


**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST**

(Autonomous &amp; Residential)

[Affiliated to Madurai Kamaraj University]

**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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. Synangium is present in \_\_\_\_\_  
 a) *Psilotum*      b) *Lycopodium*      c) *Equisetum*      d) *Rhynia*
2. Which gametophyte is producing biflagellate antherozoids?  
 a) *Equisetum*      b) *Marsilea*      c) *Lycopodium*      d) *Psilotum*
3. The *Equisetum* prothallus are \_\_\_\_\_  
 a) Cushion like structure      b) Colourless  
 c) Upright green lobes      d) All of the above
4. In *Marsilea*, leaflets are \_\_\_\_\_  
 a) Four      b) Tri foliate      c) Double      d) All are correct
5. Endosperm in *Cycas* is \_\_\_\_\_.  
 a) Haploid      b) Diploid      c) Triploid      d) Tetraploid
6. *Gnetum* are \_\_\_\_\_  
 a) Primitive in Gymnosperm      b) Advanced in Gymnosperm  
 c) Primitive in Bryophytes      d) Advanced in Bryophytes
7. Amber are \_\_\_\_\_  
 a) Resins      b) Gums      c) Pectin      d) All are correct

8. Pteridophytes evolved from \_\_\_\_\_ periods  
 a) Silurian      b) Jurassic      c) Triassic      d) All are correct
9. The name Crossotheca is given by Kidston to male organs of  
 a) *Rhynia*      b) *Lyginopteris*      c) *Calamites*      d) *Psilotum*
10. The name of stem in Calamitales are as \_\_\_\_\_  
 a) *Astropitys*      b) *Calamodendron*  
 c) *Arthroxyton*      d) All are correct

### **SECTION – B**

**Answer any FIVE Questions :** (5 × 2 = 10)

11. Recall the taxonomic position of *Lycopodium*.  
 12. List down the steps involved in the fertilization of *Psilotum*.  
 13. Illustrate the external morphology of *Marsilea*  
 14. What are coralloid roots?  
 15. Define Impressions.  
 16. Spell out the period of fossil plant – *Lyginopteris*.  
 17. Find the taxonomic position of *Rhynia*

### **SECTION – C**

**Answer ALL Questions :** (5 × 5 = 25)

18. a) . Rephrase the internal structure of archegonium of *Psilotum*.  
 (OR)  
 b). Illustrate the external morphology of *Lycopodium*.

19. a). Interpret the xerophytic features found in *Equisetum*.

(OR)

- b). Illustrate and describe the T.S of *Marsilea* leaflet.

20. a). Infer the economic importance of *Cycas*.

(OR)

- b). Explain the Internal structure of female cone of *Cycas*.

21. a). Outline the various types of fossils with suitable examples.

(OR)

- b). Classify the geological time scale with suitable plants.

22. a). Rephrase the internal structure of stem in *Lyginopteris*.

(OR)

- b). Explain the anatomy of *Rhynia*.

### **SECTION – D**

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

23. Identify and explain the various types of vegetative propagation found in *Lycopodium*.  
 24. Develop the lifecycle of *Equisetum* with suitable diagram.  
 25. Construct a graphical representation of life cycle of *Cycas*.  
 26. Write about various types of Prothallus of Pteridophyte.  
 27. Make use of the phylogenetic relationship of *Lyginopteris* and summarize it.

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**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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

## PLANT ANATOMY AND MICROTECHNIQUES

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

### SECTION – A

**Answer ALL Questions :**

**(10 × 1 = 10)**

- Which one is commonly called as Semi permeable Membrane?
  - Plasma membrane
  - Pit aperture
  - Nuclear Membrane
  - Pit membrane
- Chief water conducting tissues in angiosperms
  - Xylem
  - Xylem vessels
  - Phloem
  - X. Tracheids
- A narrow layer of thin walled cells found between phloem/bark and wood of a dicot is
  - Cork cambium
  - Vascular cambium
  - Endodermis
  - Pericycle
- Heterogeneous Pericycle is seen in
  - Dicot stem
  - Dicot root
  - Monocot stem
  - Monocot root
- Which of the following meristems is responsible for extra stellar secondary growth in dicotyledonous stem?
  - Interfascicular cambium
  - Intercalary meristem
  - Phellogen
  - Intrafascicular cambium

6. Root cap is present on

- a) Primary root    b) Secondary    c) Tertiary    d) All

7. Starch is mainly manufactured by

- a) Guard cells                      b) Palisade parenchyma  
c) Spongy parenchyma              d) Vascular bundle

8. Unilocular node is present in

- a) Justicia              b) Azadirachta    c) Aralia              d) Helianthus

9. Which of the following is an azodye?

- a) Safranin              b) Haematoxylin    c) Aniline blue    d) Orange G

10. Microtechniques consist of

- a) Collection, Fixation, Sectioning, Staining & Mounting  
b) Collection, Fixation, Sectioning & Mounting  
c) Collection, Fixation & Mounting  
d) Collection, Fixation, Staining & Mounting

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. Define lignification.

