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Name.....00.....

Reg. No.....01.....

**THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2015**

(CUCSS)

Botany

BO 03 CT 09—PLANT PHYSIOLOGY, METABOLISM AND BIOCHEMISTRY

Time : Three Hours

Maximum : 36 Weightage

I. Answer *all* the fourteen questions briefly :

- 1 What is guttation ? How does it differ from transpiration ?
- 2 Explain water potential.
- 3 What is reductive amination ?
- 4 What is hill reaction ? What is its significance ?
- 5 What is meant by phloem loading and unloading ?
- 6 What are allosteric enzymes ?
- 7 How is sucrose synthesized ?
- 8 Explain km value of an enzyme.
- 9 Differentiate between amylose and amylopectin.
- 10 Describe in brief  $\beta$ -pleated structure.
- 11 Explain the structure of adenine.
- 12 What are the functions of alkaloids ?
- 13 What are Zwitter ions ?
- 14 What is meant by anapleurotic reaction ?

(14 × 1 = 14 weightage)

II. Answer any *seven* questions in not more than 100 words :—

- 15 Explain Donnan equilibrium.
- 16 Explain Z-scheme of photosynthesis.
- 17 Explain the role of gibberellins in plants.
- 18 Write notes on phytochromes and its physiological effects.
- 19 Compare  $C_4$  and CAM plants.
- 20 Explain the structure of electron transfer complexes in mitochondria.
- 21 Point out IUB system of enzyme classification.

Turn over

- 22 Explain the biosynthesis of pyrimidines.
- 23 Write an account of classification of amino acids.
- 24 Write a brief account of secondary metabolites in plants.

(7 × 2 = 14 weightage)

III. Answer any *two* questions in 300 words each :

- 25 What are the stresses to which plants are exposed ? Describe the stress tolerance mechanisms found in plants.
- 26 Explain the theories of water absorption by roots.
- 27 Describe the various steps involved in TCA cycle. Add a note on oxidative phosphorylation.
- 28 Write an essay on membrane lipids.

(2 × 4 = 8 weightage)