VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Core Subject : Second Semester : Paper – I

PTERIDOPHYTES, GYMNOSPERMS AND PALEO BOTANY

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

<u>SECTION – A</u>

<u>Answer ALL Questions</u> :

 $(10 \times 1 = 10)$

- 1. Sago is obtained from _____
- a) Cycas b) Gnetum c) Psilotum d) Equisetum
- 2. When the leaf epidermis is heavily cuitinised and possess sunken stomata, these are known as ______.
 - a) Spirocheilic b) Diplophyllic
 - c) Haplocheilic d) Heterokantae
- 3. Majority of the *Gnetum* Indian species are woody climbers whereas _______ is medium sized tree.

a) G. ula b) G. gnemon c) G. latifolium d) G. montanum

- 4. Which one of the following is commonly known as 'Ground Pines' a) *Lycopodium* b) *Gnetum* c) *Psilotum* d) *Cycas*
- 5. In Pteridophytes the sporangia are produced with in a special structure known as
 - a) Sporocarpb) Microsporangiac) Sporangiad) Heterosporous
- 6. Name the Indian scientist who published a number of monographs on Paleobotany
 - a) Dr. Birbal Sahnib) Dr. Fiestmentalc) Dr. Thansend) Dr. A. Fleming
- 7. _____ plant known as heterosporous aquatic form.
- a) Marsilea b) Equisetum c) Cycas d) Gnetum
- 8. Which one of the following is a woody climbera) *Psilotum*b) *Lycopodium*c) *Equisetum*d) *Gnetum*
- 9. Coal is believed to be a complex form of _____.a) Compression b) Impression c) Compaction d) Petrifaction

10. Rhynia had flourished well in the _____ period of Paleozoic era.a) Permianb) Devonianc) Pennysylvaniand) Silurian

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

11. a) Mention the economic importance of Cycadales.

(OR)

- b) Discuss the structure of microsporangia of Cycas.
- 12. a) With neat diagram Explain the anatomy of aerial stem of *Psilotum*. **(OR)**
 - b) Write the characteristic features of Psilotales.
- 13.a) Briefly describe the anatomical structure of root *Equisetum*. **(OR)**
 - b) Mention the external characters of genus Equisetum.
- 14. a) Write a short note on i) Impression ii) Petrifaction (**OR**)
 - b) Classify the geological time scale with type of vegetation occur at that period.
- 15. a) Briefly view the anatomical structure of Rhynia.

(**OR**)

b) Explain the reproductive structure of Rhynia.

<u>SECTION – C</u> Answer any THREE Questions :

- 16. Describe the salient features of reproductive structure of Gnetum.
- 17. Discuss the gametophytic generation of *Lycopodium*. Add a note on three distinct types of prothalli.
- 18. Elaborate the vegetative and sexual method of reproduction in *Marsilea*.
- 19. Illustrate the reproduction of Lyginopteris.
- 20. Give an account on *Calamites*.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Core Subject : Second Semester : Paper – II

PLANT ANATOMY & MICROTECHNIQUES

Under CBCS – Credit 4

Max. Marks: **75**

$\underline{SECTION-A}$

Answer ALL Questions :

 $(10 \times 1 = 10)$

1. Cell walls of adjacent ce	ells are connected by
a) Primary cell wall	b) Secondary cell wall
c) Middle lamella	d) Cellulose
2. The meristem derived fr	om the promeristem is

2. The meristem derived from the promeristem is a) Primary meristem b) Apical meristem

a) I milary mensiem	
c) Secondary meristem	

d) Lateral meristem

3. Polyarch vascular bundles are found ina) Monocot rootsb) Dicot roots

- c) Monocot stems d) Dicot stems
- 4. Conjoint, collateral, closed, scattered vascular bundles with sclerenchymatous sheath are characteristic of
 - a) Dicot rootb) Monocot stemc) Monocot rootd) Dicot stem
- 5. The phellogen gives rise to
a) Phloem
c) Corkb) Xylem
d) Cork and Secondary cortex
- 6. Lenticels are formed in bark, which area) aerating poresb) Vesselsc) Tissuesd) Stele
- 7. In monocot leaves, the guard cells area) Bean shapedb) oval shapedc) Dumb bell shapedd) Irregular in shape

8. Trilacunar node is seen in

a) Justicea b) Aralia c) Azadirachtad) Nerium

9. Selective preservation of morphological organization and chemical content of cells is known as

a) Staining
b) Fixation
c) Maceration
d) Embedding

10. Formalin is a

a) Simple fixativeb) Neutral stainc) Compound fixatived) Acidic stain.

SECTION – B

Answer ALL Questions :

 $(5 \times 7 = 35)$

11.a) Briefly describe the structure and function of cell wall.

