Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Agriculture

End Sem (Even) Examination May-2022

AG3CO10 Fundamentals of Crop Physiology

Programme: B.Sc. (Hons.) Branch/Specialisation: Agriculture

Duration: 3 Hrs. **Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Who was firstly given the term mitochondria? **1**
(a) Kollikar (b) C. Benda (c) Altman (d) None of these

ii. In Dorsiventral leaf stomata present on- **1**
(a) Upper surface of leaf
(b) Lower surface of leaf
(c) Both (a) and (b)
(d) None of these

iii. Nitrogen is- **1**
(a) Immobile (b) Less mobile
(c) Highly mobile (d) Mobile

iv. Boron shows deficiency symptoms on- **1**
(a) Lower leaf (b) New leaf
(c) Green veins of old leaf (d) Terminal bud

v. Glycolysis pathway is also called as- **1**
(a) EMP pathway (b) EWP pathway
(c) Glucose pathway (d) Krebs cycle

vi. What is the respiratory quotient of carbohydrate? **1**
(a) 1 (b) 0.1 (c) 2 (d) Zero

vii. Precursor of ethylene- **1**
(a) Methane (b) Ethephon (c) Methionine (d) All of these

viii. Write the name of antigibberellins- **1**
(a) GA3 (b) AMO-1618 (c) TIBA (d) All of these

ix. Growth is a/an- **1**
(a) Reversible process (b) Irreversible process
(c) Both (a) and (b) (d) None of these

P.T.O.

x. Full form of LAD- **1**
(a) Leaf area day (b) Light area duration
(c) Leaf are date (d) None of these

Q.2 i. Write the name of four anti transpirants. **1**
ii. Write down the difference between transpiration and guttation. **2**
iii. Explain in detail the ultrastructure of chloroplast with suitable diagram. **5**
OR iv. Write down the mechanism of stomata opening and closing. **5**

Q.3 i. Define the term hydroponics. **1**
ii. Write down the criteria of essentiality. **3**
iii. Explain in detail about passive transport mechanism. **4**
OR iv. Write down the physiological role and deficiency symptoms of zinc. **4**

Q.4 i. Why Calvin cycle is called C_3 cycle? **2**
ii. Explain various steps of TCA cycle in detail. **6**
OR iii. What do you understand by the cyclic and non-cyclic photophosphorylation? **6**

Q.5 i. Differentiate between growth inhibitor and growth retardant. **2**
ii. Discuss the mode of action of auxin in plants. **2**
iii. Describe senescence and its types in plants. **4**
OR iv. Explain the physiological effects of cytokinin in plants. **4**

Q.6 Attempt any two:
i. Write down only formula and unit of CGR, LAI, RGR and NAR. **4**
ii. Describe various factors affecting growth and development. **4**
iii. What do you mean by S-Shaped growth curve in plants? Explain it in detail. **4**

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Marking Scheme
AG3CO10 Fundamentals of Crop Physiology

Q.1	i.	Who was firstly given the term mitochondria? (b) C. Benda		**1**
	ii.	In Dorsiventral leaf stomata present on- (c) Both (a) and (b)		**1**
	iii.	Nitrogen is- (c) Highly mobile		**1**
	iv.	Boron shows deficiency symptoms on- (d) Terminal bud		**1**
	v.	Glycolysis pathway is also called as- (a) EMP pathway		**1**
	vi.	What is the respiratory quotient of carbohydrate? (a) 1		**1**
	vii.	Precursor of ethylene- (c) Methionine		**1**
	viii.	Write the name of antigibberellins- (b) AMO-1618		**1**
	ix.	Growth is a/an- (b) Irreversible process		**1**
	x.	Full form of LAD- (d) None of these		**1**
Q.2	i.	Any four names of anti transpirants	(0.25 mark * 4)	**1**
	ii.	Transpiration Guttation	1 mark 1 mark	**2**
	iii.	Explanation of ultrastructure of chloroplast Suitable diagram	3 marks 2 marks	**5**
OR	iv.	Mechanism of stomata opening Mechanism of stomata closing	2.5 marks 2.5 marks	**5**
Q.3	i.	Hydroponics	1 mark	**1**
	ii.	Any three points on the criteria of essentiality	(1 mark * 3)	**3**
	iii.	Passive transport mechanism	4 mark	**4**
OR	iv.	Physiological role Deficiency symptoms	2 marks 2 marks	**4**
Q.4	i.	Calvin cycle is called C_3 cycle	2 marks	**2**
	ii.	Steps of TCA cycle Diagram	3 marks 3 marks	**6**
OR	iii.	Cyclic photophosphorylation Noncyclic photophosphorylation	3 marks 3 marks	**6**
Q.5	i.	Growth inhibitor Growth retardant	1 mark 1 mark	**2**
	ii.	Mode of action of auxin in plants	2 marks	**2**
	iii.	Senescence Its types	2 marks 2 marks	**4**
OR	iv.	Physiological effects of cytokinin	4 marks	**4**
Q.6		Attempt any two:		
	i.	Formula of CGR, LAI, RGR and NAR Unit of CGR, LAI, RGR and NAR	(0.5 mark *4) (0.5 mark *4)	**4**
	ii.	Factors affecting growth Factors affecting development	2 marks 2 marks	**4**
	iii.	S-Shaped growth curve Explanation of it in detail	2 marks 2 marks	**4**

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