C 21103 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2017

(CUCBCSS—UG)

Botany

BOT 6B 10—PLANT PHYSIOLOGY AND METABOLISM

Time : Three Hours Maximum : 80 Marks

Section A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Water potential of pure water is ————.
2. Give an example for anti-transpirant.
3. Expand IAA.
4. ———— phytohormone is responsible for de novo synthesis of α-amylase.
5. Name the Prosthetic group of cytochrome oxidase.
6. Define phloem loading.
7. Name any *two* trace elements in plants.
8. How many molecules of ATP are formed when a molecule of glucose is oxidized aerobically ?
9. What is nyctinastic movement in plants ?
10. What is the role of ACP in fatty acid synthesis ?

(10 × 1 = 10 marks)

Section B

Answer **all** *questions.*
Each question carries 2 *marks.*

11. Differentiate between cyclic and non-cyclic photophosphorylation
12. Briefly write the principle of Munch flow hypothesis.
13. Name any *two* merits of transpiration pull theory in ascent of sap.
14. What is facilitated diffusion ?
15. Name the key enzyme involved in biological nitrogen fixation.
16. What is anapleurotic reaction and give an example ?
17. What is Emersion enhancement effect ?
18. Define phloem unloading.

Turn over

19. What is soil plant atmosphere continuum of water ?

20. Differentiate fluorescence from phosphorescence.

(10 × 2 = 20 marks)

Section C

Answer any **six** *questions.*
Each question carries 5 *marks*

21. Explain the relationship between water potential, solute potential and pressure potential.

22. Describe the pathway convert fat in to sugar in germinating seeds.

23. Potassium ions regulate opening and closing of stomata. Explain.

24. Differentiate active mineral uptake from passive mechanism.

25. Enumerate chemiosmotic hypothesis.

26. Justify citric acid cycle is an example of amphibolic pathway.

27. Compare reductive amination with transamination

28. Write the physiological role of cytokinin in plant growth and development.

(6 × 5 = 30 marks)

Section D

Answer any **two** *questions.*
Each question carries 10 *marks.*

29. Outline Hatch and Slack cycle and point out differences from Calvin cycle.

30. Explain the oxidative phosphorylation and ETCs in mitochondria.

31. Describe the biochemistry and genetics of biological nitrogen fixation.

(2 × 10 = 20 marks)