(**OR**)

- b) What is a meristematic tissue? How are they classified on the basis of their position and function?
- 12. a) Draw a labelled diagram of the T.S. of dicotyledonous root and describe the same.

(**OR**)

- b) With the help of a neat diagram, describe the structure of a monocot root.
- 13.a) What is secondary growth? Discuss how secondary growth takes place in a dicot stem.

(OR)

b) Write short notes on i) Phellem ii) Periderm iii) Annual rings

14. a) Draw a neat well labelled diagram of the T.S. of a dicotyledonous leaf.

(OR)

- b) Give a detailed account on nodal anatomy in plants.
- 15.a) Define staining. Explain different types of staining of plant materials.

(OR)

b) Write short notes on : i) Sectioning of plant materials

ii) Mounting of plant materials

$\underline{SECTION - C}$

Answer any THREE Questions :

- 16. Discuss the structure and functions of complex tissues.
- 17. How will you differentiate a typical diotyledonous stem from a monocotyledonous stem on the basis of internal structure? Draw a labelled diagram wherever necessary.
- With neat diagram describe the anomalous secondary growth in Dracaena.
- 19. Describe in detail the internal structure of a isobilateral leaf with a neat diagram.
- 20. What is fixation of plant materials? Describe different types of fixation.



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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Core Subject : Fourth Semester : Paper – I

BIOINFORMATICS

Under CBCS – Credit 5

Time: 3 Hours

Max. Marks: 75

<u>SECTION – A</u> Answer ALL Questions :

 $(10 \times 1 = 10)$

1.	Compact Disc is a kind of	•
	a) Primary memory	b) Secondary memory
	c) Volatile memory	d) Random access memory
2.	GUI stands for	
	a) Generating User Integrity	b) Generations Using Internet
	c) Graphical User Interface	d) Graph Using Image
3.	The expansion of WWW is	
	a) World Web Window	b) Wide World Web
	c) Web accessed World wide	d) World Wide Web
4.	PDB refers to	
	a) Protein Structure Database	b) Principal Database
	c) Processed Database	d) Primary Database
5.	BLAST tool is a	
	a) Similarity Search tool	b) Sequencing method
	c) DNA iteration tool	d) DNA search tool
6.	Phylogenetic tree is created by	using
	a) Pairwise alignment	b) BLAST
	c) FASTA	d) Multiple sequence alignment
7.	The study of gene interactions a	and the role played by gene is called
	a) Structural Genomics	b) Functional Genomics
	c) Epigenomics	d) Metagenomics
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8. Gene multiplication can be done through a) PAGE b) AGEP c) PCR d) Western Blotting

- 9. The entire proteins expressed by a genome is calleda) Proteome b) Aminoacids c) Proplastids d) Peptides
- 10. Polyacrylamide gel electrophoresis technique is used to study a) DNA b) RNA c) Metal ions d) Proteins

<u>SECTION – B</u>

Answer ALL Questions : $(5 \times 7 = 35)$ 11.a) Draw the scheme of active window desktop. Add a note on its parts. (\mathbf{OR}) b) List the features of MS Word. 12. a) Discuss the basic applications of internet. **(OR)** b) NCBI is a major inevitable Database of Bioinformatics - Explain. 13.a) Write a note on FASTA. (\mathbf{OR}) b) List the uses of database similarity search tools. 14.a) Mention the historical perspectives of genomic sciences. (OR) b) Comment on PCR. 15.a) Briefly explain structural and functional genomics. (\mathbf{OR}) b) Give the limitations of Proteomics. **SECTION – C Answer any THREE Questions :** $(3 \times 10 = 30)$

- 16. Explain the features of Excel and write the steps used in preparing graphs using Excel.
- 17. Give an elaborate account on applications of bioinformatics.
- 18. Explain Pairwise Sequence Alignment.
- 19. Discuss the differences between Prokaryotic and Eukaryotic Genome.
- 20. Explain the methods used in Protein analysis.





Answ

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] B.Sc. Botany Degree (Semester) Examinations, April 2015 Part - III : Core Subject : Fourth Semester : Paper - II

PLANT ECOLOGY

Under CBCS - Credit 5

Max. Marks: 75

SECTION - A

Answer ALL Questions :	$(10 \times 1 = 10)$
1. Pedology is the study of	

a) rocks b) soil c) earth d) water

2. The soil erosion in India is mainly due to

a) drought b) heavy rain fall c) deforestation d) heavy winds

- 3. The main causes of succession are
 - b) topographic causes a) climatic causes

d) all of these c) biotic causes

4. *Hydrilla* is a _____ plant

a) hydrophyte b) mesophyte c) xerophytes d) halophyte

5. The study of quantitative characteristics of a plant community is done by _____ method.

a) plant cover b) radio isotope c) quadrat d) stability

- 6. Descriptive phytogeography describes the
 - a) actual distribution of plants b) reasons for the distribution
 - c) continuous distribution d) discontinuous distribution