12. How are trichomes important in plants?

13. How are vascular bundles arranged in monocot stem?

14. Define piliferous layer.

15. What is anomalous growth?

16. List out the characters of sclerenchyma cells.

17. What is Laticifers tissue.

### **SECTION – C**

**Answer ALL Questions :**

**(5 × 5 = 25)**

18. a) Summarize the morphology of cell wall.

**(OR)**

b) Explain parenchyma cells with neat diagram.

19. a) Illustrate the internal morphology of dicot stem with parts. Add a note on its structure.

**(OR)**

b) Discuss the internal structure of dicot root with neat diagram.

20. a) Explain the secondary thickening of dicot root with neat diagram.

**(OR)**

b) Summarize the anomalous features of *Boerhaavia* stem.

21. a) Discuss the anatomical features of dorsiventral leaf.

**(OR)**

b) How are the lateral roots originated from the plants?

22. a) Explain the anomalous secondary thickening of *Dracaena*.

**(OR)**

b) Write a note on Pits.

### **SECTION – D**

**Answer any THREE Questions :**

**(3 × 10 = 30)**

23. Write an essay on the Secretory tissues

24. How will you differentiate dicot root from monocot root.

25. Discuss the secondary thickening of dicot stem with labeled diagram.

26. Write an essay on the nodal anatomy of plants you have studied in your syllabus.

27. Explain the classifications of meristms based on position.

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**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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)**

- Which one is smallest cell?  
a) Bacteria      b) Virus      c) Fungi      d) Algae
- Power house of the cell is  
a) Mitochondria    b) Chloroplast    c) Golgi body    d) Ribosome
- Incipient nucleus found in \_\_\_\_\_ cell  
a) Prokaryotic    b) Eukaryotic    c) Plant      d) Both b & c
- When does synapsis occur during meiosis?  
a) Zygotene      b) Leptotene      c) Diplotene      d) Pachytene
- The microsporangia of anther develop and become  
a) Zoospores      b) pollen sacs      c) generative cell    d) MMC
- Transmitting tissue is found in  
a) Micropylar region of ovule      b) Pollen tube wall  
c) Stylar region of gynoecium      d) Integument
- The part of megasporangium which has abundant reserve food material is  
a) Inner integument      b) Nucellus  
c) Placenta      d) Hilum

19. a) Describe the structure of Nucleus.  
(OR)  
b) Draw the structure of giant Chromosomes.
20. a) Illustrate the structure of Microsporangium.  
(OR)  
b) Explain the types of Tapetum.
21. a) Give an illustrated account on Megasporangium.  
(OR)  
b) What are the types of Ovule?
22. a) Describe the various types of Endosperm.  
(OR)  
b) List out the parts of Angiospermic Flower.

**SECTION – D**

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

23. Describe the structure and functions of Mitochondria.
24. Write an essay on Cell Cycle.
25. Explain mitosis with suitable diagrams.
26. Illustrate the development of female Gametophyte of *Polygonum* and *Peperomia* type.
27. Differentiate mitosis with meiosis.

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18.a) Explain the structure of Ribosome.  
(OR)  
b) What are the types of Endoplasmic reticulum. Explain briefly.

**(10 × 1 = 10)**

- Ecology is study of \_\_\_\_\_
  - Environment
  - Biotic
  - Abiotic
  - Interrelationship Biotic & abiotic
- Ozone layer is affected by
  - Excess of CO<sub>2</sub>
  - Excess of Co
  - Chlorofluro carbon
  - Low rainfall.
- Roots in hydrophytes contain \_\_\_\_\_
  - Root tip
  - Root packets
  - Root sheath
  - All of the above
- \_\_\_\_\_ is a succession occurring in aquatic environment
  - Xerosere
  - Halosere
  - Hydrosere
  - Lithosere
- Forest is a
  - Tree only
  - Herb only
  - Grass only
  - Various kinds associated plants
- Champion(1936) recognized \_\_\_\_\_ types of forest in India
  - 10
  - 11
  - 13
  - 19
- Pesticides can be acutely toxic for \_\_\_\_\_
  - Cause harmful
  - Lethal effects
  - Episode of ingestion, inhalation or skin contact
  - All of them

