

HIGHER SECONDARY  
SECOND YEAR

# **BOTANY**

QUESTION BANK  
BASED ON NEW SYLLABUS

*2019-2020*

Contains

CREATIVE QUESTIONS  
*ENGLISH MEDIUM*

***CHIEF EDUCATIONAL OFFICER***  
***CHENNAI DISTRICT***

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## TWO MARKS

1. Define Asexual reproduction?
2. What are diaspores?
3. Why water hyacinth is called the 'Terror of Bengal'?
4. Give two examples of Rhizome.
5. Give one example for corm, bulb, runner.
6. What are epiphyllous buds?
7. How scilla reproduces vegetatively?
8. What are the two types of hayering?
9. Define Totipotency?
10. Name the three types of sexual reproduction in Algae and Bryophytes?
11. Define Microporogenesis.
12. What is Pollinium? Give an example.
13. Name the four layers of anther wall from periphery towards centre?
14. What is corpusculum?
15. Which plant was introduced in India as a contaminant along with wheat?
16. In which stage the pollen is liberated in majority of angiosperms?
17. Name the different types of ovules?
18. Differentiate Monoecious and Dioecious plants.
19. How self pollination is prevented in Gloriosa and Hibiscus?
20. Define Cheiroptherophily with an example.
21. Define Malcophily with an example.
22. Define Pollen-pistil interaction?
23. Name the three types of style.
24. Define cap block.
25. What is double fertilization?
26. What is triple fusion?

## THREE MARKS

1. How Pollen grains are deposited in fossils for long period of time?
2. Write any three importance of Sporopollenin.
3. Write any three economic importance of Bee pollen.
4. Differentiate Chasmogamy and Cleistogamy.
5. Define Incomplete Dichogamy.
6. Define Homogamy with an example.
7. How Pollination occurs in Commelina benghalensis?
8. Write the advantages of self pollination.

9. What are the disadvantages of self-pollination?
10. How pollen tube enters in to the ovule?
11. Write the functions of endosperm.
12. Draw the structure of dicot seed.
13. Draw the structure of monocot seed.
14. Define Apospory.
15. Write about Endosperm haustoria.

#### FIVE MARKS

1. Write the advantages of natural vegetative reproduction.
2. Explain the types of grafting with diagrams.
3. Draw the T.S.of anther and label it parts.
4. Describe the development of Monosporic embryo sac.
5. Write the characteristic features of Anemophilous plants.
6. Describe the Pollination in Maize.
7. Describe the Pollination in vallisneria spirates.
8. Write the characteristic feature of Ornithophilous flowers.
9. Write the characteristic feature of Entomophilous flowers.
10. How Pollination occurs in Salvia? Explain briefly.
11. How Pollination occurs in Calotropis ? Explain briefly.
12. How Pollination occurs in Aristolochia ? Explain briefly.
13. Write the advantages and disadvantages of cross pollination.

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#### **CHAPTER – II** **CLASSICAL GENETICS**

#### TWO MARKS

1. What are the four major sub-disciplines of genetics?
2. What is Transmission Genetics / Classical Genetics?
3. Define Molecular Genetics.
4. Define Population genetics.
5. Define Quantitative Genetics.
6. Define Genes.
7. Define Hereditary & Variation.
8. Mention the types of variation.
9. Mention any two importance of variation.
10. Why Mendel is called as father of genetics?
11. Give reason why Mendel choose pea plant for his experiment?
12. What is Emasculation?
13. Mendel proposed two rules based on his observation on Monohybrid cross.
14. Define law of DOMINANCE.
15. Define law of Segregation.
16. Define Genotype and phenotype.
17. What is reciprocal cross? Why it is done?
18. What is Empirical approach and Empirical laws?
19. What is Test cross?
20. Define Law of Independent Assortment.
21. Give the ratio of (a). Dihybrid cross- Phenotype. (b). Trihybrid cross – Phenotype.
22. What is gene interaction?
23. What are the two types of Gene interaction?
24. What are the common examples for intragenic interaction?
25. Define Co-Dominance.
26. What is lethal gene? Who discovered it?
27. Differentiate Epistatic and Hypostatic.
28. What are the types of Intragenic interaction and mention the phenotypic ratio?
29. What is polygenic inheritance?
30. What is extra nuclear inheritance?
31. Define Atavism? Give an example.