7.	Bio	accumulati	on is	nothing	but
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a) biocides	b) ecological amplification
c) backlash	d) ecological boomerang

8. Persistent pesticide is a

a) chlorinated hydrocarbon	b) parathion
c) malathion	d) carbamates

- 9. The distribution of plant, restricted to a small region is called
 a) Continental drift
 b) Continuous distribution
 c) Discontinuation distribution
 d) Endemism
- 10. The Continental theory was proposed by

a) Wegner b) Du Toit c) Engler d) Chatterji

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

11. a) Describe the effect of high temperature on plants.

(**OR**)

- b) Describe the process of soil formation.
- 12.a) What are hydrophytes? Give their important morphological adaptation of hydrophytes.

(**OR**)

b) Discuss briefly about the morphological adaptations of xerophytes.

13.a) Discuss the four seasons of India.

(OR)

b) Give a brief account on tropical evergreen forest of India.

14. a) Write short notes on i)

i) Biomagnification

ii) Pesticides and Weedicides

(**OR**)

b) Discuss the effect of pesticides on animal life.

15.a) Write a short account on continuous distribution.

(**OR**)

b) Explain Continental drift.

SECTION – C

Answer any THREE Questions :

- 16. Write an essay about the soil erosion and soil conservation.
- 17. Explain various stages of hydrosere.
- 18. Describe the method of studying plant community.
- 19. Discuss the effects of pesticides on plants and human life.
- 20. Give an account of different types of endemics.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Core Subject : Sixth Semester : Paper – I

GENETICS

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

Answer ALL Questions :

 $(10 \times 1 = 10)$

- In a monohybrid cross a tall homozygous (TT) pea plant crossed with dwarf homozygous (tt), what will be the F₁ genotypic result?
 a) Tall (TT)
 b) Tall (Tt)
 c) Dwarf (tt)
 d) All the above
- 2. In an incomplete dominance. If pink flowered (Rr) F_1 generation is selfed, what is the result in F_2 generation?
- a) 1 : 2 : 1 b) 3 : 1 c) 2 : 2 d) 1 : 1 3. What is the ratio of complementary genes?
- a) 9:3:3:1 b) 15:1 c) 9:7 d) 13:3
- 4. Which blood group is the universal donor?a) Ab) Bc) ABd) O
- 5. Which is the target for the repressor protein?a) Regulatorb) Operatorc) Repressord) Suppressor
- 6. Lac genes are controlled bya) Negative regulationb) Positive regulationc) Operond) Induction
- 7. In the operon model i gene is _____.a) Promoter b) Operator c) Repressor d) Structural
- 8. In chromosome aberration, deficiency of chromosome segment is otherwise known as ______.
 a) Addition b) Deletion c) Inversion d) Translocation
- 9. In sex linked inheritance, the genes which remain confined to differential region of 'Y' chromosome only is called ______.
 a) Holandric gene b) Sex-linked gene c) somatic gene d) All the above

- 10. Who formulated copy-choice theory in the mechanism of crossing-over?a) Billingb) Karlangc) Difference in the formulation of th
 - a) Billing b) Karlsax c) J. Laderberg d) Muller

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

- 11. a) State dominant epistasis with suitable example. (OR)b) Explain recessive epistasis with suitable example.
- 12. a) Explain the multiple allele with reference to A,B,O blood group. (OR)
 - b) Discuss the mechanism of sex determination in plants.
- 13.a) What is sex linked inheritance? Give an example. (OR)b) Illustrate chloroplast inheritance with suitable example.
- 14. a) Write a short notes on Mutagens. (OR)b) Mention the genetic significance of mutations.
- 15.a) What are the two major categories of gene regulation in *E. coli*? (**OR**)
 - b) Critically analyze the significance of the Human genome project.

SECTION – C

 $(3 \times 10 = 30)$

- 16. Explain the Mandel's law of independent assortment with reference to Dihybrid cross.
- 17. Discuss the mechanism of crossing over and explain various theories of crossing over.
- 18. Explain the male sterility in maize.

