

B.Sc. (Honours) Agriculture Examination, 2018

Semester-II

Course No: CPH-121

(Fundamentals of Crop Physiology)

Signature of Centre Superintendent

Roll No. : (in figure) _____ (in words) _____
Student Index No. _____ Regn. No. _____ of _____

Time : Two Hours

Full marks : 50

Questions are of value as indicated in the margin

Part - I
(Objective and Short Answer Type)
(Use only ball point pen)

Time : 30 minutes

Full marks : 20

- Note:** 1. Answer in question paper itself.
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. **Fill up the blanks with most appropriate words (any ten) :** 0.5×10=5
- (i) In C₃ plants the initial CO₂ acceptor is _____.
 - (ii) _____ is applied to overcome the genetic dwarfism in many draft plants.
 - (iii) Formula of leaf area index (LAI) is _____
 - (iv) _____ hormone is known as anti-senescence hormone.
 - (v) _____ acid is an example of C₄ acid in plants.
 - (vi) In C₄ plants the initial CO₂ acceptor is _____
 - (vii) The net gain of ATP molecules after completion of glycolysis is _____
 - (viii) The % ratio between economic and biological yield is known as _____
 - (ix) Letham (1963) extracted cytokinin from immature karnels of maize known as _____
 - (x) _____ ion plays an important role in stomatal opening and closing in plants.
 - (xi) The full form of DPD is _____.
 - (xii) Hollow stem in cauliflower is caused due to _____ deficiency.
 - (xiii) Lime induced chlorosis is caused due to _____ deficiency.
2. **Tick (✓) the correct alternatives (any ten):** 0.5×10=5
- (i) The maximum value of water potential (Ψ_w) in plants and soil is equal to :
(a) 1.0 (b) Zero (c) - 1.0 (d) 2.0

(2)

- (ii) The optimum Leaf Area Index (LAI) should be (a) 4 – 6 (b) 3 – 5 (c) 2 – 4 (d) 6 – 8
- (iii) Zinc is essential for the synthesis of amino acid :
(a) Methionine (b) Tryphophan (c) Cystine (d) Cysteine
- (iv) The micronutrient that associated with sterility and formation of reproductive organ:
(a) Zn (b) Mo (c) Fe (d) B
- (v) The process that also known as *Terminal Oxidation* :
(a) Photorespiration (b) ETC (c) Glycolysis (d) Kreb's Cycle
- (vi) Richmond – Lang effect in plants is associated with hormone :
(a) Auxin (b) Gibberellin (c) Cytokinin (d) Ethylene
- (vii) Pahala Blight in sugarcane is caused due to deficiency of (a) Zn (b) Mo (c) Mn (d) Fe
- (viii) The pigment that prevent the plants from photo-oxidative damage :
(a) Chlorophylla (b) chlorophyll b (c) Carotenoids (d) Chlorophyll c.
- (ix) Exanthema or die-back in citrus is common due to deficiency of : (a) Cu (b) Zn (c) Fe (d) B
- (x) The hormone that reduces the flower and fruit drops in Mango :
(a) NAA (b) Ethylene (c) Cytokinin (d) ABA
- (xi) Which hormone is also known as “Stress hormone”? (a)Auxin (b) ABA (c) Ethylene (d) Cytokinin
- (xii) “Scotoactive opening closing of stomata” refers to :
(a) Opening of stomata during the day and closing during the night
(b) Closing of stomata during the day and opening during the night.
(c) Opening the stomata in all the day and night
(d) Closing the stomata in all the day and night

3. Match the following (**any ten**) :

1.0×10=10

<u>List-I</u>		<u>List-II</u>	
1)	Passive absorption	a)	Lipophilic
2)	Kreb's cycle	b)	Dimorphic type chloroplast
3)	Kranz anatomy	d)	Amphibolic Pathway
4)	Phytol tail	d)	Donnan's equilibrium
5)	Leaf acidification & de acidification	e)	Morphactin
6)	Synthetic growth regulator	f)	CCC
7)	Growth retardant	g)	CAM
8)	Morphogenesis	h)	Suction Pressure
9)	Cl ⁻ and Mn ⁺⁺	i)	Auxin & Cytokinin
10)	DPD	j)	Oxygen evolution

B.Sc. (Honours) Agriculture Examination, 2018
Semester-II
Course No: CPH-121
(Fundamentals of Crop Physiology)
(Descriptive Type)

Time : 90 Minutes

Full marks : 30

Questions are of value as indicated in the margin

Answer *any four* questions

4. Write short notes **on any five** of the following : 1.5×5=7.5
(i) Antitranspirants (ii) Rubisco (iii) Biosynthetic pathway of Auxin
(iv) β -oxidation of fatty acids (v) Water Potential (vi) Phosphorylation
(vii) Respiratory Quotient (viii) Kranz anatomy
5. Differentiate between the following (**any three**): 2.5×3=7.5
(i) Krebs cycle & Glyoxylate Cycle (ii) Diffusion & Osmosis (iii) ABA & Gibberellins
(iv) Cyclic and non-cyclic photo phosphorylation.
(v) Glycerol phosphate shuttle & Malate Aspartate shuttle
(vi) Crop growth rate and Relative growth rate.
6. (a) Discuss in brief about fatty acid biosynthesis in plants.
(b) What is the significance of Acyl-carnitine shuttle?
7. Mention the criteria of essentiality in mineral elements. Describe the physiological functions and deficiency symptoms of two micro and macro elements in brief. 1.5+6=7.5
8. What are the different types of transpiration? Discuss about the modern theory of Stomatal Opening and closing mechanism. Why transpiration is a necessary evil? 2+4+1.5=7.5
9. Describe the CAM metabolism in plant. Give a comparative statement in brief about C₃, C₄ & CAM plants. 1+3.5+3=7.5
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