### THREE MARKS

1. Name the subdisciplines of Genetics.
2. Mention the importance of variations.
3. Why Mendel choose pea plants for his experiments?

4. Draw and label the seven characters in Garden pea on the seven chromosomes.
5. Define the terminology related to Mendelism?
  - (a). Homozygous      (b). Heterozygous      (c). Hybrids
6. Why gametes are never hybrids?
7. Differentiate Dominant and recessive character.
8. Differentiate Phenotype and Genotype.
9. Write the differences between Test cross and back cross.
10. Write short notes on Tri hybrid cross.
11. Draw a flow chart to show different types of gene interaction.
12. Explain Incomplete dominance at molecular level.
13. Tabulate any three Intergenic interaction with example and its Phenotypic ratio?
14.
 

AABBCC	X	aabbcc
Dark red Wheat kernel		White Wheat kernel

  - a) Mention the F1 Progeny
  - b) Give the phenotypic ratio of F2 generation
  - c) Name the type of inheritance.
15. Observe the punnet square given above and answer the following questions.
  - a) Identify the cross
  - b) Define that cross
  - c) Give the genotype and phenotype ratio

#### FIVE MARKS

1. Explain the Bio-graphy of Mendel.
2. Explain Mendel's Trihybrid cross.
3. What is lethal genes? Explain recessive lethality in snapdragon?
4. Describe Mendel's analytical and empirical approach.
5. Prove the law of Independent Assortment in Dihybrid cross.
6. Explain cart corren's experiment in 4'o'clock plant.
7. Bring out the inheritance of chloroplast gene with an example.
8. Explain bell shaped curve with kernel colour wheat.
9. Explain the Molecular basis for occurrence of white flowers in Peas.
10. Explain with an example how single genes affect multiple traits and alleles the phenotype of an organism.

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### CHAPTER III

### CHROMOSOMAL BASIS OF INHERITANCE

Two marks

1. Define chromosome theory of inheritance.
2. State the number of chromosomes of the given organism.  
     1.Ophioglossum    2.Arabiadopsis      3.Sugarcane    4.Rice    5.Potato    6.Maize
3. What are fossil genes?
4. State the works of T.H.Morgan.
5. How does Drosophila show complete linkage?
6. What are linkage groups?
7. What are linked genes?
8. What is synteny?
9. What is chiasmata?
10. What is synatonemal complex?
11. Define mutation.
12. What is Holiday junction?
13. How are mutations classified?
14. What is Sharbati Sonara?
15. Give examples of four chemical mutagens.
16. What are co-mutagenes. Give example.
17. What is mutagenesis?
18. What is indel mutation?
19. What is ploidy?
20. Differentiate between Euploidy & Aneuploidy.
21. Distinguish between Monoploidy and Haploidy.
22. What is nullisomy?
23. What is polyploidy?
24. Write the significance of polyploidy?
25. Differentiate between Independent assortment & Linkage
26. What are Okazaki fragments?
27. What is monocistronic mRNA?
28. What is transcription?
29. What is hnRNA?
30. What is a codon?
31. Name the stop codons.
32. What are anticodons?
33. What are polysomes/polyribosomes?
34. What is alternative splicing?
35. Define crossing over.
36. What is a three point test cross?
37. What is the advantage of a three point test cross?

38. How does the strength and weakness of linkage depend on linked genes?.

### **Three Marks**

1. What is map unit.
2. What are multiple alleles?
3. What are the characteristics of multiple alleles?
4. Distinguish between Complete and Incomplete Linkage.
5. List the difference between linkage and crossing over
6. What is the significance of crossing over?
7. What is complete linkage?
8. Explain coupling and repulsion theory.
9. What is synapsis.
10. Distinguish between Sharbati sonara and Castor aruna
11. Distinguish between the impact of ionizing and non ionizing radiation causing mutation.
12. What is recombination?
13. What is recombination frequency?
14. What is genetic mapping?
15. Tabulate the type of mutations based on molecular changes.
16. What is an allopolyploid?
17. What is triticale?
18. What is the significance of ploidy.
19. Differentiate between Exons and Introns.
20. What is the significance of RNA editing?
21. What are the significances of transposons.
22. What are pseudogenes or fossil genes?
23. Tabulate the parallelism between Mendelian factors and chromosome behavior
24. Define plant genome.
25. What is tetrad?
26. Differentiate between Translocation and crossing over.
27. Distinguish between tetrad and bivalent
28. Notes on Colchicine.
29. Define Inversion.
30. Distinguish between Paracentric and Pericentric

### **Five Marks**

1. Whose works supported the chromosomal theory of heredity?. Explain.
2. Write down the steps in the Holliday's hybrid DNA model.