8. In India, except the pesticides other chemical usage\_\_\_\_\_ in percentage

- a) 1%                      b) 5%                      c) 70%                      d) 30%

9. Plants having restricted distribution are known as

- a) epidemics              b) endangered              c) rare                      d) endemics

10. Neoendemics is \_\_\_\_\_

- a) Modern species                      b) Migrated plants  
c) Variable species                      d) Fossile

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. Comment on Humidity.

12. Define wind.

13. What is Pedology?

14. Spell out the meaning of the term autogenic succession.

15. Where do you come across *shola* forest in Tamil Nadu?

16. How will account for biological magnification?

17. Who is Alfred Wegener?

### **SECTION – C**

**Answer ALL Questions :**

**(5 × 5 = 25)**

18. a) Demonstrate Light as a climatic factor.

**(OR)**

b) Outline the Soil profile.

19. a) Infer the anatomical adaptations of xerophytes.

**(OR)**

b) Interpret the morphological adaptations of halophytes.

20. a) What are methods available for conservation of soil?

**(OR)**

b) Brief account on Quadrat method.

21. a) Classify the types of agricultural pollutants.

**(OR)**

b) Show the hazards of pesticides on animal life.

22. a) Compare and contrast continuous and discontinuous distributions.

**(OR)**

b) Give an account on Fungicide, herbicide and pesticide.

### **SECTION – D**

**Answer any THREE Questions :**

**(3 × 10 = 30)**

23. Identify any two kinds of positive interactions that exist between two Plants and Animals.

24. Organize the events leading to the development of climax vegetation in hydrosere.

25. Select the vegetation types of India.

26. Choose the harmful effects of pesticides on the life of plants.

27. Experiment with the phenomenon of endemism.

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**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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

## BIOTECHNOLOGY

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

### SECTION – A

**Answer ALL Questions :**

**(10 × 1 = 10)**

- What is C-DNA?
  - Circular DNA
  - Complementary DNA
  - Cloned DNA
  - Cloning DNA
- Which one is the first GMO Plant?
  - Tobacco
  - Potato
  - Cotton
  - Cabbage
- The selection of immobilization of cell or enzyme depends on
  - Number of step in the process
  - Cost
  - Stability and catalytic specificity
  - All
- The yield of the antibiotic depends upon
  - pH of the medium
  - Age of the inoculum
  - Composition of the medium
  - All
- Several species of \_\_\_\_\_ develop mycorrhizal association with the root of *Casurina*, *Pinus* and other plants.
  - Rhizobium*
  - Azotofactor*
  - Actinomycetes
  - Pseudomonas*
- How many types of biopesticide are available in market?
  - 1
  - 2
  - 3
  - 4

- 19.a) Describe the commercial production of ethanol.
- (OR)**
- b) How to immobilize an enzyme? Explain.
- 20.a) Give a brief account of biopesticides.
- (OR)**
- b) Briefly discuss about types of biofertilizers.
- 21.a) Describe the primary and secondary treatment of sewage.
- (OR)**
- b) Explain about the production of Biogas.
- 22.a) Give a short note on production of monoclonal antibodies.
- (OR)**
- b) Listout any 6 application of DNA finger printing.

**Answer any FIVE Questions :** **(5 × 2 = 10)**

- SECTION – D**
- Answer any THREE Questions :** **(3 × 10 = 30)**
23. Give an account on various stages of gene cloning.
24. Give an elaborate account on industrial production of penicillin.
25. Write an essay on mechanism of Nitrogen fixation with reference to *Rhizobium*.
26. Explain in detail about the Phytoremediation.
27. What are the types of ELISA? Explain any one type?

