different types teaching and analyse the merits and demerits.