3. Explain sex determination in *Silene latifolia* (*Melandrium album*)
4. Explain the sex determination in Papaya.
5. Explain sex determination in *Sphaerocarpos donnelli*.
6. What are the various types of crossing over?
7. The two loci A/a and D/d are so linked that no recombination is ever observed. If AAdd is crossed to aaDD What phenotypes will be seen in the F<sub>2</sub> and in what proportions.
8. Classify major types of mutations.
9. Define point mutation. And Explain it's types.
10. What are chemical mutagens.
11. Explain translocation.
12. Consider two hypothetical recessive autosomal genes a and b, where a heterozygote is test crossed to a double homozygous mutant. Predict the phenotypic ratios under the following conditions.
  - a) a and b are located on separate autosomes.
  - b) a and b are linked on the same autosome but are so far apart that a cross over occurs between them.
  - c) a and b are linked on the same autosome but are so close together that a cross over almost never occurs.

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#### CHAPTER – IV

#### PRINCIPLES AND PROCESSES OF BIOTECHNOLOGY

TWO MARKS

1. What are the features that differentiate conventional technology from modern technology.
2. Define fermentation.
3. Define SCP
4. Why SCP is not used as alternative source of protein?
5. What are the enzymes required for genetic engineering?
6. What are Palindromic repeats?
7. Define Vector?
8. What is a Plasmid?
9. Define walking genes.
10. Why Transposons are called 'Walking genes'?
11. What are expression vectors?
12. What are Yeast Artificial Chromosome Vector?
13. What are the types of gene transfer method in Plants?
14. Define screening.
15. What are DNA Probes?
16. Name the types of Blotting Techniques.
17. Define Transfection
18. What is genome sequencing?
19. In which plants genome projects have been undertaken.
20. Write the expansion for CRISPR – cas9.
21. Define RNA interference
22. What are transgenic plants?
23. How Bt gene is transferred to Brinjal?
24. Name the Biopolymers.
25. Name the bacteria which are used to produce PHA.
26. What are polylactic acid?
27. What is Biopharming?
28. Name the alga which produces Biofuel.
29. What is 'Golden Rice'

### THREE MARKS

1. What are the industrial uses of microbial enzymes.
2. Name the bacteria used as SCP
3. Name the fungi used as SCP

4. Name the Algae used as SCP
5. Define Genetic Engineering
6. Define blunt end and cohesive end.
7. How Alkaline phosphatase is used in Genetic engineering.
8. Write the importance of Ti plasmid.
9. What are cosmids?
10. What are Bacteriophage Vectors.
11. What is lambda genome.
12. What are Phagemid vectors?
13. What are Bacterial Artificial Chromosome (BAC) Vector?
14. What are shuttle vectors
15. What are Antibiotic resistance markers?
16. Define ELISA.
17. Write the protocol for Glyphosate tolerant potato plant.
18. How Bt toxin acts on insects?
19. Name the plants where beta carotene genes are obtained.
20. Write the protocol for GFP
21. Define Biopiracy.
22. Why E-coli is used in gene cloning experiment?

#### FIVE MARKS

1. What are the major focus of Biotechnology?
2. Write the process of fermentation.
3. Write the procedure of fermentation.
4. Write short notes on primary & secondary metabolites.
5. Write short notes on competent host.
6. Explain Direct gene transfer method in plants.
7. Explain the indirect or vector mediated gene transfer.
8. Explain blue white colony selection method.
9. Explain replica plating with diagram.
10. Explain agarose GEL Electrophoresis.
11. Explain southern blotting techniques.
12. Write short notes on 'BASTA'
13. Write short notes on 'Flavr savr tomato'
14. Write the limitations of Bioremediation.
15. Describe the biological hydrogen production by algae.
16. What is an insertion vector and replacement vector?
17. Write short notes on RNA interference.

18. Write short notes on Dhara mustard hybrid.
19. Write short notes on Biopiracy of Neem.
20. Write short notes on Biopiracy of turmeric.
21. Write a short notes on Biopiracy of Basmatie
22. Write the applications of biotechnology.

