Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Agriculture

End Sem (Even) Examination May-2019

AG3CO10 Fundamentals of Crop Physiology

Programme: B.Sc. (Ag.) 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. Credit for discovery of cell goes to- **1**

(a) Robert Brown (b) Robert hooke

(c) Von Mohal (d) Robertson

ii. Osmotic pressure is higher in- **1**

(a) Isotonic solution (b) Hypertonic solution

(c) Hypertonic solution (d) None of these

iii. Example of micronutrient or trace elements are- **1**

(a) Cl and Mo (b) ^{32}P and ^{45}Ca

(c) N, P and K (d) All of these

iv. Transport of ions through channels is always- **1**

(a) Passive (b) Active

(c) Both (a) and (b) (d) None of these

v. Photosynthesis is- **1**

(a) Catabolic process (b) Anabolic process

(c) Amphibolic process (d) None of these

vi. How much energy is released during complete aerobic oxidation of one molecule of glucose? **1**

(a) 686 Kcal. (2868KJ) (b) 586 Kcal. (2459KJ)

(c) 786 Kcal. (3286KJ) (d) None of these

vii. Fats are found in abundance in plants specially in- **1**

(a) Reproductive tissues (b) Vegetative tissues

(c) Meristematic tissues (d) All of these

P.T.O.

	viii.	Phytoharmons are- (a) Inorganic substances (b) Organic substance (c) Both (a) and (b) (d) None of these	**1**
	ix.	Which of the following terpenoids or their derivatives have primary role in growth and development of plants? (a) Gibberellins & abscisic acid (b) Steroids & carotenoids (c) Phytol (d) All of these	**1**
	x.	Growth in plants is_____ in nature. (a) Diffused (b) Localized (c) Unlimited (d) Both (b) and (c)	**1**
Q.2	i.	What is plant cell?	**1**
	ii.	Describe the structure of a typical mitochondrion?	**3**
	iii.	Describe the structure and function of plasma membrane?	**4**
OR	iv.	Explain the process of the absorption of water and the factors affecting the rate of absorption?	**4**
Q.3	i.	What are essential elements in plant nutrition?	**1**
	ii.	Differentiate between micronutrients and macronutrients?	**3**
	iii.	Explain the role of all macro nutrients and show their deficiency symptoms that affects plant growth in brief.	**4**
OR	iv.	Describe the criteria of essentiality given by Arnon and Stout (1939). Explain the mechanism of nutrient uptake by plants in brief diagrammatically with application of mechanistic reactions to absorption.	**4**
Q.4	i.	What are the raw materials of photosynthesis?	**1**
	ii.	Write short notes on path of carbon in C3 and C4 plants?	**3**
	iii.	Describe cyclic and non-cyclic electron transport and Photophosphorylation?	**4**
OR	iv.	Describe Krebs cycle and explain the function of various enzymes taking part in it?	**4**
Q.5	i.	Write short note on fat metabolism?	**1**

	ii.	Discuss growth hormones and their role in the life of plants?	**3**
	iii.	What are auxins? Describe their mechanism of action and physiological effects in higher plants?	**4**
OR	iv.	Describe the Beta-Oxidation pathway of fatty acids. Explain structure of liquids?	**4**
Q.6	i.	Write short note on Grand period of growth?	**1**
	ii.	Explain and draw growth curve of an annual plant?	**3**
	iii.	Explain on cropping again & again the hedge plants get dense?	**4**
OR	iv.	What do you understand by growth and development? Discuss the view on growth analysis in crop plant that affects crop productivity in brief.	**4**

******

Marking Scheme
AG3CO10 Fundamentals of Crop Physiology

Q.1	i.	Credit for discovery of cell goes to- (b) Robert hooke		**1**
	ii.	Osmotic pressure is higher in- (b) Hypertonic solution		**1**
	iii.	Example of micronutrient or trace elements are- (a) Cl and Mo		**1**
	iv.	Transport of ions through channels is always- (a) Passive		**1**
	v.	Photosynthesis is- (b) Anabolic process		**1**
	vi.	How much energy is released during complete aerobic oxidation of one molecule of glucose? (a) 686 Kcal. (2868KJ)		**1**
	vii.	Fats are found in abundance in plants specially in- (a) Reproductive tissues		**1**
	viii.	Phytoharmons are- (b) Organic substance		**1**
	ix.	Which of the following terpenoids or their derivatives have primary role in growth and development of plants? (d) All of these		**1**
	x.	Growth in plants is_____ in nature. (d) Both (b) and (c)		**1**
Q.2	i.	Plant cell		**1**
	ii.	Structure of a typical mitochondrion?		**3**
	iii.	Structure of plasma membrane	2 marks	**4**
		Function of plasma membrane	2 marks	
OR	iv.	Process of the absorption of water	2 marks	**4**
		Factors affecting the rate of absorption	2 marks	
Q.3	i.	Essential elements in plant nutrition		**1**
	ii.	Differentiate between		**3**
		Micronutrients	1.5 marks	
		Macronutrients	1.5 marks	
	iii.	Role of all macro nutrients	3 marks	**4**
		Deficiency symptoms	1 mark	
OR	iv.	Criteria of essentiality	1 mark	**4**
		Mechanistic reactions	1 mark	
		Mechanism of nutrient uptake	2 marks	
Q.4	i.	Raw materials of photosynthesis		**1**
	ii.	Path of carbon in C3	1.5 marks	**3**
		Path of carbon in C4 plants	1.5 marks	
	iii.	Cyclic electron transport	1 mark	**4**
		Non-cyclic electron transport	1 mark	
		Photophosphorylation	2 marks	
OR	iv.	Krebs cycle	2 marks	**4**
		Function of various enzymes taking part in it	2 marks	
Q.5	i.	Fat metabolism		**1**
	ii.	Growth hormones	1.5 marks	**3**
		Their role in the life of plants	1.5 marks	
	iii.	Auxins	1 mark	**4**
		Mechanism of action	1.5 marks	
		Physiological effects in higher plants	1.5 marks	
OR	iv.	Beta-Oxidation pathway of fatty acids	2 marks	**4**
		Structure of liquids	2 marks	
Q.6	i.	Grand period of growth		**1**
	ii.	Growth curve	2 marks	**3**
		Growth curve of an annual plant	1 mark	
	iii.	Cropping again	2 marks	**4**
		Again the hedge plants get dense	2 marks	
OR	iv.	Growth and development	1 mark	**4**
		Growth analysis in crop plant that affects crop productivity	3 marks	

******