**Answer ALL Questions :** **(5 × 5 = 25)**

- (OR)**

- Y Y Y Y Y

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**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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

**TISSUE CULTURE**

Under CBCS – Credit 5

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

1. \_\_\_\_\_ is regarded as the father of tissue culture.  
a) Haberlandt      b) Morgan      c) Skoog      d) White
2. Auxins promotes the \_\_\_\_\_  
a) Shooting      b) Rooting  
c) Cell division and cell growth      d) None of the above
3. Given below are a few statements regarding somatic hybridization.  
Choose the correct statements.  
a) Protoplasts of different cells of the same plant are fused  
b) Protoplasts from cells of different species can be fused  
c) Treatment of cells with cellulase and pectinase is mandatory  
d) All are in correct
4. Meristem mostly \_\_\_\_\_  
a) 250 µm      b) 1-3 leaf primordia  
c) Free from virus      d) All are correct

5. In somatic hybridization, pH of enzymes solution is adjusted between \_\_\_\_\_

- a) 4.7 to 6.0      b) 6.7 to 7.0      c) 5.7 to 6.0      d) 4.7 to 9.0

6. For the anther culture \_\_\_\_\_ are eliminated

- a) Anther wall      b) Integuments      c) Tapetum      d) All are correct

7. Suspension cultures are grouped into \_\_\_\_\_

- a) Batch culture                      b) Continuous culture  
c) Immobilized cell culture      d) All are correct

8. Which one is alkaloids?

- a) Menthol      b) Morphine      c) Flavonoids      d) Diosgenin

9. Which one is transgenic plants \_\_\_\_\_

- a) *Rauwolfia sp*      b) *Mimosa sp*      c) *Acalypha sp*      d) *Agrobacterium*

10. Maize and cotton plants resistant to the \_\_\_\_\_

- a) Nitriles      b) Glycine      c) Imidazolinone      d) 2,4-D

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. Recall MS medium.

12. Define Meristem culture.

13. Enlist examples of somatic hybridization.

14. List down any two pharmaceutically important secondary metabolites.

15. Define explants.

16. What is meant by Totipotency?

17. Which is considered as the most commonly used carbon source in plant tissue culture medium?

### **SECTION – C**

**Answer ALL Questions :**

**(5 × 5 = 25)**

18. a) Explain the milestones in plant tissue culture.

**(OR)**

b) Compare the major and minor nutrients in MS media preparation.

19. a) Illustrate the different stages of somatic embryogenesis.

**(OR)**

b) Summarize the initiation and maintenance of callus.

20. a) Infer the process of Anther culture.

**(OR)**

b) Relate the uses of haploids in Plant breeding.

21. a) Explain about the suspension culture.

**(OR)**

b) Interpret the process of secondary metabolite production.

22. a) Write a note on germplasm in preservation techniques.

**(OR)**

b) Illustrate and explain the steps involved in Micropropagation.

### **SECTION – D**

**Answer any THREE Questions :**

**(3 × 10 = 30)**

23. Choose the tools required for tissue culture lab and plan the sterilization techniques associated with it.

24. Develop the protocol for the preparation of artificial seeds.

25. Construct the flow chart for the isolation of protoplast.

26. Make use of Alkaloids, tannins, resins and phenols and identify the explants which are used in plant tissue culture.

27. Explain the Organogenesis and its advantages.

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**B.Sc. Botany** Degree (Semester) Examinations, April 2020

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

**BIODIVERSITY CONSERVATION AND MANAGEMENT**

Under CBCS – Credit 5

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

1. World Biological Diversity day is
  - a) May 22
  - b) May 20
  - c) May 21
  - d) May 25
2. Where the knowledge of biodiversity is applicable?
  - a) To study the classification of animals and plants
  - b) To study the Ecosystem
  - c) To study the biogeological region
  - d) All
3. List prepared by International Union for Conservation of Nature and Natural Resources for endangered species is classified as
  - a) Brown List
  - b) White List
  - c) Black List
  - d) Red List
4. Which rock species of Western Ghat is extinct due to quarrying?
  - a) Tectona and Terminalia
  - b) Bamboo and Boswelia
  - c) Bignonia and Habanera
  - d) Madhuela and Acacia
5. An Underutilized oil crop is
  - a) Cocos nucifera
  - b) Helianthus annus
  - c) Brassica campestris
  - d) Azadirachta indica

6. Penicillin was isolated from

- a) Penicillium notatum                      b) Penicillium chrysogenum
- c) Aspergillus niger                        d) Both a & b

7. Find odd one out

- a) Nanda devi    b) Great Nicobar   c) Mannar        d) Thar

8. Which one of the following is not included under *In-situ* Conservation?

- a) National park                              b) Botanical garden
- c) Sanctuary                                  d) Biosphere reserve

9. Which organisation is active for conservation of biodiversity at world level ?

- a) WWF                      b) WCU                      c) Both a and b    d) EE

10. Approximately 50% of the total world species are present on

- a) Tropical rain forest                      b) Temperate rain forest
- c) Temperate deciduous forest            d) Coral reefs

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

- 11. Define genetic biodiversity.
- 12. What is the use of Thulasi?
- 13. Name any two endangered plant species in Tamil Nadu.
- 14. What are ethical values of biodiversity?
- 15. Define *in situ* conservation.
- 16. Note on Sacred groves.
- 17. Comment on RED DATA BOOK.

