



08CT21

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Second Semester : Paper – I

PTERIDOPHYTES, GYMNOSPERMS AND PALEO BOTANY

Under CBCS – Credit 4

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

1. Which one of the following plant is called as Whisk fern
a) *Lycopodium* b) *Psilotum* c) *Marsilea* d) *Adiantum*
2. _____ plant is called Horse tail
a) *Marsilea* b) *Equisetum* c) *Lycopodium* d) *Selaginella*
3. Which one of the following plant groups are endemic to particular regions
a) *Cycas* b) *Gnetum* c) *Marsilea* d) *Psilotum*
4. Period of Mesozoic era between/is _____ million years
a) 225-75 b) 35 c) 25 d) 425
5. The first and the oldest era of geological time scale is
a) Azoic era b) Archeozoic era
c) Protozoic era d) Paleozoic era
6. Mention the stelar organization in *Lycopodium*.
7. What is pinnae?
8. Mention the arrangement of leaf in *Gnetum*.
9. Which is the era of cycads?
10. Which is called fossil gymnosperm?

SECTION – B

Answer ALL Questions:

(5 × 7 = 35)

11. a) Explain the general characters of pteridophytes.
(OR)
b) Write a brief account on reproduction in *Lycopodium*.
12. a) List the economic importance of *Equisetum* and *Marsilea*.
(OR)
b) Discuss the reproduction in *Marsilea*.
13. a) Outline Chamberlin classification of Gymnosperms.
(OR)
b) Discuss the evolutionary status of *Gnetum*.
14. a) Discuss – Coenozoic era. (OR)
b) Give an account on methods of fossil study.
15. a) Explain the reproduction in *Rhynia*.
(OR)
b) Describe the features of *calamites*.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Explain the structure and reproduction in *Psilotum*.
17. Discuss the reproduction in *Equisetum*.
18. Explain the general characters of gymnosperms.
19. Write a brief account on classifications of fossil.
20. Discuss the geological timescale.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Second Semester : Paper – II

PLANT ANATOMY & MICROTECHNIQUES

Under CBCS – Credit 4

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

- Who proposed the term Plastids in cell?
 - Kolliker
 - Schimper
 - Portar
 - Benda
- Lenticells are formed due to the activity of
 - Protoderm
 - Xylem
 - Cork cambium
 - Phloem
- Anamolous secondary growth in monocots leads to the formation of _____ vascular bundles.
 - Tetra
 - Penta
 - Leptocentric
 - None of the above
- According to Sinnott (1914) _____ types of nodal anatomy were found in dicot stem
 - 5
 - 3
 - 4
 - 7
- The main aim of fixation in staining is
 - Colouring
 - Mounting
 - To stop autolysis
 - Labelling
- What is Plasmodesmata?
- Mention the arrangement of vascular bundle in dicot stem.
- What is first accessory cambium?
- Mention the significance of nodal anatomy
- How the microslide are labelled?

SECTION – B

Answer ALL Questions:

(5 × 7 = 35)

- Discuss the origin, growth and functions of cell wall.
(OR)
- Write a short note on Trichomes.
- Differentiate the primary structures of dicot and monocot stem.
(OR)
- Draw labelled sketches of dicot and monocot roots.
- Explain the formation of annual rings.
(OR)
- Describe the anomalous secondary thickening in *Dracaena*.
- Draw the labelled sketch of T.S. of dicot leaf.
(OR)
- Explain the formation of lateral root.
- Write about simple and compound fixatives.
(OR)
- Explain the method of temporary mounting.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

- Write briefly about complex permanent tissues.
- Explain the internal structure of dicot stem.
- Discuss the anomalous secondary thickening in *Boerhaavia*.
- Explain various types of Nodal anatomy.
- Explain the methods involved in staining.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Fourth Semester : Paper – I