Answer any THREE Questions :

- 19. Illustrate the different types of chromosomal aberrations.
- 20. Discuss the lac operon model for the metabolism of lactose in *E.coli*.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Core Subject : Sixth Semester : Paper – II

BIOTECHNOLOGY

Under CBCS – Credit 4

Max. Marks: 75

<u>SECTION – A</u>

Answer ALL Questions :

 $(10 \times 1 = 10)$

- 1. Plasmids are used in genetic engineering because they are
 - a) easily availableb) able to replicatec) able to integrated) inert host chromosome
- 2. Identify the restriction endonuclease type which is used in gene cloning

a) Type I b) Type III c) Type II d) a and b

3. Which one of the following organisms is used for citric acid production?

a) Aspergillus niger	b) Pseudomonas
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- c) Xanthomonas d) Methanogens
- 4. Who first discovered the bacteriostatic principle from a fungus?a) Chain b) Clutterbuck c) Florey d) Alexander Fleming
- 5. Find out the bacterial biopepticides

a) <i>Beauveria</i>	b) Bacillus thuringiensis
c) red ant	d) Granulosis virus

6. The non-symbiotic nitrogen fixing microorganism is

a) *E.coli*b) *Agrobacterium*c) *Klebsiella pneumoniae*d) *Rhizobium*

7. The Chief constituent of biogas is

a) Carbon di oxide b) Nitrogen c) Oxygen d) Methane

- 8. Besides dung, the weed that can be used in biogas production isa) *Hydrilla* b) *Pistia* c) *Trapa* d) *Eichhornia grassipes*
- 9. Finger printing involves

a) agglutinationb) chromatographyc) electrophoresisd) both b and c

10. Super bioabsorbent is

a) Alcaligens luteus	b) Pseudomonas putida
c) Methano bacterium	d) Penicillium notatum

<u>SECTION – B</u>

<u>Answer ALL Questions</u> :

 $(5 \times 7 = 35)$

11.a) Give a brief account on strategies of gene cloning in Bacteria.

(**OR**)

- b) Give a short account on the application of genetic engineering in the field of agriculture, industry and medicine.
- 12. a) Write the different techniques involved in immobilization of enzymes.

(**OR**)

- b) Explain the mass culture of any one single cell protein.
- 13.a) Give a brief account on the mechanism of Nitrogen fixation and add a note on organization of nif genes.

(**OR**)

- b) Enumerate the process of nodulation.
- 14. a) Discuss bioremediation of contaminated soil. (**OR**)
 - b) Give a brief account of Phytoremediation.
- 15.a) Describe the method of DNA finger printing. **(OR)**
 - b) Enumerate the procedure in ELISA test for diagnostic purpose.

<u>SECTION – C</u>

Answer any THREE Questions :

- 16. What are restriction endonucleases? Explain the types of restriction endonucleases used in gene cloning.
- 17. Explain the industrial production of Penicillin using microbes.
- 18. Give a brief account on biopesticides.
- 19. What is biogas? Describe the structure and working of a bio gas plant. Give an account of the chemistry of methanogenesis.
- 20. Write an essay about gene therapy.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – III : Elective Subject : Sixth Semester : Paper – I

TISSUE CULTURE

Under CBCS – Credit 5

Max. Marks: **75**

$\underline{SECTION - A}$

Answer ALL Questi	<u>ons</u> :		$(10 \times 1 = 10)$
1. Laminar air flow a laboratory	is used for	work in	Tissue culture
a) incubation	b) aseptic	c) sterilization	d) cleaning
2. Nutrient media isa) heater	sterilized with the b) hot air oven	he help of c) autoclave	d) vacuum pump
3. Somatic embryog a) <i>Daucus carota</i>	enesis was first o b) <i>Citrus</i>	observed in c) <i>Dactylis</i>	d) Carum carvi
4. The main purposea) pest resistancec) herbicide resis	e of meristem cul b) virus e tance d) produc	lture is eradication ction of seconda	ary metabolites
5. The developmenta) indirect embryc) fertilized embr	of embryoids fro rogenesis ryogenesis	om the cultured b) unfertilized d) direct embr	anther is known as embryogenesis yogenesis
6. Anther culture is a a) hybrid	used for the proc b) haploid	luction of c) mutant	plants. d) clone
 Which has been u a) Refrigerator 	sed to produce n b) Culture tube	nass culture of c) Fermenter	plant cells? d) Electro fusion
8. The increased yie	ld of secondary 1 _ plant cells	metabolites can	be achieved by
a) immobilized	-	b) subculture	
c) batch culture		d) continuous	culture

9. The plant in which the foreign gene is incorporated by any biotechnological method that is not present in the plant is called a) mutant plant
b) hybrid plant
c) transgenic plant
d) artificial plant

10. Endangered plants are conserved by this method.a) Protoplast cultureb) Micro propagation

c) Callus culture d) Breeding method

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

11. a) Give an account of wet-heat method of sterilization.

(**OR**)

- b) Discuss the procedure for the sterilization of explants.
- 12. a) Give a brief account on artificial seed.

(**OR**)

- b) Give an account of apical meristem culture.
- 13. a) Write a note on the applications of in vitro androgenesis.