### **SECTION – C**

**Answer ALL Questions :**

**(5 × 5 = 25)**

18. a) Explain the various ecosystems exists in India.

**(OR)**

b) Why biodiversity rich in tropics?

19. a) List out the threatened plants of Tamil Nadu.

**(OR)**

b) Mention the process of extinction of plant species.

20. a) What are the consumptive values of Biodiversity?

**(OR)**

b) Explicit the ecosystem values of Biodiversity with suitable examples.

21. a) Analyse the role of sacred groves in Biodiversity conservation.

**(OR)**

b) How do you conserve the Biodiversity through biotechnological approach?

22. a) What are the role of MAB for Biodiversity management?

**(OR)**

b) Give an account on forest conservation acts in India.

### **SECTION – D**

**Answer any THREE Questions :**

**(3 × 10 = 30)**

- 23. Discuss the various levels of Biodiversity with suitable examples.
- 24. Enumerate and explain the major causes of Biodiversity for their loss.
- 25. Write an essay on values of biodiversity.
- 26. Elaborate the *in situ* conservation in Indian context.
- 27. Describe the major hotspots of India with its biodiversity markers.

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**B.A. & B.Sc.** Degree (Semester) Examinations, April 2020

Part – IV : Non Major Elective Subject : Second Semester : Paper – I

## **GARDENING**

Under CBCS – Credit 2

Time: **2 Hours**

Max. Marks: **75**

### **SECTION – A**

**Answer ALL Questions :**

**(10 × 1 = 10)**

1. Japanese garden do not have
  - a) Terrace garden
  - b) Sand garden
  - c) Stone lantern
  - d) Stream
2. Which irrigation method is most suitable for lawns/turfs?
  - a) Furrow
  - b) Basin
  - c) Drip
  - d) Sprinkler
3. Zen garden is also known as
  - a) Italian garden
  - b) Mughal garden
  - c) Japanese garden
  - d) China garden
4. Artificial methods of vegetative propagation includes
  - a) Cloning
  - b) Grafting
  - c) Cuttings
  - d) Both (b) and (c)
5. A low branch with a node is bent down and covered with soil in
  - a) Marcotting
  - b) Layering
  - c) Cutting
  - d) Budding
6. Artificial methods of reproduction do not include
  - a) Rhizome
  - b) Cutting
  - c) Layering
  - d) Budding

7. In cold places frost damage can be reduced in horticultural crops using these methods except
- a) Overhead sprinklers at night      b) Green houses and shade nets
- c) Wind breaks placement      d) Appropriate fungicide application
8. Aerogarden is an \_\_\_\_\_.  
 a) Indoor gardening system      b) Type of container gardening  
 c) Rockery garden      d) Ornamental gardening
9. Alpines are good plants for a  
 a) Rock garden      b) Topiary      c) Terrarium      d) All of these
10. Plant suitable for Bonsai making and which is easily available  
 a) Rain tree      b) Banyan tree      c) Acacia      d) All of these

### **SECTION – B**

**Answer any FIVE Questions :**      **(5 × 2 = 10)**

11. Define gardening
12. Write a short an advantages of grafting
13. What is manuring?
14. Distinguish the terrarium and aquarium
15. What is rockery?
16. Define hanging basket
17. List out the suitable plants for kitchen garden.

### **SECTION – C**

**Answer ALL Questions :**

**(3 × 9 = 27)**

18. a) Explain the type of garden.  
 (OR)  
 b) Discuss the advantages of gardening.
19. a) Write a note on irrigation systems.  
 (OR)  
 b) Explain the indoor gardening.
20. a) Give a note on terrace garden.  
 (OR)  
 b) Discuss the veranda garden.

### **SECTION – D**

**Answer any TWO Questions :**

**(2 × 14 = 28)**

21. Explain the different methods of propagation.
22. Describe the methods of transplantation.
23. Give an account of Bonsai
24. Write a brief note on Kitchen garden.

