

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2015

(UG-CCSS)

Core Course

Botany

BO 6B 09—PLANT PHYSIOLOGY, METABOLISM AND BIOCHEMISTRY

(2012 Admissions)

Time Three Hours

Maximum : 30 Weightage

I. Answer *all* questions. Choose the correct answer :

1 Imbibition is a :

(Physical process ; Chemical process ; Biological process ; Physiological process)

2 Oxygen release in photosynthesis is associated with :

(Cycle electron transport ; Non-cyclic electron transport ; None of these ; Both of these)

3 Rhizobium is a ;

(Free living bacteria ; Symbiotic bacteria ; Parasitic bacteria ; Both free-living and symbiotic bacteria)

4 Which one is an aromatic amino acid ?

(Glycine ; Proline ; Tryptophan ; Serine).

Fill in the blanks :

5 Method of **transfer** of energy between the antenna molecules of **quantasome** is termed as _____

6 Viability of the seeds can be tested quickly using the chemical _____

7 The **reaction** site of beta oxidation is _____

8 Most abundant polysaccharide in nature is _____

Answer in a single word :

9 Name the most abundant protein in plant leaves ?

10 Name the instrument used to test geotropism in plants ?

11 Name the enzyme in the terminal **oxidation** **which** is effected by cyanide poisoning ?

12 Name a **heptose** sugar ?

(12 x $\frac{1}{4}$ = 3 weightage)

Turn over

II. Answer *all* questions. Short answer :

- 13 Describe the process of acidification and de-acidification in plants in connection with CAM metabolism.
- 14 Discuss the significance of 'Red drop' and 'enhancement effect' experiments.
- 15 Differentiate between absorption and adsorption with suitable examples.
- 16 Describe SPAC concept. What is its significance ?
- 17 Explain the process of nitrate assimilation by plants.
- 18 Discuss the evolutionary significance of glycolysis.
- 19 Draw the structure of sucrose.
- 20 What is Glycobiology ? Mention its significance.
- 21 Differentiate between LDL and HDL.

(9 x 1 = 9 weightage)

III. Answer any *five* questions. Short essay :

- 22 Discuss the causes of seed dormancy. Add a note on the methods to overcome it.
- 23 Describe phytochrome. Explain the phytochrome mediated flowering in plants.
- 24 Describe the carrier concept of mineral absorption in plants.
- 25 Explain different types enzyme inhibition with example.
- 26 Briefly explain the biosynthesis of aromatic amino acids.
- 27 Draw the structure of starch and cellulose and differentiate them based on properties function ?
- 28 Describe complex lipids. Add a note on their biological role.

(5 x 2 = 10 weightage)

IV. Answer any *two* questions. Essay :

- 29 Describe different types of transpiration in plants and explain how plants are adapted to reduce it ?
- 30 Write the classification and physiological role of lipids.
- 31 Write an essay on *Legume Rhizobium* interaction and biological nitrogen fixation.

(2 x 4 weightage)