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## **CHAPTER - V**

### **PLANT TISSUE CULTURE**

#### **TWO MARKS**

1. Define Totipotency. who proposed this concept?

2. Who first developed interspecific somatic hybrid?
3. What are the constituents of Knops solution?
4. What is meant by explant.
5. List the basic concepts of tissue culture.
6. Define Differentiation.
7. Define Redifferentiation?
8. Define Dedifferentiation ?
9. Name the different types of medium used in plant tissue culture.
10. What is sterilization?
11. Write the growth hormones found in MS (Murashige and Skoog) medium.
12. What is agar?
13. What is Callus?
14. Label the parts A and B
15. What is meant by Hardening?
16. What are the types of tissue culture based on explants?
17. What is cybrid? What is somatic hybridization?
18. Write the required humidity and light intensity for plant tissue culture.
19. What is meant by cell suspension culture?
20. Mention the strategies used to make cell suspension culture more efficient in the production of secondary metabolites.  
Ans : (a). Biotransformation (b). Elicitation (c). Immobilization.
21. Name the chemicals used in the encapsulation of synthetic seeds.
22. What is organogenesis?
23. Why short tip culture method is used to produce virus free plants?
24. What is called cryoprotectants?
25. What are the three parts of patent?
26. What is bio safety?
27. What is meant by bioethics?

### THREE MARKS

1. Mention the contribution of the Botanist Gottlieb Haberlandt.
2. State the three fundamental principles of plant tissue culture.
3. What are the laboratory facilities needed for plant tissue culture?

4. Mention the required culture condition for plant tissue culture.
5. How will you isolate protoplast from leaf tissue?
6. Write the steps involved in the fusion of protoplast in protoplast culture.
7. Draw a flow chart of plant regeneration pathway.
8. What are the applications of somatic embryogenesis ?
9. How will you generate plantlets from callus?
10. Differentiate Somaclonal variation from Gametoclonal variation.
11. Give the protocol for virus free meristem culture?
12. How are artificial seeds produced?
13. What is germplasm conservation?
14. Draw a sketch to show the role of IPR in india?
15. Mention any three Potential risks involved in Biosafety?
16. What are the ethical issues in genomic research?
17. Name the organizations which implement Bio safety guidelines.
18. How development in Bio technology will lead to a new scientific revolution that would change the lives and future people?
19. Describe cell suspension culture.
20. Enumerate different steps in Patenting.

#### **FIVE MARKS**

1. Explain different types of Sterilization methods used in plant tissue culture.
2. Write the applications of plant tissue culture.
3. Draw a schematic diagram to represent micro propagation in Banana.
4. Enumerate the advantages of artificial seeds.
5. Explain the following terms regarding Patent.  
(a). The Grant      (b). The Specification      (c). The Claim.
6. Explain the role of GEAC
7. With the help of a suitable diagram explain different steps involved in Protoplast culture?
8. Write about potential risks and consideration of safety aspects with regard to Bio Safety.

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### **CHAPTER – VI** **PRINCIPLES OF ECOLOGY**

#### **TWO MARKS**

1. Name the types of ecological factors.
2. What is topography? Write the chief topographic factors.
3. Name some free floating hydrophytes
4. Differentiate heliophytes and sciophytes.
5. Comment on Amensalism OR What is antibiosis.
6. Name explain the branches of ecology.
7. Name the organisms which are classified based on the range of tolerance of salinity.
8. What is cladode? Give an example.
9. What are trichophyllous plants? Give an example.
10. How is speed of wind measured?
11. Mention two effects of strong winds.
12. What are sclerophyllous forests?
13. Why is peaty soil ideal for cultivation?
14. What are indicators of fire?
15. Explain the terms : HOLLARD, CHRESARD, ECHARD.
16. Distinguish Holoparasite and Hemiparasite
17. What is heterophylly?
18. Distinguish drought enduring plants and drought resistant plant.
19. What is junglone?
20. What is unique about the stomata seen in xerophytes?
21. Distinguish Phylloclade and Phyllode.
22. What is Proto cooperation?
23. Muthupet, (Thiruvarur district) was less damaged by Gaja cyclone – Why?
24. What is velamen?
25. Define Pneumatophores.
26. What is autochory?
27. What is meant by Pneumatodes? Write their uses.
28. Guess!! Who am I .....? I am dispersed by ant and I have caruncle.
29. Give physiological adaptations of halophytes.
30. What is anemochory? In which plant it is common?
31. Write the mechanism found in the wind dispersal plants.
32. Write short note on : Rhytidome.
33. Name the devices found in zoochory.
34. What is scotactive type of stomata?
35. Mango plants do not and cannot grow in temperate countries like Canada and Germany. Why?
36. Write the diurnal rhythm of flowering.