**Y Y Y Y Y**





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**B.Sc. Botany** Degree (Semester) Examinations, April 2020  
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)**

- What are the uses of horticulture technique?
  - Production of high yield fruits
  - Production of different colored flower
  - Production of variety of crops
  - All are correct
- Pomology is the study of \_\_\_\_\_.
  - Fruits
  - Vegetables
  - Flower
  - Crops
- Pruning of plants like an object is called as
  - Topiary
  - Pergolas
  - Rockery
  - Both b and c
- Floriculture is the production of \_\_\_\_\_.
  - Fruits
  - Vegetables
  - Flower
  - Crops
- Water shoot present on the \_\_\_\_\_.
  - Apical region
  - Side branches
  - Trunk region
  - All are correct
- The Indian institute of horticultural research is located at \_\_\_\_\_.
  - New Delhi
  - Bangalore
  - Coimbatore
  - Chennai

7. Why need pruning technique?

- a) Give the shape of plants
- b) High yielding
- c) Sun light enter
- d) All are correct

8. What is use of drip irrigation?

- a) Save the water
- b) Reduce the weed plants
- c) Labour saving
- d) All are correct

9. What is fertigation?

- a) Supply of nutrient
- b) Supply of water
- c) Manuring
- d) All are correct

10. *Oscimum* suitable for\_\_\_\_\_.

- a) Kitchen garden
- b) Rockery
- c) Bonsai
- d) All are correct

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. What is the expansion of IIHR?

12. Give an examples of the horticultural crops.

13. What is weed plants?

14. Define pruning?

15. What is hanging pot?

16. What are the succulent plants?

17. Explain IAA.

### **SECTION – C**

**Answer ALL Questions :**

**(3 × 9 = 27)**

18. a) Write about methods of layering.

**(OR)**

b) Write notes on budding.

19. a) Write an essay on methods of grafting.

**(OR)**

b) What are the methods used in manuring?

20. a) Give the short notes on pruning.

**(OR)**

b) Give the short notes on green manure plants.

### **SECTION – D**

**Answer any TWO Questions :**

**(2 × 14 = 28)**

21. Write an essay on different types of garden.

22. Write an essay on different types of cutting.

23. Describe the account of irrigation methods.

24. Give the detailed account of rockery.

**Y Y Y Y Y**

a) F1 generation is superior                      b) F2 generation is inferior

c) F1 generation those are superior to both parents

d) F2 generation those are superior to both parents

7. Hybridization is to produce\_\_\_\_\_.

a) Similar generation only at F1

b) Similar generation both F1 and F2

c) Variation

d) All

8. Who was created to cross-pollinate agricultural plants and commercialize the newly varieties?

a) Nazareno Strampelli

b) Mendel

c) John Garton

d) Albert Howard

9. Polyploidy breeding is a\_\_\_\_\_.

a) Manipulating the chromosome number of parent variety.

b) Manipulating the chromosome number of F1 individuals.

c) Manipulating the chromosome number of F2 individuals.

d) Decreasing the chromosome number of parent variety.

10. Which one of the method of polyploidy to stimulate cell divisions?

a) Temperature shock

b) IAA Treatment

c) Graft Union

d) Colchicine Treatment

## **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. What is self pollination?

12. Notes on Pure line selection.

13. What is pedigree method?

14. Define plant breeding.

15. Comment on inbred.

16. Comment on emasculation.

17. What are polyploids?

## **SECTION – C**

**Answer ALL Questions :**

**(3 × 9 = 27)**

18. a) Advantages of pure line selection d) Plant introduction, Intercontinental and intracontinental plant introduction.

**[OR]**

b) Short account on:

a) Selection and Artificial selection

b) Ecotypes and Hallet's method

19. a) Brief account on procedure of hybridization.

**[OR]**

iii) From your learning of the topic, discuss in detail about natural self-pollination

**[OR]**

## SECTION – D

21. Write an essay on mass selection methods available for crop improvement.

22. What are the manifestations of heterosis? Add its causes of heterosis.

24.a) Write about the allopolyploids and its role in crops.