(**OR**)

- b) What is anther culture? Explain the methodology of anther culture.
- 14. a) List out any seven secondary metabolites produced from cultured plant cells.

(**OR**)

- b) Write short notes on i) Cell suspension culture
 - ii) Bio transformation iii) Fermenter

15. a) What are transgenic plants? Write a brief account on pest resistant plants.

(OR)

b) Explain how transgenic herbicide resistant plants are produced.

<u>SECTION – C</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

- Give a brief account of the composition of nutrient medium used for plant tissue culture.
- 17. Write notes on a) Organogenesis b) Caulogenesisc) Rhizogenesis d) Meristemoids
- 18. Outline the method of isolation and culture of protoplasts.
- 19. Give a detailed account on the process of transformation using plant cell culture system.
- 20. Explain how the tissue culture practices are useful in conservation of endangered and rare species. Give suitable examples.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

B.Sc. Botany Degree (Semester) Examinations, April 2015 Part - III : Elective Subject : Sixth Semester : Paper - II

REMOTE SENSING AND GIS

Under CBCS - Credit 5

Max. Marks: 75

SECTION – A

$(10 \times 1 = 10)$

Answer ALL Questions :	$(10 \times 1 = 10)$	
1. The Satellites remain stationary called satell	y relative to the Earth's surface is lite.	
a) Geosynchronous	b) Sunsynchronous	
c) Geostationary	d) All the above	
 The platform used in aerial remote sensing is a) Satelliteb) Hot air balloon 		
c) Portable Masts	d) Mobile hydraulic platforms	
3. RADAR utilizes	radiation.	
a) Visible and UV	b) Microwaves and Radiowaves	
c) IR	d) Thermal IR	
4. Optical imagers are used to stu-	dy	
a) clouds	b) aerosol load	
c) sea-surface temperature	d) All the above	
 5. NRSA refers to a) National Remote Sensing A b) National Remote Sensor Ap c) National Remote Standard A d) National Resource Search A 	gency oplication Application Analysis	
6. Coral reefs and Mangroves are a) NRSA b) NNRMS	monitored by c) IPR d) ICMR	
7. GPS refers toa) Global Political Systemc) Geo Project Scheme	b) Global Positioning Systemd) Geo Political Service	

8. GIS uses ______.a) Spatial datab) Commercial datac) Tabular datad) All the above

- 9. GIS Data models represented in the form of Points, Lines and Polygons are calleda) Vector Data b) Raster Data c) Image Data d) Digital imagery
- 10. The conversion of GIS data into cartographic map products is by using a) OSSIM b) GRASS c) Map Server d) Map Guide Source

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

11.a) Explain the basic principles of remote sensing technique.

(OR)

b) Describe the different types of Platforms.

12.a) Briefly explain the principles and applications of RADAR.

(**OR**)

b) Write a note on passive remote sensing.

13.a) Comment on Thematic map.

(**OR**)

b) List the applications of remote sensing.

14. a) Explain the components of GIS.

(**OR**)

b) Give the flow chart of working process of GIS.

15.a) Briefly explain the role of GIS in project management with suitable example.

(**OR**)

b) List the applications of GIS.

<u>SECTION – C</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

- 16. Elucidate different types of sensors in remote sensing.
- 17. Describe the information derived from remote sensing instruments.
- 18. Explain IRS series and their role. Add a note on their future missions.
- 19. Explain the essential software components of GIS.
- 20. Discuss the types of data models and key features used to identify and create model using GIS.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] B.A. / B.Sc. Degree (Semester) Examinations, April 2015 Part - IV : Non-Major Elective Subject : Second Semester : Paper - I

GARDENING CS – Credit 2

	Under CBC
Time: 2 Hours	

Max. Marks: 75

SECTION – A

Answer ALL Ouestions :

 $(10 \times 1 = 10)$

- 1. Which is not a living elements of garden? d) Pillars a) Hedges b) Fountains c) Statues
- 2. Pomology is the study of a) Fruit crops b) Vegetables c) Trees d) Flowers
- 3. Which is the most common plant used to propagate in leaf cutting a) *Bryophyllum* b) *Mangifera* d) Tectona c) *Coleus*
- 4. Gooteeing is the other name for layering. a) Simple b) compound c) Trench d) Air
- 5. The supply water drop by drop is called b) Pitcher method a) Drip Irrigation c) Check bunds d) Flooding
- 6. *Rhizobium* is a best example of _____ b) Green manure a) Biofertilizer c) Farmyard manure d) All
- 7. The art of rock loving plant in large stones is a) Rockery b) Bonsai c) Lawn d) Aquarium
- 8. An area completely covered with grass is called a) Lawn b) Pond c) Aquarium d) Bonsai

- 9. Which grass is called as Buffalo grass? a) *Cyanodon* b) Stenotaphrum c) Both a & b d) None
- 10. Bonsai means the art of growing plants in condition. a) Giant b) Dwarf c) Normal d) None

SECTION – B

Answer ALL Questions :

 $(4 \times 10 = 40)$

(OR)

- 11.a) What is garden? Write its parts.
 - b) What are the two types of Garden?
- 12.a) What is cutting? Explain different methods of Cuttings. (**OR**)
 - b) Write about any two type of grafting with suitable illustrations.
- 13.a) Define drip irrigation and write its merits and demerits? (**OR**) b) Write short notes on Manuring?
- 14. a) List out the important grasses being grown in lawns. (\mathbf{OR})
 - b) Write short notes on Bonsai and Rockery.

