R8388

Sub. Code
525201

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Botany

TAXONOMY OF ANGIOSPERMS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Taxon is a

   (a) Taxonomic unit

   (b) Evolution of plant

   (c) Taxonomic group of any rank

   (d) Species

2. Angiosperm differ from the gynosperms

   (a) having compound leaves

   (b) being evergreen

   (c) being smaller in size

   (d) having ovules enclosed in ovary

3. The Botanical Survey of India Southern Regional Centre located at

   (a) Trichy (b) Madurai

   (c) Tanjore (d) Coimbatore

4. Fruits of the Solanaceae family are

(a) Capsule or berry (b) Pod

(c) Drupe (d) Siliqua

5. Which of the following is the inflorescene of *Solanum nigrum*

(a) Racemose (b) Cymose

(c) Umbel (d) None of the above

6. One of the best method for understanding general relationships of plant is

(a) Phylogeny (b) Cytotaxonomy

(c) Chemotaxonomy (d) Experimental taxonomy

7. Name the organization which provides rules for naming plants

(a) ICN (b) ICZN

(c) ICSB (d) ICTV

8. Specimen used for original publication by the author is

(a) Syntype (b) Isotype

(c) Holotype (d) Lectotype

9. Watermelon belongs to ———— family.

(a) Malvaceae (b) Aizoaceae

(c) Sapindaceae (d) Cucurbitaceae

10. Fruit in family Myrtaceae is

(a) *Syzygium cumini* (b) *Annona reticulate*

(c) *Mangifera indica* (d) *Citrus sinensis*

Part B (5 × 5 = 25)

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

11. (a) Write short notes on Plant taxonomy.

Or

(b) What are the functions of Botanical survey of India?

12. (a) Describe the phylogeny of angiosperms.

Or

(b) Discuss the history of classification

13. (a) Describe principle of priority

Or

(b) Explain syntype and lectotype

14. (a) Write about economic importance of the family poaceae.

Or

(b) How are herbaria classified?

15. (a) Write short notes on Identifying Keys.

Or

(b) Give a short note on important genera and economic importance of Acanthaceae.

Part C (5 × 8 = 40)

Answer any **five** questions.

16. Give an account of International Code of Botanical Nomenclature.

17. Describe advantages and disadvantages of Bentham and Hooker's system of classification.

18. What are the principles International Code of Nomenclature?

19. Write about the general characters of Solanaceae family with floral diagram.

20. Write about the important genera of Cucurbitaceae family.

21. Write descriptive note on floral features of Orchidaceae

22. Give characteristics features of family Poaceaae.

23. Write notes on the following

    (a) Effective publication

    (b) Virtual herbarium

    (c) Role of Botanical Gardens

    (d) Type specimen.

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R8389	Sub. Code
	525202

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Botany

PLANT ANATOMY, EMBRYOLOGY AND MORPHOGENESIS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. The tissue involved in secondary growth is

   (a) Vascular cambium

   (b) Cork cambium

   (c) Pith

   (d) Both (a) and (b)

2. The primary and secondary phloem gets gradually crushed due to the continued formation and accumulation of

   (a) Secondary xylem

   (b) Resin

   (c) Wax

   (d) Bark

3. Lateral roots originate in

(a) Cortex

(b) Endodermal cells

(c) Pericycle

(d) Cork cambium

4. The age of the tree can be determined by

(a) Measuring its diameter

(b) Counting the number of annual rings

(c) Counting the number of leaves

(d) Finding out the number of branches

5. The transfer of pollen from the anther to stigma is called

(a) Pollination (b) Fertilization

(c) Adoption (d) Diffusion

6. The other name for gynoecium is

(a) Pistil (b) Stigma

(c) Androecium (d) Style

7. An Example of Naturally Occurring Parthenocarpic Fruit Is:

(a) Guava (b) Mango

(c) Banana (d) Grapes

8. Which of the following shows double fertilization?

(a) Angiosperms

(b) Gymnosperms

(c) Algae

(d) All of the above

9. Opening and closing of stomata is due to the:

(a) Hormonal change in guard cells

(b) Change in Turgor pressure of guard cells

(c) Gaseous exchange

(d) Respiration

10. The hormone responsible for apical dominance is

(a) IAA (b) ABA

(c) GA (d) Kinetin

Part B (5 × 5 = 25)

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

11. (a) What is the function of the quiescent center?

Or

(b) What are the two types of cambium?

12. (a) Explain vascular differentiation in dicot and monocot roots?

Or

(b) Explain the general characteristics of Acetabularia?