Y Y Y Y Y



**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST**

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[Affiliated to Madurai Kamaraj University]

**B.Sc. Botany** Degree (Semester) Examinations, April 2020  
Part – IV : Skill Based Subject : Sixth Semester : Paper – II

**REMOTE SENSING AND GIS**

Under CBCS – Credit 2

Time: **2** Hours

Max. Marks: **75**

**SECTION – A**

**Answer ALL Questions :**

**(10 × 1 = 10)**

1. One wavelength is equivalent to\_\_\_\_\_.  
 a) The distance from one crest to the next  
 b) The distance from one crest to trough  
 c) The distance from two trough to one crest  
 d) The distance from two crest to one trough
2. What is the altitude of Sun Synchronous Satellite?  
 a) 10,000 km      b) 6000 km      c) 750 km      d) 1000 meter
3. Which one of the waves is frequently used in remote sensing?  
 a) Alpha      b) Beta      c) Gamma      d) IR
4. Who was first used the term GIS and created map?  
 a) John B. Medaris      b) Hugh Dryden  
 c) John Snow      d) Dr. Roger Tomlinson
5. Which one of the following helped for set up NNRMS?  
 a) Planning Commission of India  
 b) Reserve Bank of India

c) Indian Space Resource Organization

d) Union Public Service Commission

6. NRSN is an organ of\_\_\_\_\_.

a) Defence Research Development Organization

b) Ministry of Environment and Forests

c) Department of Space

d) University Grants Commission

7. Which one of the future satellite would be launched by IRS during the year 2021?

a) Resource SAT-3

b) Ocean SAT-3

c) GISAT-1

d) GISAT-2

8. A data model in geographic information systems is a\_\_\_\_\_.

a) Physical construct

b) Chemical construct

c) Mathematical construct

d) All

9. The vector data model represents geography as collections of\_\_\_\_\_.

a) Points

b) Lines

c) Polygons

d) All

10. The project management and implementation working principle is\_\_\_\_\_.

a) Collection

b) Analyze

c) Storage

d) Delivery

## **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

11. What is remote sensing?

12. Definition of Electromagnetic radiation

13. Comment on geostationary satellites.

14. What is GIS?

15. Comment on Thematic Map.

16. What is GIS Design?

17. State about the project management and implementation.

## **SECTION – C**

**Answer ALL Questions :**

**(3 × 9 = 27)**

18. a) Short account on: a) Rayleigh scattering and Mie Scattering

b) Aerial Platforms and Satellite

c) Specular reflection and Diffuse reflection

**[OR]**

b) i) State about the scanning system

ii) Comment on geostationary satellites and Sun Synchronous Satellite

19.a) Brief account on difference between active and passive sensors.

**[OR]**

b) Brief account on the National Remote Sensing Agency (NRSA).

20.a) What is sensor? Add its different types of sensor.

**[OR]**

b) Give problems and solutions Geographic Information System.

### **SECTION – D**

**Answer any TWO Questions :**

**(2 × 14 = 28)**

21. What are the components of Geographical Information System (GIS)?
22. Detailed account on history, objectives, data sources and sharing along with their applications of National Natural Resources Management System (NNRMS).
23. What is thematic map? Explain in detail its various types of thematic map.
24. Detailed account on remotely sensed data and its various data.

Y Y Y Y Y





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**B.Sc. Botany** Degree (Semester) Examinations, April 2020  
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)**

- The size range of nano objects are\_\_\_\_\_.  
a) 1 – 100 nm      b) 1 -1000 nm      c) 1- 100 mm      d) 1mm – 1cm
- How many gold atoms are equivalent to 1 nm size of nano material?  
a) Three and a half gold atoms      b) Two and a half gold atoms  
c) Three and a half gold atoms      d) Four and a half gold atoms
- How can be measure 3 dimensional structures of nano materials?  
a) height only      b) height and length  
c) length, and width      d) height, length, and width
- Nanofluidics is\_\_\_\_\_.  
a) Fluid flow      b) Gas flow      c) Solid flow      d) Elements flow
- Which one of the following nano object is one dimensional structure?  
a) Nanofilm      b) Nanowires      c) Antibody      d) Bulk powders
- Biosensor device consists of\_\_\_\_\_.  
a) Bioreceptor and Transistor      b) Bioreceptor and polymer  
c) Bioreceptor and Transducer      d) Bioreceptor and iron

7. Dendrimers size range is\_\_\_\_\_.

- a) 50 – 200 nm                      b) 100 -200 nm
- c) Less than 100 nm                d) Less than10 nm

8. DNA Amplification is\_\_\_\_\_.

- a) Production of single copy        b) Production of double copies
- c) Production of multiple copies    d) Production of Nucleosides

9. Genetically modified organisms is/are\_\_\_\_\_.

- a) Transferring/Inserting or deleting one or more genes
- b) Transferring/Inserting genetic fragments
- c) Altering a single nucleotide
- d) All

10. How can we observe and characterize of nanobased product?

- a) Microscope                      b) Spectrum Machines
- c) Electrophoresis Unit            d) Both a & b

### **SECTION – B**

**Answer any FIVE Questions :**

**(5 × 2 = 10)**

- 11. What is nano material?
- 12. Write about the basic concepts of Top – down and Bottom up methods.
- 13. State about the nano crystals.
- 14. Define nanofluidics?
- 15. What is DNA probe?
- 16. Comment on ‘Nano injection’
- 17. Give examples of nano drug carriers.