SECTION – C

Answer any TWO Questions : $(2 \times 12^{1/2} = 25)$ 15. Describe Layering? Explain different methods. 16. Describe the systems of Irrigation. 17. Write an essay on a model kitchen garden for a family of five members.



VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – IV : Skill Based Subject : Fourth Semester : Paper – I

HORTICULTURE

Under CBCS – Credit 2

Max. Marks: 75

<u>SECTION – A</u>

<u>Answer ALL Questions</u> :

Time: 2 Hours

 $(10 \times 1 = 10)$

- Horticulture defined as ______ of fruits, vegetables and ornamental plants purposes
 a) Production b) Utilization c) improvements d) All of the above
- 2. Vertical garden plants such asa) Cucumber b) Tomatoes c) *Ficus*d) Bambusa
- 3. Indoor garden (Inside the house or room) plants is _____.a) *Ficus*b) Tomatoesc) Bambusad) Cucumber
- 4. Cutting as _____.
 a) Propagation _____.
 b) Detachment of plant parts d) None of the above
- 5. Budding can be successfully propagated ina) Mangob) Orangec) Coconutd) Neem
- 6. Grafting is the process of ______.a) Detachment b) Attachment c) Inserting d) All of the above
- 7. Removal of shoots, roots, limb or buds away of the terminal parts is called as
 - a) Cutting b) Pruning c) Training d) None of the above
- 8. Which one is green in the kitchen garden
- a) Appleb) Banana leafc) Fenugreek d) Tomato leaf9. ______ plants is not suitable for planting in lawns.
- a) Cupressus b) Pinus c) Tomato d) Hibiscus
- 10. Rockery made up of _____
 - a) Crevices of rocksb) Succulents plantsc) Colorful coctid) All of the above

<u>SECTION – B</u>

Answer ALL Questions :

 $(4 \times 10 = 40)$

11.a) Write about salient features of horticultural crops.

(**OR**)

- b) Write about vertical garden structure and its function.
- 12. a) Give a short notes of propagation technique of cuttings and its classification.

(OR)

b) Give a short notes of propagation technique of budding and its application with suitable diagram.

13.a) Explain about transplantation.

(**OR**)

- b) Explain about manuring.
- 14.a) Write about ringing and smudging.

(**OR**)

b) Layout the kitchen gardening.

$\underline{SECTION - C}$

Answer any TWO Questions :

 $(2 \times 12^{1/2} = 25)$

- 15. Give a detailed account on methods of layering.
- 16. Write a essay on pruning.
- 17. Describe the bonsai and lawn.



VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] B.Sc. Botany Degree (Semester) Examinations, April 2015 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 Ouestions :

 $(10 \times 1 = 10)$

- 1. The quickest method of plant breeding a) Introduction b) Selection c) Hybridization d) Mutation breeding
- 2. ICAR stands for
 - a) Indian council of agricultural research
 - b) Indian council of agriculture research
 - c) International council of agricultural research d) Both a & b
- 3. Method of selection in plants having vegetative propagation is a) Pedigree b) pure line c) Mass d) Clonal
- 4. Selection is commonly called as method. b) Italian a) German c) Indian d) USA
- 5. Who is the pioneer in Indian plant breeding research? a) T.S. Venkataraman b) M.S. Swaminathan c) K. Ramaiah d) C.T. Patel
- 6. Crosses between the plants of same species a) Inter specific b) Intra specific c) Intra varietal d) Inter varietal
- 7. A new crop *Raphonobrassica* has been evolved by intergeneric cross between a) Radich & Cabb 'e

a) Radish & Cabbage	b) Wheat & Rye
c) Radish & Wheat	d) Wheat & Rye

8. Emasculation is a) Removal of S c) Removal of c	achieved by Stigma calyx	b) Removal o d) Removal o	of anther of corolla
9. Who proposed th a) Davenport	ne term heterosis b) Shull	? c) Lewis	d) Bruce
10. In India NBPGR a) Delhi	is located in b) Pune	c) Kolkata	 d) Mumbai

SECTION – B

Answer ALL Questions :

 $(4 \times 10 = 40)$

11.a) What is plant introduction? Write about its purposes.