CELL BIOLOGY & EMBRYOLOGY

Under CBCS – Credit 4

Time: **3 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

- The cell organelles are found in _____ cells.
 - Bacterial
 - Cyanobacterial
 - Prokaryotic
 - Eukaryotic
- Spindle fibres are composed of _____.
 - Protein
 - Lipids
 - Pectins
 - Cellulose
- Ubisch bodies are associated with the development of _____.
 - embryo
 - embryosac
 - pollengrains
 - flower
- Entamophylly means pollination by _____.
 - wind
 - water
 - insect
 - animal
- Angiospermic endosperm is _____ in nature.
 - 2n
 - 3n
 - 4n
 - 5n
- Which is known as suicidal bag?
- Who described the mitosis in plant cell?
- Which is the inner most layer of the anther wall?
- What is nucellus?
- Which is the nutritive tissue of embryo of *Capsella* ?

SECTION – B**Answer ALL Questions:****(5 × 7 = 35)**

- Give a comparative account of prokaryotic and eukaryotic cells.

(OR)

 Explain the structure of cell membrane with suitable diagram.
- What is cell cycle? Explain the stages of cell cycle.

(OR)

 Explain the formation of chiasmata during crossing over.
- Illustrate the structure of a matured anther.

(OR)

 Write short notes on microsporogenesis.
- Draw the diagram of ovule and label the parts.

(OR)

 Write a note on triple fusion.
- Explain various types of endosperm.

(OR)

 Explain the structure of ruminant endosperm.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

- Write an essay on structure and function of chloroplast.
- Compare the stages of mitosis and meiosis.
- Give an illustrated account of the structure and development of male gametophyte.
- Give a detailed account of the development and organization of *Polygonum* type of embryosac.
- Describe the development of dicot embryo with suitable diagrams.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Fourth Semester : Paper – II

PLANT ECOLOGY

Under CBCS – Credit 4

Time: **3 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

- The term Ecology was coined by _____.
a) Brown b) Aristotle c) Khorana d) Reiter
- The plants growing in saline soil are called _____.
a) Xerophytes b) Halophytes
c) Hydrophytes d) Mesophytes
- Succulents are likely to be found in
a) Tropical rain forest b) Deciduous forest
c) Deserts d) Tundras
- The ozone layer is depleted due to _____.
a) CFC b) CO₂ c) SO₂ d) HN₃
- Indian forests are classified into _____ major types.
a) 2 b) 4 c) 6 d) 8
- What is pedogenesis?
- Sunken stomata are found in _____.
- Explain Quadrat.
- Define pollution.
- What is Phytogeography?

SECTION – B**Answer ALL Questions:****(5 × 7 = 35)**

- Explain troposphere.
(OR)
b) Give an account of different components of Soil.
- Write short notes on mangroves.
(OR)
b) Describe the structural and functional changes in a typical Hydrosere.
- Explain the study of vegetation by Quadrat method.
(OR)
b) Write about Himalayan moist temperate forest.
- What is biological magnification? Explain.
(OR)
b) What are pesticides? Explain the impact of any two pesticides on environment.
- Explain Age and Area hypothesis.
(OR)
b) What is endemism? Explain with suitable example.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

- Discuss the types of interactions among the organisms?
- Define succession. Give an account of general process of succession in nature.
- Write an essay on vegetation of Tamil Nadu.
- What is Ecotoxicology? Give an account on effects of harmful chemical toxicants with reference to human life.
- Give a detailed account of discontinuous distribution.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Sixth Semester : Paper – I

PLANT PHYSIOLOGY

Under CBCS – Credit 3

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

1. Wilting of plants are due to excessive _____.
a) Absorbtion b) Transpiration
c) Photosynthesis d) Respiration
2. The light energy is converted into chemical energy during the process of _____.
a) Transpiration b) Photosynthesis
c) Digestion d) Respiration
3. Plants absorbe Nitrogen in the form of _____.
a) Nitrite b) Nitrate c) Ammonia d) All the above
4. Which one of the following is a micronutrient?
a) Calcium b) Phosphorus
c) Copper d) Magnesium
5. The internode elongation is stimulated by _____.
a) Auxin b) Cytokinin c) Gibberellin d) Phenol
6. Who coined the term Guttation?
7. Which is called power house of the cell?
8. What are lipids?
9. Which tissue translocates the organic solute?
10. The chemical agent responsible for flowering is called _____.

