

63/1 (SEM-5) CC12/BOTHC5126

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(Held in 2023)

BOTANY

Paper : BOTHC5126

(**Plant Physiology**)

Full Marks : 60

Pass Marks : 24

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct option from the following :

1×5=5

(a) The water potential in the leaf tissue is positive during

(i) excessive transpiration

(ii) low absorption

(iii) low transpiration

(iv) guttation

(b) The pathway of the movement of water through cell wall only is called

(i) symplast pathway

(ii) plasmodesmata pathway

(iii) apoplast pathway

(iv) vacuolar pathway

(2)

(c) Leaf fall starts when the amount of

(i) auxin increases

(ii) auxin decreases

(iii) abscisic acid decreases

(iv) gibberellic acid decreases

(d) In 1971, Jasmonic acid was isolated from the culture filtrate of

(i) fungus

(ii) alga

(iii) moss

(iv) bacterium

(e) Which of the following is a beneficial element?

(i) Na

(ii) Co

(iii) Si

(iv) All of the above

(3)

2. Answer the following :

2×5=10

(a) What is ion influx?

(b) Write two nitrogen deficiency symptoms of plant.

(c) Write very shortly on active absorption and the role of ATP.

(d) Write the importance of seed dormancy.

(e) Who discovered phototropins? Classify its types.

3. Answer any *five* of the following questions :

5×5=25

(a) Write a name of growth retarder. Discuss how it is helpful to plants. 1+4=5

(b) What is transmembrane pathway of ions? Discuss with neat diagram. $1\frac{1}{2}+3\frac{1}{2}=5$

(c) What is ascent of sap? Discuss 'transpiration pull and cohesion of water molecules theory' with diagrams. 2+3=5

(d) What are the essential elements for plants? Mention two deficiency symptoms of Bo, Zn and Mo. 2+3=5

(e) Discuss the Starch \rightleftharpoons Sugar mechanism of stomatal movement. 5

(Turn Over)

(f) "Transpiration is a necessary evil." 5
Explain.

(g) Define vernalization. Write the 2+3=5
advantages of vernalized seeds.

4. Answer any two of the following questions :

$10 \times 2 = 20$

(a) Write short notes on the following :

$2\frac{1}{2} \times 4 = 10$

(i) Antitranspirant

(ii) Phytochrome

(iii) Jasmonic acid

(iv) Chelating agents

(b) What is water potential and how are its components linked with one another?

$1+3+3+3=10$

(c) Write the criteria of essentiality of mineral elements. Discuss bioassay of auxin.

$5+5=10$