(\mathbf{OR})

- b) Give an account of merits and demerits of plant introduction.
- 12. a) Define selection. Discuss pure line selection.

(\mathbf{OR})

- b) Write about the achievements of mass selection?
- 13.a) What is emasculation? Describe the various methods.

(\mathbf{OR})

- b) Describe pedigree method.
- 14.a) What is Polyploidy and add a note on its achievements in plant breeding?

(\mathbf{OR})

b) Define heterosis. Write its achievements.

SECTION - C

Answer any TWO Questions :

 $(2 \times 12^{1/2} = 25)$

- 15. Describe in detail the procedure of hybridization.
- 16. Write an essay on hybrid vigour.
- 17. Define mutations and mutagens. Give two examples of each and their usefulness in plant breeding.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] B.Sc. Botany Degree (Semester) Examinations, April 2015 Part - IV : Skill Based Subject : Sixth Semester : Paper - II

BIODIVERSITY CONSERVATION AND MANAGEMENT

Under CBCS - Credit 2

Time: 2 Hours

Answer ALL Ouestions :

Max. Marks: 75

SECTION – A

 $(10 \times 1 = 10)$

- 1. Areas that are rich in species have high endemism and under constant threat are called as a) Disturbed areas b) Hot spots
 - c) Protected areas d) Reserved area
- 2. Animals and plants are best protected in a) National parks
 - b) Botanical gardens c) Sanctuaries d) Zoos
- 3. WCU stands for
 - a) Wild conservation unit b) World conservation union c) World communication unit d) Wild conservation union
- 4. Which is commonly called as Biological Paradise? b) Nilgiri a) Gulf of Manar c) Nanda Devi d) Mannas
- 5. How many numbers of biosphere reserves are present in Tamil Nadu? a) 2 b) 3 c) 4 d) 1
- 6. Which one of the following is a world heritage site in India? b) Sunderbans a) Western Ghats c) Eastern Ghats d) Gir Forests
- 7. The headquarters of IUCN is located in a) England b) Holland c) New Zealand d) Switzerland
- 8. In Tamil Nadu, recently declared tiger sanctuary is
 - a) Mundandurai b) Annai malai
 - c) Satya mangalam d) Mudumalai

- 9. Which day is celebrated International Day for Biological Diversity (IDB)
 - a) May 22 b) May 20 c) May 21 d) May 25
- 10. Kaziranga national park is famous for a) One horned Rhino b) Tiger c) Elephant d) Indian Lion

SECTION – B

Answer ALL Questions :

 $(4 \times 10 = 40)$

- 11.a) What is biodiversity? Why has it become important recently? (\mathbf{OR})
 - b) Explain types of biodiversity.
- 12. a) Explain about the threats to biodiversity. (\mathbf{OR})
 - b) Write a note on "Hot Spots of biodiversity".
- 13.a) Describe the endangered species.

(**OR**)

- b) Write shot notes on national parks and sanctuaries.
- 14. a) Give an account of biodiversity at global level? (\mathbf{OR})
 - b) Give an account of WWF?

SECTION – C

Answer any TWO Questions :

 $(2 \times 12^{1/2} = 25)$

- 15. What are the various conservation strategies that are now practiced to conserve our biodiversity?
- 16. Describe the values of biodiversity.
- 17. Write short notes on i) Forest conservation act and ii) Environmental protection act





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Botany** Degree (Semester) Examinations, April 2015 Part – IV : Skill Based Subject : Sixth Semester : Paper – III

NANOBIOLOGY

Under CBCS – Credit 2

Max. Marks: 75

<u>SECTION – A</u>

Answer ALL Questions :

Time: 2 Hours

 $(10 \times 1 = 10)$

- 1. The nanosize carbon sheet is called as
a) Graphereb) Graphc) Phened) None
- 2. C₆₀ carbon molecule is calleda) Bucky Ballb) Foot Ballc) Cricket Balld) Ball
- 3. The country which is pioneer in nano research is
a) UAEb) USAc) USId) Japan
- 4. Ten Hydrogen atoms together equals toa) 1 nanometerb) 10 nanometerc) 5 nanometerd) None
- 5. A nanotube which absorbs light isa) Prophyrin nanotubeb) Test tubec) PVC tubed) Plastic tube
- 6. Gold nanoshells can find and kill _____ cells. a) Cancer b) Lung c) Kidney d) Liver
- 7. Greygoo is a hypothertical self replicating nanobots that consume all ______ matter on earth.
 a) Living b) Non living c) Water d) Carbon
- 8. Richard Teynman is a pioneer in the field of _____.
 a) Nanotechnology
 b) Biotechnology
 c) Info technology
 d) Industrial technology
- 9. The size 10⁻⁹m measure is equal to _____.
 a) Nanometer b) Centimeter c) Decimeter d) Meter