SECTION – B

Answer ALL Questions:

(5 × 7 = 35)

11. a) Write short notes on plasmolysis.
(OR)
b) Explain the mechanism of water absorption in land plants.
12. a) Write explanatory note on action spectrum.
(OR)
b) Describe the mechanism of fermentation.
13. a) What are fats? How are they distributed in plants?
(OR)
b) Explain reduction of nitrate in plant tissues.
14. a) Write short note on phloem transport.
(OR)
b) What are enzymes? Describe their properties.
15. a) Explain the role of auxins in plants.
(OR)
b) Define seed dormancy. Add a note on its significances.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. 'Transpiration is a necessary evil' Justify the statement.
17. Discuss the mechanism of photosynthesis in green plants.
18. Describe the protein synthesis with referance to DNA and RNA.
19. Give a brief account of the various mineral elements necessary for the healthy growth of plants.
20. Write an essay on Photoperiodism.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Sixth Semester : Paper – II

BIOTECHNOLOGY

Under CBCS – Credit 3

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

- λ phage vector can carry upto
 - 20 kb fragments
 - 30 kb fragments
 - 40 kb fragments
 - 50 kb fragments
- Which one is not suitable for single cell protein?
 - Pichia pastoris*
 - Aspergillus oryzae*
 - Klebsiella pneumoniae*
 - Spirulina*
- Endochitinase can be used as an _____ agent.
 - Antibacterial
 - Antiviral
 - Antifungal
 - Antinematodal
- The use of living microorganisms to degrade environmental pollutants is called
 - Microremediation
 - Nanoremediation
 - Bioremediation
 - All of these
- The technology used for the production of monoclonal antibodies is
 - Mass culture technology
 - Hybridoma technology
 - Suspension culture
 - None of these
- Give two examples for plasmid vectors.
- What is the main fermentable source for penicillin production?
- What is the main role of nif genes?
- What is methanogenesis?
- What are the unique properties of stele cells?

SECTION – B

Answer ALL Questions:

(5 × 7 = 35)

- Explain in detail about plasmids, their properties and their role as vectors. **(OR)**
 - Write an account on applications of Genetic Engineering.
- Describe the industrial production of Ethyl alcohol. **(OR)**
 - Describe the production of penicillin.
- Explain the mechanism of nitrogen fixation with reference to *Rhizobium*. **(OR)**
 - What is root nodulation? Discuss the phenomenon of root nodulation in legume plants.
- Briefly describe the method of biogas production. **(OR)**
 - Give a brief account of phytoremediation.
- Explain the diagnostic procedure for Sandwich ELISA. **(OR)**
 - What is DNA Finger printing? Describe the method in detail.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

- Define plasmids. Briefly explain the characteristics and types of plasmid.
- Discuss in detail about the immobilization of enzymes.
- Describe in detail about biopesticides.
- Explain in detail about the biological treatment of sewage.
- Discuss the production and applications of monoclonal antibodies.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Elective Subject : Sixth Semester : Paper – I

TISSUE CULTURE

Under CBCS – Credit 5

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

- Who is the father of tissue culture?
 - Bonner
 - Haberlandt
 - Laibach
 - Gautheret
- Synthetic seed is produced by encapsulating somatic embryo with _____.
 - Sodium chloride
 - Sodium alginate
 - Sodium Acetate
 - Sodium nitrate
- The most widely used chemical for protoplast fusion, as fusogens, is
 - Mannitol
 - Sorbitol
 - Mannol
 - Polyethylene glycol
- The production of secondary metabolites require the use of
 - protoplast
 - cell suspension
 - meristem
 - auxillary buds
- Which vector is most used in crop improvement?
 - plasmid
 - cosmid
 - phagemid
 - Agrobacterium*
- Name any two chemicals used as surface sterilants.
- What is Explant?
- Differentiate between protoplasm and cytoplasm.
- Name any two secondary metabolites from plants.
- What is T_i plasmid?