13. (a) Write short notes on parthenocarpy?

Or

(b) Give an account of different types of stomata?

14. (a) Define Apomixis and Apospory?

Or

(b) What is abcission? Explain their role in leaf falling?

15. (a) Write short notes on differentiation?

Or

(b) Give an account of pollen pistil interaction?

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Draw a well labelled diagram of xylem and define it role in transpiration?

17. Describe in detail about the apical meristem of shoot apex?

18. Explain the structural diversity of xylem and phloem?

19. Briefly discuss about the Anamalous secondary growth?

20. Discuss in brief the Double fertilization?

21. Write critical notes on four of the following?

(a) Sap wood

(b) Heart wood

(c) Reaction wood

(d) Growth rings

22. Give a brief account of the structure and development of endosperm and embryo in dicots?

23. Explain the structural organization of dicot and monocot leaves?

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	525203

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Botany

PLANT PHYSIOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Root pressure helps in ascent of sap byss
   (a) Pumping food in phloem
   (b) Pumping sap into xylem in root
   (c) Pumping sap in stem for sending it to roots
   (d) All of the above

2. Cohesive force of water is due to
   (a) O-bonds (b) OH-bonds
   (c) S-bonds (d) H-bonds

3. Which is not a micronutrient?
   (a) Boron
   (b) Zinc
   (c) Magnesium
   (d) Molybdenum

4. Which element is required by the plant for uptake and utilization of calcium and carbohydrate translocation?

(a) Manganese

(b) Boron

(c) Chlorine

(d) Selenium

5. In photosynthesis, energy from light reaction to dark reaction is transferred in the form of

(a) Chlorophyll (b) ATP

(c) ADP (d) RuDP

6. Photosystem II occurs in

(a) Cytochrome

(b) Grana

(c) Stroma

(d) Mitochondrial surface

7. Glycolysis occurs in which part of the cell?

(a) Cytoplasm

(b) Mitochondria

(c) Golgi apparatus

(d) Chloroplast

8. Conversion of glucose to glocoe-6-Phosphate, the first irreversible reaction of glycolysis, is catalyzed by

(a) Phosphofructokinases

(b) Aldolase

(c) Hexokinase

(d) Enolase

9. Presence of this in the seed is linked with dormancy

(a) Abscisic acid (b) Gibberellic acid

(c) Starch (d) Ethylene

10. The hormone which can replace vernalization is

(a) IAA (b) ABA

(c) GA (d) Kinetin

Part B ($5 \times 5 = 25$)

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

11. (a) Define water potential? Describe its components and their interrelationships in plant cells.

Or

(b) Define guttation.

12. (a) Explain the mechanism of photosynthesis.

Or

(b) Differentiate active and passive water absorption.

13. (a) Explain the types of respiration.

Or

(b) Write short notes on Photorespiration and its significance.

14. (a) Explain the process of nitrogen fixation in plants.

Or

(b) Differentiate between uniport, symport, and antiport.

15. (a) Give an account of Photoperiodism.

Or

(b) Define Vernalization and write an advantages.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Write notes on the Mechanism of stomatal movement.

17. Differentiate biotic and abiotic stress and explain the effects of various stresses on morphological, anatomical and biochemical changes in plants.

18. Write a detailed account on C4 and CAM plants in relation to physiological and ecological considerations.

19. Describe the mechanisms of electron and proton transport structure, synthesis and function of ATP

20. Describe the role of Auxins in agriculture. Give its chemical nature, mode of action and physiological effects also

21. Describe the importance of Cytokinin and Brassinosteroids

22. Write on physiological role of Gibberellins, Cytokinin, Abscisic acid and Ethylene.

23. Mechanism and ecological significance of CAM pathway.

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R8391

Sub. Code
525204

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Botany

PLANT BIOCHEMISTRY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. From the biological viewpoint, solutions can be grouped into