**SHORT ANSWERS – THREE MARKS.**

1. What is the use of applied ecology or Environmental technology?
2. Name the different types of environmental management and write their uses.
3. What is Paleo climatology? Give an example.
4. Which of the soil solution determines the availability of plant nutrients. Describe.
5. Nitrogen fixation is a symbiotic interaction. Explain your answer with suitable example.
6. Describe predation.
7. Many defense mechanisms are evolved to avoid their predations by plants. Give some examples.
8. Describe breathing roots.
9. Name the plant which consume insects as a source of nitrogen. Write short note on it.
10. Describe two types of roots in epiphytic plant.
11. Write the total amount of water salinity in different water bodies.

**LONG ANSWERS – FIVE MARKS.**

1. How do seeds disperse by water?
2. List the edaphic factors which vegetation affect.
3. How do seeds disperse by wind?
4. Tabulate the biological interaction of biotic factors with examples.
5. What are epiphytes? List the morphological adaptations seen in epiphytes.

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**CHAPTER – VII**  
**ECOSYSTEM**

**TWO MARKS**



1. Define Ecosystem?
2. What is Standing State?
3. What is Biomass?
4. Mention the main Components of Ecosystem?
5. What is photo synthetically Active Radiation (PAR)?
6. Give any two Functions of Ecosystem.
7. Define Productivity.
8. Define Community Productivity?
9. What is meant by Food web?
10. Define Ecological Pyramid?
11. Explain Humification?
12. Define Standing Crop.
13. What are the different types of Law of thermodynamics?
14. Define ten percent Law.
15. What is food chain?
16. What are called detritus food chain?
17. Write schematic representation of flow of food chain?
18. Name the types of Ecological Pyramids?
19. Write the significance of Food web.
20. Who introduced the Concept of Ecological Pyramids? Write the other name for Ecological Pyramids.
21. What are Called Pyramid of Numbers?
22. What are Called Pyramid of Biomass?
23. Diagrammatic representation of decomposition of cycling of nutrients ?
24. What is meant by leaching or Eluviation?
25. Define Limnology?
26. Mention types of Biogeochemical cycles:-
27. Name the Common plants present in the Fresh water swamp forest.
28. What are called Blue carbon Ecosystem?
29. Define Oceanography?
30. What are the uses of mangrove Ecosystem ?
31. What are Called an anthropogenic grassland?
32. What is ecosystem resilience?
33. Write the strategy of Ecosystem management.
34. What are Called plant Succession.
35. What is meant by autotrophic succession.
36. Define Nudation.
37. What is meant by Hydro sere?

38. What are called Reed swamp stage?
39. Write any two plant succession.
40. Explain Invasion.
41. What are called rotting grass land.
42. What is the flap ship species?
43. What is Ecesis?
44. Mention the series stapes of litho sere.
45. Mention the vegetation types of india & Tamil Nadu.

**THREE MARKS:-**

1. Write the types of Carbon.
2. Write about the factors affecting Primary Productivity.
3. How do anthropogenic activities which affect the ecosystem services?
4. Write the difference between macro and micro consumers.
5. Complete the equation: (a).  $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{chlorophyll}}$  \_\_\_\_\_?  
(b). Light energy converted in to \_\_\_\_\_?
6. Draw the flow chart of on classification of plant succession.
7. What is mineralization.
8. Explain the sedimentary cycle with an eco system.
9. List out the characteristics of ecological succession.
10. How are aquatic ecosystem classified?
11. Write the diagraphmatic representation of energy flow.
12. Distinguish between lotic and lentic ecosystem.
13. Explain the causes of succession.

**FIVE MARKS:**

1. Write a few sentences about Adyar poonga.
2. Write about the mangrove ecosystem services.
3. Compare the primary and secondary succession.
4. What are called riparian vegetation & aquatic & semi aquatic vegetation?
5. Draw a diagrammatic sketch on the stratification of pond ecosystem.
6. Give out the line classification of plant succession.
7. Name the forest types in Tamilnadu.
8. Write the classification of productivity of ecosystem.
9. Explain on detail about second law of thermodynamics.
10. Write short notes on the types of succession.
11. Draw the diagrammatic representation of food web in grass land ecosystem.
12. What the different types of ecosystem.