SECTION – B

Answer ALL Questions:

(5 × 7 = 35)

- Describe the tools required for tissue culture.

(OR)

 - Write down the composition and procedure for MS media preparation.
- What is organogenesis and somatic embryogenesis? Write any four differences between these two.

(OR)

 - Enlist the steps involved in meristem culture and its uses.
- What is anther culture? Briefly explain the procedure for anther culture.

(OR)

 - Write the applications of haploids in plant breeding.
- What is suspension culture? Write the methods for measurement of growth in the suspension culture.

(OR)

 - Describe the applications of secondary metabolites.
- Enumerate any seven applications of transgenic plants.

(OR)

 - Write a brief account of conservation of endangered and rare species.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

- Describe various sterilization techniques use in plant tissue culture.
- Discuss in detail about
 - Artificial seeds.
 - Germplasm preservation.
- Explain the steps involved in isolation and purification of protoplast.
- Describe the production of secondary metabolites.
- Give detailed account on transgenics for herbicide tolerance in crop plants.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Elective Subject : Sixth Semester : Paper – II

REMOTE SENSING AND GIS

Under CBCS – Credit 5

Time: **3 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

- Which of the following electromagnetic radiation is used in remote sensing?
 - Gamma rays
 - X-ray
 - Cosmic rays
 - IR radiation
- Sound is used as signal in _____.
 - RADAR
 - SONAR
 - Satellites
 - Air Crafts
- NRSA is located in
 - Bangalore
 - Chennai
 - Lucknow
 - Hyderabad
- The Father of GIS is
 - Eric Watson
 - Clements
 - O.Wilson
 - Roger Tomilson
- In Raster model of GIS, the data are represented in the form of
 - polygons
 - lines
 - grids
 - dots

Write short notes on the following:

- Optical Sensor.
- Land Sat.
- Thematic Map.
- Spatial Data.
- Cartography

SECTION – B**Answer ALL Questions:****(5 × 7 = 35)**

- Illustrate the Electromagnetic radiation.

(OR)

 - Explain the principle of remote sensing technique.
- Distinguish active and passive Remote Sensing.

(OR)

 - Explain the method of deriving information about natural calamities.
- Enlist the role of NNRMS.

(OR)

 - Comment on integrated applications in remote sensing.
- Write briefly about GIS Software.

(OR)

 - Discuss the relationship between remote sensing and GIS.
- Explain the role of GIS in Problem identification.

(OR)

 - Bring out the applications of GIS.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

- Give an account on types of sensors and platforms used in remote sensing technique.
- Give an account on passive remote sensing and its applications.
- Explain the role of NRSA and uses of IRS.
- Describe the components of GIS.
- Explain the methods of presentation of data in GIS.



**08NE21****VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST**

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B.A./B.Sc./B. Com. Degree (Semester) Examinations, April 2018

Part – IV : NME subject : Second Semester : Paper – I

GARDENING

Under CBCS – Credit: 2

Time: **2 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

- Gardening is the art of growing _____ with the aim of creating a beautiful landscape.
 - plant
 - animals
 - birds
 - all of these
- The cultivation of plant controlled environment is
 - outdoor garden
 - indoor garden
 - formal garden
 - All
- Sexual propagation takes place by means of
 - seeds
 - flowers
 - plant growth
 - all of these
- A much branched woody perennial that has no central trunk is
 - lawn
 - boarders
 - flower bed
 - shrub
- Dense growth of grasses over the soil is
 - lawn
 - boarders
 - flower bed
 - shrub

Give Short Answer:

- Garden.
- Division.
- Pollination.
- Aquarium.
- Seed dormancy.

