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

Enrollment No.....

Faculty of Agriculture

End Sem (Odd) Examination Dec-2019

AG3CO02 Fundamentals of Plant Biochemistry & Biotechnology

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. Which one is the heaviest particulate component of the cell? **1**

(a) Nucleus (b) Cytoplasm

(c) Mitochondria (d) Golgi apparatus

ii. The phenomenon of osmosis is opposite to that of - **1**

(a) Diffusion (b) Effusion (c) Affusion (d) Co-agulation

iii. Human heart muscle contains – **1**

(a) D- Ribose (b) D- Lyxose (c) D- Xylose (d) D- Arobinose

iv. Lipoprotein present in cell membrane is – **1**

(a) Hydrophilic (b) Hydrophobic

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

v. All α – amino acids are optically active except

(a) Glycine (b) Alanine (c) Serine (d) Phenylanine

vi. The three important unit of DNA are – **1**

(a) Bases, 2- deoxyribose and phosphoric acid

(b) Base, ribose and phosphoric acid

(c) Bases, 3- deoxyribose and phosphoric acid

(d) All of these

vii. An example of extra cellular enzyme is- **1**

(a) Glucokinase (b) Hexokinase

(c) Glucose-6-phosphate (d) Pepsin

viii. Which is not the glycogenic substance in human being? **1**

(a) Lactose (b) Propionate

(c) Amino acid (d) Glycerol

P.T.O.

	ix.	PCR is a – (a) DNA degradation technique (b) DNA amplification technique (c) DNA sequencing technique (d) All of these	**1**
	x.	Batch culture is type of suspension culture where (a) Medium is continuously replaced (b) Medium is loaded only at the beginning (c) No depletion of medium occurs (d) Cellular wastes are continuously removed and replaced	**1**
Q.2	i.	What is pH?	**1**
	ii.	What is physiological salt solution? For which purpose it is used.	**2**
	iii.	Who introduced biochemistry? What is the impact and importance of biochemistry in agriculture?	**5**
OR	iv.	Described the properties and importance of water?	**5**
Q.3	i.	Define photosynthesis.	**1**
	ii.	Write short notes on: Iodine number and Acid Value	**3**
	iii.	What are carbohydrates? How are they classified?	**4**
OR	iv.	What is soap? Explain cleansing action of Soap?	**4**
Q.4	i.	Distinguish between DNA and RNA	**2**
	ii.	What are Amino acids? Describe two methods for their synthesis and explain Zwitter ions.	**6**
OR	iii.	What are proteins? What do you understand by the primary and secondary structure of proteins? How is their primary structure established?	**6**
Q.5	i.	Write notes on – (a) Co- enzyme (b) Lysosom	**2**
	ii.	Difference between Anabolism and Catabolism	**2**
	iii.	What is Terpenoids and importance of Terpenoids in food and pharmaceutical industries.	**4**

OR	iv.	Explain biosynthesis of fatty acids and tri acyl glycerol.	**4**
Q.6		Attempt any two:	
	i.	Explain Cell suspension culture and pollen culture and their applications.	**4**
	ii.	Described Synthetic seeds and Embryo rescue and its importance.	**4**
	iii.	Write notes on – (a) Recombinant DNA method (b) PCR Techniques	**4**

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Marking Scheme

AG3CO02 Fundamentals of Plant Biochemistry & Biotechnology

Q.1	i.	Which one is the heaviest particulate component of the cell? (a) Nucleus		**1**
	ii.	The phenomenon of osmosis is opposite to that of - (a) Diffusion		**1**
	iii.	Human heart muscle contains – (c) D- Xylose		**1**
	iv.	Lipoprotein present in cell membrane is – (c) Both (a) and (b)		**1**
	v.	All α – amino acids are optically active except (a) Glycine		
	vi.	The three important unit of DNA are – (a) Bases, 2- deoxyribose and phosphoric acid		**1**
	vii.	An example of extra cellular enzyme is- (d) Pepsin		**1**
	viii.	Which is not the glycogenic substance in human being? (b) Propionate		**1**
	ix.	PCR is a – (b) DNA amplification technique		**1**
	x.	Batch culture is type of suspension culture where (b) Medium is loaded only at the beginning		**1**
Q.2	i.	Define pH	1 mark	**1**
	ii.	Definition	1 mark	**2**
		Purpose	1 mark	
	iii.	Biochemistry	1 mark	**5**
		Impact	2 marks	
		Importance	2 marks	
OR	iv.	Properties	2.5 marks	**5**
		Importance of water	2.5 marks	
Q.3	i.	Define photosynthesis.	1 mark	**1**
	ii.	Write short notes on:		**3**
		Iodine number	1.5 marks	
		Acid Value	1.5 marks	
	iii.	Carbohydrates	1 mark	**4**
		Classification	3 marks	
OR	iv.	Soap	2 marks	**4**
		Cleaning action	2 marks	
Q.4	i.	Two differences DNA and RNA	(1 mark*2)	**2**
	ii.	Amino Acids	2 marks	**6**
		Methods	2 marks	
		Zwitter ions	2 marks	
OR	iii.	Proteins	1 mark	**6**
		Structure	4 marks	
		St. Establishment	1 mark	
Q.5	i.	Write notes on –		**2**
		(a) Co- enzyme	1 mark	
		(b) Lysosom	1 mark	
	ii.	Difference (Any two)	(1 mark*2)	**2**
	iii.	Terpenoids	1 mark	**4**
		Importance	3 marks	
OR	iv.	Biosynthesis of fatty acids	2 marks	**4**
		Tri acyl glycerol.	2 marks	
Q.6		Attempt any two:		
	i.	Cell suspension culture	1 mark	**4**
		Pollen culture	1 mark	
		Applications.	2 mark	
	ii.	Synthetic seeds	2 marks	**4**
		Embryo rescue and its importance.	2 marks	
	iii.	Write notes on –		**4**
		(a) Recombinant DNA method	2 marks	
		(b) PCR Techniques	2 marks	

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