13. Briefly explain any three types of forest vegetation in Tamilnadu.

14. Write the significance of plant succession.

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## **CHAPTER – VIII**

### **ENVIRONMENTAL ISSUES**

#### **TWO MARKS**

1. What are the environmental problems you observe in your locality?

2. What is green house effect?
3. What are green house gases?
4. Where was coral bleaching observed? What is its reason?
5. Define global warming.
6. Which is considered as the major cause of global warming?
7. What are the sources of Methane?
8. Why ozone layer is called ozone shield?
9. What are the characters of ozone?
10. What is called good ozone and what is called bad ozone?
11. What are plant indicators?
12. What is Dobson?
13. Give the objectives of Kyoto Protocol.
14. What are the project activities of CDM.
15. What is meant by agro forestry?
16. What is protein bank?
17. What is meant by Afforestation?
18. Give example for Agro chemicals.
19. Mention the effects of Pesticides in Human being.
20. What are invasive species?
21. How endemic and threat species can be protected?
22. What is Bio magnification?
23. Name the families that contain more endemic species.
24. What are the criteria IUCN has developed to protect the threatend species?
25. Where was Appiko movement launched? Who launched it?
26. What are the reasons for the development of endemic species?
27. Give two examples for endemic plants.
28. Mention the threats for endemic species.
29. What is meant by carbon sink?
30. What is carbon sequencing?
31. What is meant by carbon foot print?
32. What is Biochar? How it is produced?
33. What is meant by sewage treatment?

**THREE MARKS:**

1. How human activities lead to the production of green house effect?
2. What are the effects of global warming?
3. Give the strategies to deal with global warming.
4. What is ozone hole? How it is caused?

5. What are the findings and agreements which lead to the formation of Montreal Protocol?
6. What are plant indicators? Give examples.
7. What is meant by agro forestry? What is its main objective?
8. Mention the types of rehabilitation of degraded forest and recreation forestry?
9. List the major activities of forestry extension centres.
10. What are the objectives of Tamilnadu afforestation project (TAP)?
11. How agro chemicals affect soil fertility?
12. Which invasive plant is native of Mexico? What are the effects of this plant?
13. Draw a flow chart on Bio-diversity conservation.
14. Bring out the differences between In-situ conservation and Ex-situ conservation.
15. What do you know about chipko movement?
16. What are the steps we can follow to reduce carbon foot print?
17. Mention the environmental benefits of Rainwater harvesting?
18. Enumerate the importance of Lakes.
19. What are the methods of solid waste management?
20. Write a note on liquid waste management.
21. What is EIA ? mention its benefits.
22. How Bio-diversity impacts can be assessed?
23. What is remote sensing?
24. Mention the specific uses of remote sensing.
25. Give the importance of geographical information system.
26. What do you know about Bio-monitoring.
27. What is meant by sewage treatment?

#### **FIVE MARKS.**

1. What are the effects of global warming on plants?
2. Mention the effects of ozone depletion.
3. List the various benefits of Agro forestry.
4. Describe the causes and effects of deforestation.
5. Write short notes on social forestry.
6. What are the objectives and achievements of afforestation.
7. How invasive species cause environmental issues? Discuss with examples.
8. Explain different categories of IUCN.
9. Write about waste management.
10. What do you mean by Bio-diversity impact assessment (BIA). How it can be assessed?