SECTION – B**Answer ALL Questions:****(4 × 10 = 40)**

- Write a note on Advantages of Gardening.

(OR)

- Write a note on planting of Garden.

- Explain the methods of Layering.

(OR)

- Discuss the different aspects of Budding.

- Give a note on systems of Irrigation.

(OR)

- Write a note on Organic manuring.

- Describe the Rockery garden.

(OR)

- What is Terrace garden? Its importance

SECTION – C**Answer any TWO Questions:****(2 × 12½ = 25)**

- Give a detailed account on Grafting techniques with suitable illustration.
- Write a brief note on Bonsai.
- Discuss about layout of Kitchen garden.



**08SB41****VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST**

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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – IV : Skill based subject : Fourth Semester : Paper – I

HORTICULTURE

Under CBCS – Credit: 2

Time: **2 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

1. IIHR is located in

- a) Karnataka b) Tamil Nadu c) Kerala d) Delhi

2. The ratio of fruit and vegetables in balanced diet is

- a) 90:300 g b) 90:200 g c) 300:90g d) 50:100g

3. Japanese art is

- a) Lawn b) Bonsai c) Rockery d) Trophy

4. *Rhizobium* is a

- a) Microbes b) Biofertilizer c) Bacteria d) All

5. Root inducing hormone is

- a) Auxin b) Cytokinin c) Ethylene d) None

Give Short Answer:

6. Ethylene.

7. Graft.

8. Sub surface irrigation.

9. Gootee.

10. Silviculture.

SECTION – B**Answer ALL Questions:****(4 × 10 = 40)**

11. a) Short notes on branches of Horticulture.

(OR)

b) Explain briefly about garden elements.

12. a) What is layering? Explain different it methods.

(OR)

b) Write short notes on types of garden.

13. a) How can you establish and maintain a Lawn.

(OR)

b) What is Manuring? Short notes on various manures.

14. a) Give a brief account on Rockery.

(OR)

b) What is Bonsai? How to develop a typical bonsai.

SECTION – C**Answer any TWO Questions:****(2 × 12½ = 25)**

15. Define graftage? Explain different methods of graftage.

16. Give an account on Irrigation.

17. Write an essay on a model kitchen garden with its components and layout.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – IV : Skill based subject : Sixth Semester : Paper – I

PLANT BREEDING

Under CBCS – Credit: 2

Time: **2 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

1. The quickest method of plant breeding is
 - a) introduction
 - b) selection
 - c) hybridization
 - d) mutation
2. A plant breeder is interested to control pollination to
 - a) prevent cross pollination
 - b) control pollination
 - c) none of these
 - d) both of these
3. Breeding crops for improved nutritional quality is referred to as
 - a) biomining
 - b) biomagnifications
 - c) biofortification
 - d) bioremediation
4. An example of a heterozygous but homogenous population is
 - a) pure line
 - b) hybrid variety
 - c) synthetic variety
 - d) open pollinated variety
5. Ploidy is induced through
 - a) irradiation
 - b) mutagenic chemicals
 - c) Ethylene
 - d) Colchicine

Give Short Answer:

6. Acclimatization.
7. Emasculation.
8. Green revolution.
9. Heterosis.
10. Ploidy.

SECTION – B

Answer ALL Questions:

(4 × 10 = 40)

11. a) What is plant Introduction? Give some examples of crop varieties.

(OR)

- b) Give a note on achievements in plant introduction.

12. a) Discuss the procedure for pure line selection.

(OR)

- b) Write a note on advantages of pure line selection.

13. a) Explain the type of hybridization.

(OR)

- b) Define the methods of hybridization in crop plants.

14. a) Explain the causes of heterosis.

(OR)

- b) Write on achievements in ploidy breeding.

