KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Mark scored:

Level : B.Sc.
Year : I
Course : AGRS 105
Semester : II
Exam Roll No. :
Time: 30 mins.
F. M. : 20
Registration No.:
Date :

SECTION "A"
[10Q × 0.5 = 5 marks]

Choose and tick [√] the most appropriate box.

1. The fluidity of the plasma membrane increases with
   [ ] Increase in unsaturated fatty acids in the membrane
   [ ] Increase in saturated fatty acids in the membrane
   [ ] Increase in glycolipid content in the membrane
   [ ] Increase in phospholipid content in the membrane

2. Exchange of gases in photosynthesis and respiration takes place by the principle of
   [ ] permeability [ ] osmosis
   [ ] inhibition [ ] independent diffusion

3. Photophosphorylation takes place in
   [ ] oxysome [ ] ribosome [ ] peroxisome [ ] chloroplast

4. Acid concentration in CAM plants is more at
   [ ] night [ ] day time [ ] dawn [ ] dusk

5. Name the condition in which protoplasm of the plant cell shrinks away.
   [ ] Turgid [ ] Plasmolysis [ ] Flaccid [ ] Rigid

6. Water potential in the leaf tissue is positive during
   [ ] excessive transpiration [ ] low absorption
   [ ] low transpiration [ ] guttation

7. Main source of ATP in a cell is
   [ ] glycolysis [ ] Krebs cycle [ ] ETS [ ] pyruvate oxidation

8. Dwarfness of plant can be controlled by treating it with
   [ ] gibberellic acid [ ] cytokinin [ ] antigibberellin [ ] auxin

9. Apical dominance can be overcome by using
   [ ] auxin [ ] cytokinin [ ] gibberellin [ ] florigen

10. In order to remove seed dormancy by mechanical removing of seed coat is called
    [ ] scarification [ ] stratification
    [ ] photoperiodism [ ] vernalization

SECTION "B"
[10Q × 0.5 = 5 marks]

Fill in the blanks.

11. Seed dormancy is due to the _____.

12. Bakanae disease is associated with the discovery of _____.

13. The unit of water potential is _____.

14. The enzyme rubisco is located on the _____ surface of thylakoid membrane.

15. The end product of glycolysis is _____.

SECTION "C"

[10Q. × 1 = 10 marks]

Define in one sentence.

16. Hydration shell:

17. Abiotic stress:

18. Guttation:

19. Electron transport system:

20. Kranz anatomy:

21. Transpiration:

22. Phytochrome:

23. CAM plants:

24. Water potential:

25. Brassinosteroids:

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F.M. : 55

SECTION "D"
[3Q. × 7 = 21 marks]
(Long answer questions)

1. Draw the well labeled diagram of plasma membrane. Describe the active transport mechanism of the plasma membrane.

2. What is photosynthesis? Explain the steps involved in the dark reaction of photosynthesis.

3. Define phytohormones. Describe various types of phytohormones and their role in crops growth and development.

SECTION "E"
(Short answer questions)

4. Write short notes on: [6Q. × 4 = 24 marks]
   a. Osmosis
   b. Transpiration
   c. Vernalization
   d. Mechanism of stomatal movement
   e. Krebs cycle
   f. Auxin bioassay

5. Give **TWO** major differences between: [2Q. × 2 = 4 marks]
   a. Macronutrient and micronutrient
   b. C_3 and C_4 plants

6. Explain WHY/HOW for the following: [3Q. × 2 = 6 marks]
   a. Chloroplasts are known as 'food factory' of the plant cell.
   b. Mitochondria have evolved from aerobic bacteria.
   c. Glycolysis produces only 2ATP and 2NADH.