## **CHAPTER - IX**

### **PLANT BREEDING**

#### **TWO MARKS**

1. Define organic farming.

2. Mention any two advantages of Bio fertilizer.
3. Name any two tree living nitrogen fixing bacteria.
4. What is the importance of root nodule?
5. What is the role of azolla in the paddy field?
6. What are called Arbuscular mycorrhizae?
7. Give an account of seaweed – kelp.
8. Explain bio pesticides.
9. Name any two green manure crops.
10. What is acclimatization?
11. Write a note on NBPGR?
12. Trichodeema – biocontrol agent – justify this statement.
13. Mention the different types of bio fertilizer.
14. Write the objects of plant breeding.
15. What are the steps involved in Hybridization?
16. Differentiate natural selection and artificial selection.
17. Define pseudo heterosis.
18. Define euheterosis.
19. What are called quarantine?
20. Define mass selection?
21. What are called inter specific hybridization?
22. What are called mutation breeding?
23. Comment on gamma garden or atomic garden.
24. Name some mutagenic agents which induces mutation.
25. Explain – NORIN 10.
26. Differentiate mutational euheterosis and balanced Euheterosis.
27. List out the benefits of seed hardening.
28. Who was called as father of green revolution.
29. Define bio fortification.
30. What are the objectives for breeding to improve nutritional quality?
31. Give an account of Nel Jayaraman.
32. Mention any two methods of New plant Breeding Techniques (NBT).
33. Define Biopriming?
34. What is cisgenesis?
35. What is cryopreservation?
36. Explain seed certification.
37. Explain Nanotechnology in Agriculture.

### THREE MARKS

1. Distinguish between mass selection and pureline selection.

2. Who coined the term mutation breeding? Write its advantages.
3. What are vegetables fortified with nutrients released by the agricultural research?
4. List the plants resistance to insect pests developed through plant breeding.
5. Differentiate the primary introduction and secondary introduction.
6. Explain Ewart method of seed storage.
7. Differentiate the seed pelleting and seed coating.
8. What are the modern plant breeding tools used to improve the crop varieties.
9. Clarify the seeds based on physiological behavior.
10. List out the pest resistant varieties of crops.
11. Mention the role of IARI in bio fortification
12. Explain the Biofortification in sugar cane.
13. What are the vegetables fortified with nutrients released by the agricultural research institute.
14. What is domestication of plants?
15. Tabulate the examples for diseases resistant varieties of crops.
16. Mention three advantages of using bio fertilizer.
17. What are the advantages of using liquid seaweed fertilizer?
18. What are bio pesticides?
19. What are the disadvantages of pureline selection?
20. Write note of Beauveria?
21. What is plant introduction.
22. Give two examples of plants bred for resistance to insect pests.
23. Mention the traditional methods of seed protection.
24. What is green revolution?

#### FIVE MARKS

1. Write the main steps in plant breeding.
2. Explain the steps involved in hybridization.
3. Explain poly ploid breeding.
4. Write the notes on seaweed liquid fertilizer
5. Comment on bio pesticides.
6. Explain the traditional method of seed protection.
7. Classification of seeds based on storage (Flow chart).
8. Explain the methods of seed storage.

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## CHAPTER – X

### **ECONOMICALLY USEFUL PLANTS AND ENTREPRENEURIAL BOTANY**

## TWO MARKS

1. List the uses of cover.
2. Mention the uses of sorghum.
3. What is the significance of green tea?
4. List the advantages of using jute for packing.
5. What is jute?
6. What is vulcanization?
7. Mention some uses of rubber.
8. What is papyrus?
9. Name the plant which has received two GI tags.
10. What is indigo?
11. Mention the active component of chillies and its use.
12. What is morphine?
13. Why is little millet best for diabetics?
14. Which is called miracle rice?
15. Add a note on nutritional content of groundnut.
16. Groundnut oil is considered as premium cooking oil? Give reason.
17. What is toddy?
18. Which spice is known as “queen of spices”. Why is it so called?
19. Name the woods used for making paper pulp.
20. Which medicinal plant is known as “King of bitters”? mention its medicinal importance.
21. Mention the properties of Aloe vera.
22. Which spice is known as “Black gold of India”? write its uses.
23. Which fruit is rich in beta carotenes. Mention its uses.
24. Mention the uses of coffee.
25. What is “Lemon grass”. Give an example.
26. Which medicinal plant is effective against hepatitis B virus. Write its medicinal importance.

## THREE MARKS.

1. Why are cereals attributed as food plants?



2. What is the significance of chick pea?
3. Mention the uses of palmyra.
4. How the oils classified?
5. What is the importance of Stevia?
6. Differentiate spices and condiments.
7. Which wood is carpenters friendly wood? Write its uses.
8. Why 'Madurai Malli' is a pride of Madurai has a district reputation universally?
9. Mention the significant role of medicinal plants.
10. Why do popcorns pop?
11. How is seaweed used as source of fertilizer?

**FIVE MARKS**

1. Explain in detail about Bio-pest repellent and steps involved in preparation OR Explain the preparation of a organic pesticide.
2. Explain the steps involved in Mushroom cultivation.
3. Write a note on dyes.

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