SECTION – C

Answer any TWO Questions:

(2 × 12½ = 25)

15. Describe the different types of plant selection with suitable examples.
16. Detail account on Pedigree and Bulk method.
17. Write a brief note on role of mutations in crop improvement.





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – IV : Skill based subject : Second Semester : Paper – II

BIODIVERSITY CONSERVATION AND MANAGEMENT

Under CBCS – Credit: 2

Time: **2 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

1. Species richness is due to
 - a) Wide variety of climate
 - b) Altitudinal conditions
 - c) Monsoons
 - d) All the above
2. International Day for Biological Diversity (IDB) is
 - a) May 22
 - b) May 20
 - c) May 21
 - d) May 25
3. WCU stands for
 - a) Wild conservation unit
 - b) World conservation union
 - c) World communication unit
 - d) Wild conservation union
4. Kaziranga national park is famous for
 - a) One horned Rhino
 - b) Tiger
 - c) Elephant
 - d) Indian Lion
5. Biological Paradise of India is
 - a) Gulf of Manar
 - b) Nilgiri
 - c) Nanda Devi
 - d) Mannas

Give Short Answer:

6. IUCN.
7. *In-situ* conservation.
8. Hot spot.
9. WWF.
10. List out the tiger reserve in Tamil Nadu.

SECTION – B

Answer ALL Questions:

(4 × 10 = 40)

11. a) Biodiversity is rich in tropics – Explain.

(OR)

- b) Write short notes on levels of biodiversity.

12. a) Classify species based on Losses.

(OR)

- b) List out endangered and endemic species of India.

13. a) Give the role of IUCN.

(OR)

- b) Give an account of MBA?

14. a) Comment on Environmental protection act.

(OR)

- b) What is red data book? Explain briefly about it.

SECTION – C

Answer any TWO Questions:

(2 × 12½ = 25)

15. Describe the values of biodiversity
16. Explain the conservation methods of biodiversity
17. List out the biosphere reserve station and sanctuaries in India





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B.Sc. Botany Degree (Semester) Examinations, April 2018

Part – IV : Skill based subject : Sixth Semester : Paper – III

NANO BIOLOGY

Under CBCS – Credit: 2

Time: **2 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 1 = 10)

1. The nanosize carbon sheet is called as
 - a) Graphene
 - b) Graph
 - c) Phene
 - d) None
2. C₆₀ carbon molecule is called
 - a) Bucky Ball
 - b) Foot Ball
 - c) Cricket Ball
 - d) Ball
3. The country which is pioneer in nano research is
 - a) UAE
 - b) USA
 - c) USI
 - d) Japan
4. Ten Hydrogen atoms together equal to
 - a) 1 nanometer
 - b) 10 nanometer
 - c) 5 nanometer
 - d) None
5. A nanotube which absorbs light is _____ tube.
 - a) Prophyrin nanotube
 - b) Test
 - c) PVC
 - d) Plastic
6. Gold nanoshells.
7. Greygoo.
8. Richard Teynman.
9. Nanometer.
10. Fertigation.

SECTION – B

Answer ALL Questions:

(4 × 10 = 40)

11. a) Define Nanotechnology & its branches.

(OR)

b) Mention the various applications of Nanobiology.
12. a) Explain about Liposomes, C₆₀ & Bio sensors.

(OR)

b) Explain about Nanotubes & Nanowires, Nanocrystals.
13. a) Describe the use of Nanotechnology in Bio medicines.

(OR)

b) Write notes on Dry & Wet nanotechnology.
14. a) Mention the uses of Nanotechnology in Cancer research.

(OR)

b) Describe Bottom up & Top down Approaches in nano technology.

SECTION – C

Answer any TWO Questions:

(2 × 12½ = 25)

15. Give an account about two dimensional nanomaterials like Nanotubes, Nanocrystals etc.
16. Describe in detail about the principles and applications of Nanobiology.
17. Explain about Top down & Bottom up approach on making nanoproducts.





