

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – BIOCHEMISTRY

PLANT BIOCHEMISTRY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- Where are the photosynthetic pigments located?
(i) Thylakoids (ii) Nucleus
(iii) Stroma (iv) Cytoplasm
- Name the essential element required for the function of Chlorophyll pigments
(i) Sodium (ii) Potassium
(iii) Calcium (iv) Magnesium
- When CO₂ is added to PEP, the first stable product synthesised is:
(i) Oxaloacetate (ii) Pyruvate
(iii) Glyceraldehyde-3-phosphate (iv) Phosphoglycerate
- Which of the following enzyme is not used in starch hydrolysis?
(i) α – amylase (ii) Glucoamylases
(iii) Papain (iv) Pullulanase
- Which microbe lives in root nodules of plants?
(i) Euglen (ii) Protozoa
(iii) Amoeba (iv) Rhizobium
- What is the function of leghemoglobin in the root nodules of legumes?
(i) Oxygen removal (ii) Nitrogen fixing
(iii) Expression (iv) Nodule formation
- Select the precursor of Indole-3-acetic acid
(i) Methionine (ii) Tryptophan
(iii) Glycine (iv) Isopentynyl pyrophosphate
- What is the main function of Cytokinin?
(i) causing dormancy
(ii) cell movement
(iii) participating in cell division
(iv) induction of cell division and delay in senescence
- What is the main advantage of seed dormancy?
(i) develop healthy seeds (ii) reduce viability
(iii) overcome unfavourable climatic conditions (iv) prevent deterioration of seeds
- Select the photosensitive pigment involved in photoperiodism
(i) Chlorophyll (ii) Phytochrome
(iii) Auxin (iv) Anthocyanin

Cont...

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

- 11 a Explain the structure and function of Chloroplast with a neat diagram.
OR
b State the different factors affecting Photosynthesis.
- 12 a Describe CAM Pathway.
OR
b Bring out the difference between Respiration and Photorespiration.
- 13 a Narrate Non-Symbiotic Nitrogen fixation briefly.
OR
b Summarise the mechanism of Nitrogenase in nitrogen fixation.
- 14 a Explain the physiological functions of Auxin.
OR
b Describe the synthesis and physiological functions of Ethylene.
- 15 a Outline the physiology of seed germination.
OR
b State how Photomorphogenesis is important in plants.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Elucidate the mechanism of ATP formation.
- 17 Discuss the synthesis and degradation of Starch.
- 18 Outline Sulphate activation and reduction.
- 19 Enumerate the synthesis and physiological function of Gibberellin.
- 20 Highlight the role of Senescence in life cycle of plants.

Z-Z-Z

END