### **SECTION – C**

**Answer ALL Questions :**

**(3 × 9 = 27)**

18. a) Write down the types of nano materials.

**[OR]**

b) Write about the basic principles of nanotechnology.

19. a) Detailed account on the structure of biomacromolecules.

**[OR]**

b) Write about the fundamentals of nanofluidics and its transport mechanism.

20. a) What are the nano based tools using in the genetic engineering for agriculture?

**[OR]**

b) Write the essay about the various types of biosensors and their functions.

### **SECTION – D**

**Answer any TWO Questions :**

**(2 × 14 = 28)**

- 21. Write an essay classification of nano materials based on their dimensions with suitable diagrams.
- 22. Write the essay about the various types of biosensors and their functions.
- 23. Give a detailed account on nanotechnology based drug delivery in various fields.
- 24. Write about the nanomaterials and its applications in the agriculture.

Y Y Y Y Y



# VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

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**B.Sc. Zoology** Degree (Semester) Examinations, April 2020

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

## TAXONOMY OF ANGIOSPERMS AND PLANT PHYSIOLOGY

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

### SECTION – A

**Answer ALL Questions :**

**(10 × 1 = 10)**

- Who was/were classified Natural classification of Plant Kingdom?
  - Carolus Linnaeus
  - John Hutchinson
  - Adolf Engler and Karl Pranti
  - Bentham and Hooker
- Epigynous is \_\_\_\_\_.
  - Below the attachment of all floral parts in the ovary
  - Above the attachment of all floral parts in the ovary
  - The attachment of all floral parts at middle region of the ovary
  - Without attachment of calyx and corolla
- Which one of the following family has caryopsis fruit?
  - Lamiaceae*
  - Euphorbiaceae*
  - Poaceae*
  - Euphorbiaceae*
- What is the type of inflorescence in Caesalpiniaceae?
  - Axillary or terminal raceme
  - Spike
  - Umbel
  - Panicle
- The process of selective passage across a semi-permeable membrane is
  - Diffusion
  - Osmosis
  - Capillary
  - Imbibition

- a) Concentration of salts in the soil is high
- b) Concentration of solutes in the cell sap is high
- c) The plant is rapidly respiring
- d) They are separated from soil by semi-permeable membrane

7. Which one of the plant population first engaged by photosynthetic process?

- a) Protozoa
- b) Fungi
- c) Blue Green Algae
- d) Gymnosperms & Angiosperms

a) C<sub>3</sub>-Plants      b) C<sub>4</sub>-Plants      c) CAM-Plants      d) C<sub>2</sub>-Plants

9. Which one is regulate plant growth and development?

a) Secondary metabolites      b) Micro elements

c) Starch and Oil granules      d) Phytohormone

a) Neoxanthin      b) Zeatin

c) Florigens      d) 2, 4-dichlorophenoxyacetic acid (2,4 D)

**(5 × 2 = 10)**

- (5 × 5 = 25)**

- 18.a) Write the salient features of ICBN.  
(OR)  
b) Write a note on botanical survey of India.
- 19.a) List out the economic importance of Lamiaceae.  
(OR)  
b) Write notes on Cyathium.
- 20.a) Explain the mechanism of active absorption of w  
(OR)  
b) Explain the plasmolysis.

21. a) Illustrate the photosynthetic pigments.

(OR)

b) Write notes on light reaction.

22. a) What is IAA? Add its Applications.

(OR)

b) Explain the vernalization.

### **SECTION – D**

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

23. Give an outline of Bentham and Hookers system of classification.

24. Describe any one plant you studied as example for Euphorbiaceae in botanical terms.

25. What is transpiration? Discuss the mechanism of opening and closing of stomata.

26. Explain briefly the cyclic and non-cyclic photophosphorylation.

27. Discuss the physiological effects of auxins and gibberellins.

Y Y Y Y Y