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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

M.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Second Semester : Paper – I

CELL & MOLECULAR BIOLOGY

Under CBCS – Credit 4

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 2 = 20)

1. Define Plasmamembrane.
2. Enlist the types of cell junctions.
3. Mention any two functions of endoplasmic reticulum.
4. What is phagocytosis?
5. Comment on power house of the cell.
6. Enlist the functions of rRNA.
7. Differentiate muton and cistron.
8. Comment on operon.
9. Distinguish between heterochromatin and euchromatin.
10. Highlight the significance of mitosis.

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) Illustrate the fluid mosaic model of biological membrane with neat diagram **(OR)**
b) Give an account on membrane transport in bacteria.
12. a) Describe the structure and functions of chloroplast. **(OR)**
b) Narrate the structure of Endoplasmic reticulum.
13. a) Bring out the functions of Nucleus. **(OR)**
b) Explain the structure of DNA
14. a) Discuss the mechanism of replication. **(OR)**
b) Describe the mechanism of lac operon concept.
15. a) Write short notes on giant chromosomes. **(OR)**
b) Explain the structure and chemistry of chromosomes.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Draw and describe the ultra structure of plant cell.
17. Describe the structure, chemistry and functions of mitochondria.
18. Explain the structure and types of RNA.
19. Enumerate the details on Translation.
20. Give an account on molecular basis of cell cycle.





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M.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Second Semester : Paper – II

PLANT ANATOMY & EMBRYOLOGY

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A

Answer ALL Questions:

(10 × 2 = 20)

1. Define quiescent centre.
2. Comment on lenticels.
3. What do you mean by open vascular bundle?
4. Comment on leaf abscission.
5. Enlist anatomical characters of hydrophytes.
6. Comment on tyloses.
7. Highlight the significance of tapetum.
8. Differentiate endothelium and endothecium.
9. Comment on parthenogenesis.
10. Define ruminant endosperm.

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) Write briefly on the shoot apex organization.
(OR)
b) Give an account on simple permanent tissues.
12. a) Describe the primary structure of dicot root with diagram.
(OR)
b) Describe the types of stomata with suitable diagrams.
13. a) Describe the anomalous secondary growth in dicot stem.
(OR)
b) Expound nodal anatomy with suitable diagrams.
14. a) Give an account on the structure of microsporangium.
(OR)
b) Explain the structure of mature embryo sac.
15. a) Give an account on polyembryony.
(OR)
b) With suitable diagram explain the structure of monocot embryo.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Write an essay on complex tissues.
17. With suitable sketches compare the internal structure of dicot and monocot leaves.
18. Outline the normal secondary thickening in a dicot stem.
19. Explain the monosporic type of female gametophyte development.
20. Give an account on the types and functions of endosperms.





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M.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Core Subject : Second Semester : Paper – III

ENVIRONMENTAL BIOLOGY & BIODIVERSITY

Under CBCS – Credit 4

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 2 = 20)

1. Enlist the characters of ecotypes.
2. Differentiate food chain and food web.
3. What are the harmful effects of air pollution?
4. Define Green house effect.
5. Comment on cryopreservation.
6. Comment on species richness.
7. What is social forestry?
8. Define alkali soils.
9. Comment on Electromagnetic spectrum.
10. Define Ecotourism.

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) Discuss the basic concept and dynamics of ecosystem.
(OR)
b) Narrate the Nitrogen cycle.
12. a) Highlight the effect and control of soil pollution.
(OR)
b) Write short notes on depletion of ozone layer.
13. a) Describe various features of different groups of hydrophytes.
(OR)
b) List out various categories of IUCN red list species.
14. a) Give an account on chipko movement.
(OR)
b) Highlight the achievements of afforestation programme.
15. a) Explain the role of international organization in environmental education.
(OR)
b) Give an account on Indian Remote sensing Satellites.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Give an account on energy flow in ecosystem.
17. Describe various kinds of water pollution and ecological effects on the aquatic organism and man.
18. Enumerate the various strategies for the conservation of biodiversity.
19. Discuss various methods of reclamation of acidic soil.
20. Give an account on the applications of GIS.