10. Agricultural Nanotechnology is used ina) Fertigationb) Water qualityc) Desalinationd) All

<u>SECTION – B</u>

- **Answer ALL Questions :** $(4 \times 10 = 40)$ 11.a) Mention the various applications of Nanobiology. (\mathbf{OR}) b) Define Nanotechnology & its branches. 12. a) Write notes on Dry & Wet nanotechnology. (\mathbf{OR}) b) Explain about Nanotubes & Nanowires, Nanocrystals. 13. a) Describe the use of Nanotechnology in Bio medicines. (\mathbf{OR}) b) Explain about Liposomes, C₆₀ & Bio sensors. 14.a) Write notes on Bottom up & Top down methodology. (\mathbf{OR}) b) Mention the uses of Nanotechnology in Cancer research. **SECTION – C Answer any TWO Questions :** $(2 \times 12^{1/2} = 25)$
- 15. Describe in detail about the principles and applications of Nanobiology.
- 16. Give an account about Two dimentional nanometerials like Nenotubes etc.
- 17. Explain about Top down & Bottom up approach on making nanoproducts.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **B.Sc. Zoology** Degree (Semester) Examinations, April 2015 Part – III : Allied Subject : Fourth Semester : Paper – II

TAXONOMY OF ANGIOSPERMS AND PLANT PHYSIOLOGY

Under CBCS – Credit 4

Max. Marks: 75

<u>SECTION – A</u>

Answer ALL Questions :

 $(10 \times 1 = 10)$

- Numer of families described by Benthem & Hooker in their Genera Plantarum are

 a) 202
 b) 200
 c) 201
 d) 203
- 2. Benthem & Hooker classified dicots into

 a) Polypetalae, Gamopetalae & Glumiferae
 b) Polypetalae, Gamopetalae & Monochlamydae
 c) Archichlamydae, Monochlamydae & Gamopetalae
 d) Archichlamdae, Monochlamydae& Polypetalae

3. Anthers are versatile ina) Poaceaeb) Annonaceaec) Lamiaceaed) Euphorbiaceae

- 4. Ascending imbricate aestivation of corolla and ten stamens in which some are staminodes is the characteristic feature of

 a) Caesalpineaceae
 b) Lamiaceae
 c) Poaceae
 d) Annonaceae
- 5. The selectively permeable membrane allows the passage of
 - a) Water onlyc) Solute only

b) Solvent only

- d) Selected solutes & solvents
- 6. When the contents of a cell are in the shrinkage state, the process is called
 - a) Hypotonic b) Plasmolysis c) Osmosis d) endosmosis

7. Products of photosynthesis are	
a) CO_2 & food material	b) Carbohyrates & oxygen
c) CO ₂ & oxygen	d) Formaldehyde & nitrogen
9 In the initial function of CO2 in	C4 plants

- 8. In the initial fixation of CO2 in C4 plants
 a) CO₂ reacts with PGA
 b) CO₂ reacts with PEPA
 c) CO₂ reacts with RUBP
 d) CO₂ reacts with RuMP
- 9. Which is an auxin?a) ATPb) Pyruc) Phosphoglyceric acidd) Index

b) Pyruvic acid

d) Indole acetic acid

10. The flowering hormone produced in some plants as a result of low temperature treatmenta) Vernalinb) Florigenc) Abscissiond) Dormin

<u>SECTION – B</u>

Answer ALL Questions :

 $(5 \times 7 = 35)$

11.a) Give an example of Natural system of classification?

Why is it called so, explain?

(OR)

- b) Enlist the merits and demerits of Benthem & Hooker's Classification.
- 12. a) Describe the characteristic features of the family Euphorbiaceae.

(**OR**)

b) Enlist the economic importance of family Poaceae with their botanical names.

13. a) What is osmosis? Give an account on it.

(OR)

- b) How does a root hair absorb water from the soil.
- 14. a) With the help of a neat diagram, describe the structure of a chloroplast.

(OR)

- b) Describe the role of light in photosynthesis.
- 15.a) Explain the importance of vernalization in plants.

(**OR**)

b) Discuss the role of photoperiodism in plants.

<u>SECTION – C</u>

Answer any THREE Questions :

- 16. Describe Benthem & Hooker's system of classification.
- 17. Give the distinguishing features, floral formulae, floral diagram of family Asclepiadaceae. Give botanical names of three plants of economic importance.
- 18. What is guttation? What are the factors that affect transpiration?
- 19. Differentiate photosynthesis in C_3 and C_4 plants.
- 20. Enlist the physiological roles of Auxin in plants.

