

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(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 element is located at the centre of the porphyrin ring in chlorophyll?
(i) Magnesium (ii) Manganese
(iii) potassium (iv) calcium
2. Name the precursor of Indole-3-acetic acid
(i) Methionine (ii) Tryptophan
(iii) Glycine (iv) Isopentynyl pyrophosphate
3. What is the function of leghaemoglobin?
(i) Oxygen removal (ii) Inhibition of nitrogenase activity
(iii) Expression of nif gene (iv) Nodule differentiation
4. Which of the following is not related to Necrosis?
(i) Curling of leaves (ii) Death of tissues
(iii) A common symptom of fungal diseases (iv) Discolouration of leaves
5. What is the size of Chloroplast genome ?
(i) 110 – 200 kb (ii) 120 - 200 kb
(iii) 130 – 210 kb (iv) 150 – 210 kb

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Discuss the different types of Photosynthetic pigments.
OR
b Illustrate the pathways of Photorespiration with a neat diagram.
- 7 a What are Phytohormones? Explain the structure and Biosynthesis of Cytokinin.
OR
b Explain the biosynthesis and functions of Flavonoids.
- 8 a Show the process of infection thread and nodule development in symbiotic nitrogen fixation.
OR
b Analyze the ammonia assimilation by GOGAT pathway.
- 9 a Discuss the different mode of pathogen attack in plants briefly.
OR
b Assess the R gene mediated resistance against plant pathogens.
- 10 a Organize the structure and expression of Chloroplast genome with a neat sketch.
OR
b Explain the transport of proteins into mitochondrial matrix.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Analyze the pathways of C4 Plants and comment on its significance.
OR
b Elucidate the types and mechanism of transpiration.
- 12 a Discuss the structure, biosynthesis and functions of Auxin.
OR
b Justify the biological functions of Polyamines and Brassinosteroids.
- 13 a Elucidate the enzymology of nitrogen fixation by the enzyme Nitrogenase.
OR
b Asses the activation, reduction and incorporation of Sulphur into aminoacid.
- 14 a Criticize the induced structural and biochemical defence mechanisms of plants against Pathogens.
OR
b Enumerate the effect of pathogen on plant physiological functions like photosynthesis and respiration.
- 15 a Discuss the transport of protein into the plastids.
OR
b Elucidate the size, structure and composition of plant Mitochondrial DNA.

Z-Z-Z

END