35EP2A

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

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M.Sc. Botany Degree (Semester) Examinations, April 2018

Part – III : Elective Subject : Second Semester : Paper – I

HERBAL MEDICINE

Under CBCS – Credit 5

Time: **3 Hours**

Max. Marks: **75**

SECTION – A

Write short notes on the following:

(10 × 2 = 20)

1. Leghium
2. AYSUSH
3. Resin
4. Gambir
5. Pharmacognosy
6. Antioxidants
7. Adulterant
8. Sterols
9. Papain
10. Tropane alkaloids

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) List the advantages of using herbal medicines.

(OR)

- b) Comment on Indigenous system of medicine.

12. a) Write the medicinal value of Black Catechu.

(OR)

- b) Bring out the curing properties of *Podophyllum*.

13. a) Explain the physico-chemical and biological properties and medicinal uses of Fennel.

(OR)

- b) Comment on Natural Allergens.

14. a) Explain the methods of screening of preliminary phytochemicals.

(OR)

- b) List the medicinal uses of Aloe.

15. a) Discuss the sources and uses of Pancreatin and Trypsine.

(OR)

- b) Explain the synthesis of Indole alkaloids.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Describe the process and preparation of herbal drugs.
17. Explain the properties and medicinal uses of Turmeric and Ginger.
18. Discuss the method of extraction of Volatile Oils and their uses.
19. Give an account on Cardioactive sterols.
20. Explain the biogenesis of aromatic amino acids.





08AT02

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

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B.Sc. Zoology Degree (Semester) Examinations, April 2018

Part – III : Allied Subject : Fourth Semester : Paper – II

TAXONOMY OF ANGIOSPERMS AND PLANT PHYSIOLOGY

Under CBCS – Credit 4

Time: **3 Hours**Max. Marks: **75****SECTION – A****Answer ALL Questions:****(10 × 1 = 10)**

1. The book in which Bentham and Hooker published their classification is
 - a) Systema Naturae b) Origin of Species
 - c) Genera Plantarum d) Species Plantarum
2. Aromatic odour is the characteristic features of
 - a) Lamiaceae b) Poaceae
 - c) Euphorbiaceae d) Annonaceae
3. Plasmolysis occurs in _____ solution.
 - a) Hypotonic b) Hypertonic c) Isotonic d) All the above
4. Light harvesting centre of chloroplast is
 - a) Crystae b) Matrix c) Stroma d) Thylokoid
5. Apical dominance is influenced by
 - a) Gibberellins b) Ethylene
 - c) Auxin d) Cytokinin

Write short notes on the following:

6. Gamopetalae.
7. Pollinium.
8. Hydathode.
9. Kranz Anatomy.
10. Florigen.

SECTION – B**Answer ALL Questions:****(5 × 7 = 35)**

11. a) Explain the basis of Natural System of Classification.
(OR)
b) List the merits and demerits of Bentham and Hooker system of classification.
12. a) Enlist the salient features of Euphorbiaceae.
(OR)
b) Write the distinguishing characteristics of Poaceae.
13. a) Expound osmosis and water potential.
(OR)
b) “Transpiration is necessary evil” – Justify.
14. a) Explain cyclic Photophosphorylation
(OR)
b) Give an illustrated explanation of Chloroplast.
15. a) List the physiological role of Gibberellins
(OR)
b) Give an account on Vernalization.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

16. Explain Bentham and Hooker system of Classification.
17. Describe the general characteristic features of Caesalpiniaceae.
18. Explain active mechanism of water absorption.
19. Explain Calvin cycle with illustration.
20. Give an account on Photoperiodism.