   (a) isotonic solution

   (b) Hypotonic solution

   (c) Hypertonic solution

   (d) All of these

2. Genetic information of nuclear DNA is transmitted to the site of protein synthesis by

   (a) rRNA (b) mRNA

   (c) tRNA (d) Polysomes

3. Which of the following is responsible for the mass of an atom?

(a) Only protons

(b) Only neutrons

(c) Neutrons and protons

(d) Protons and electrons

4. The process of synthesis of glucose is referred to as

(a) Gluconeogenesis

(b) neogenesis

(c) glycolysis

(d) saccharification

5. Which amino acid occupies maximum area in Ramachandran plot?

(a) Glycine (b) Methionine

(c) Valine (d) Alanine

6. Which of the following Biomolecules simply refers to as "Staff of life"?

(a) Lipids

(b) Proteins

(c) Carbohydrates

(d) Vitamins

7. In plant cell wall middle lamella is made up of

(a) Calcium pectate

(b) Alanine pectate

(c) Glycine pectate

(d) Phosphorous pectate

8. Epicatechingallate (ECG) is a type of flavonoid, found in which of the following?

(a) Orange (b) Carrot

(c) Berries (d) Green tea

9. Water is liquid at room temperature, the most important reason for this is

(a) High boiling point of water

(b) High melting point of water

(c) High heat of vaporization of water

(d) Cohesive forces due to hydrogen bonds in water

10. How many subunits does ATP molecule has?

(a) Two (b) Three

(c) Five (d) Four

Part B $(5 \times 5 = 25)$

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

11. (a) Write about the importance of biochemistry in agriculture.

Or

(b) Differentiate weak bonds and covalent bonds.

12. (a) Explain structure and functions of ATP.

Or

(b) Explain about mechanism of enzyme action.

13. (a) What is compound lipids explain briefly.

Or

(b) Comment on oxidation of fatty acids.

14. (a) Differentiate mRNA and tRNa

Or

(b) Write about biosynthesis of purine and pyrimidines

15. (a) Briefly describe membrane proteins.

Or

(b) Differentiate cellulose and pectins.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Elucidate the classification of carbohydrates.

17. Explain briefly about secondary metabolites

18. Describe the classification on fatty acids

19. What are the structures of proteins and explain its types

20. Write short notes on the following

(a) β – Oxidation

(b) buffers

(c) Amino acids

(d) Suberin

21. What are the factors that affect enzyme activity

22. Discuss Michaelis-Menton equation

23. Describe the biosynthesis of alkaloids and its significance

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R8392

Sub. Code
525503

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Botany

HERBAL TECHNOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Ayurvedic treatises divide medicine in to ———— canonical components

   (a) Three (b) Five

   (c) Eight (d) Seven

2. In Siddha system, chemical compounds used are _____.

   (a) Sulphate (b) Mercury

   (c) Manganese (d) Aluminium

3. In Apiaceae family members ———— are found predominently

   (a) Phenolic Acids (b) Benzene

   (c) Nutrients (d) None of these

4. The bioactive compound from the Zingiberaceae is _____.

   (a) Diabetins (b) Diaryl heptanoids

   (c) Zentene (d) None of these

5. Alkaloids are naturally occurring organic compounds contains atleast one ———— atom.

(a) Carbon (b) Nitrogen

(c) Calcium (d) Chloride

6. The drug which undergone only the process of collection is called ————.

(a) Drug (b) Active drug

(c) Crude drug (d) Chemical drug

7. Some of the plants produce ———— that can severely harm us.

(a) Insectivore (b) Exudation

(c) Plant Toxins (d) Drugs

8. ———— have a role in defense against pathogens.

(a) Ricin

(b) Potential compounds

(c) Enzymes

(d) Secretions

9. *Alpinia* traditionally fermented with honey to produce ———— wines.

(a) Rendang (b) Ricin

(c) Byais (d) Tom Kha Kai

10. The species "*sylvestre*" means ———— in Latin?

(a) Gurmar (b) "of the forest"

(c) Podapatri (d) Ram's horn

Part B (5 × 5 = 25)

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

11. (a) Briefly discuss about the history and prospectus of Siddha Medicine.

Or

(b) What is herbal Medicine? Explain its Applications.

12. (a) Explain about active compounds present in plants.

Or

(b) Briefly list out the applications of Euphorbiaceae members.

13. (a) What are alkaloids? Add notes on its medicinal uses.

Or

(b) Is there any specific procedure for collection of plants as raw drugs?

14. (a) Write the role of active compounds in poisonous plants.

Or

(b) Why certain secondary metabolites are poisonous in nature?

15. (a) Why medicinal plants are economically important?

Or

(b) Is aromatic plants are medicinal? Explain.

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Write an essay on Ayurvedic system of Medicine.

17. Explain in detail about the medicinal value of Solanaceae family members.

18. Write an essay on classification and properties of drugs.

19. How endangered medicinal plants are conserved? Explain.

20. Write the Agrotechniques developed for Alpinia galangal.

21. Describe the present status and future prospectus of Ayurvedha.

22. Write an essay on Adultration of Medicinal Plants.

23. Write an essay on Lamiaceae family systematic position, diagnostic features and medicinal uses.

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