

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Second Semester)

Branch – BIOCHEMISTRY

ADVANCED PLANT BIOCHEMISTRY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which among the following is the location of photosynthetic pigments in chloroplasts in the form of pigment-protein complexes?
(i) Thylakoids (ii) Grana
(iii) Stroma (iv) Lamellae
- 2 Which of the following hormone is involved in counteracting apical dominance induced by auxin?
(i) IAA (ii) Cytokinin
(iii) Gibberellins (iv) Ethylene
- 3 Among the following find to which the enzyme nitrogenase is extremely sensitive to
(i) Hydrogen (ii) CO₂
(iii) Oxygen (iv) Nitrogen
- 4 The SAR response is dependent on which among the following?
(i) Strigolactones (ii) Brassinosteroids
(iii) Nitrous (nitric) oxide (iv) Salicylic acid
- 5 Transit peptide is located in
(i) C-terminal (ii) N-terminal
(iii) Centre (iv) as domain

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Illustrate the role of photosystem I and photosystem II.
OR
b Explain the occurrence and classification of naturally occurring plant pigments.
- 7 a Enumerate the functions of cytokinins.
OR
b Explain the occurrence, biosynthesis and importance of terpenoids.
- 8 a Discuss the structure and regulation of Nif genes.
OR
b Sketch the conversion of sulfate to cysteine.
- 9 a Plants exhibit induced biochemical defense mechanism. Justify.
OR
b Analyse the hypersensitive response of a plant during a pathogen attacks.
- 10 a Discuss the structure, size and composition of plant mitochondrial DNA.
OR
b Illustrate the structure and role of transit peptide in plants.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Illustrate cyclic photophosphorylation.
OR
b Determine the factors affecting transpiration and elucidate the transpiration mechanism.
- 12 a Interpret the action of auxin in plant growth.
OR
b Justify the role of elicitor molecules in plants during the defense mechanism.
- 13 a Compare the symbiotic and non-symbiotic nitrogen fixation.
OR
b Interpret the role of GOGAT in ammonium assimilation.
- 14 a Elucidate the mechanism behind R gene mediated disease resistance.
OR
b Compare systemic acquired resistance and induced systemic resistance.
- 15 a Analyze the protein import into chloroplast.
OR
b Elucidate the mechanism behind protein import into mitochondria.

Z-Z-Z

END