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

Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2018

AG3CO02 Elementary Plant Biochemistry

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

Duration: 3 Hrs. **Maximum Marks: 60**

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. The pH of pure water is normal, the best explanation for this is **1**

(a) The pH of pure water is 7

(b) In pond water the concentration of H^+ and OH^- are same

(c) Water do not contain free H^+ and OH^- ions

(d) Water will never ionize

ii. Buffers are mixture of **1**

(a) Strong acid and strong base

(b) Strong acid and weak base

(c) Weak acid and their conjugate base

(d) Weak base and their conjugate acid

iii. Which of the following is an epimeric pair? **1**

(a) D-glucose and D-Mannose (b) D-glucose and D-Gulactose

(c) D-glucose and L-glucose (d) Both (a) and (b)

iv. Number of miligrams of KOH required to neutralize fatty acid present in 1 gm of fat is called **1**

(a) Potassium number (b) Acid number

(c) Sapanification number (d) Iodin number

v. Peptide bond is **1**

(a) Rigid with partial double bond character

(b) Planar, Covalent

(c) Covalent

(d) All of these

P.T.O.

vi. A nucleoside is composed of **1**
(a) A base + a sugar (b) A base + a sugar + phosphate
(c) A base + a phosphate (d) None of these

vii. Enzymes **1**
(a) Do not require activation energy
(b) Do not change requirement of activation energy
(c) Increase requirement of activation energy
(d) Lowest requirement of activation energy

viii. Which of the following are examples of alkaloids? **1**
(a) Quinine (b) Morphine (c) Heroin (d) All of these

ix. Which of the following amino acids can form hydrogen bonds with their side (R) groups? **1**
(a) Asparagines (b) Aspartic acid
(c) Glutamine (d) All of these

x. Fatty acid oxidation in active and operative is **1**
(a) Glyoxysoms (b) Mitochordina
(c) Cytosal (d) Cytoplasm

Q.2 i. Why is mitochondria called as the power house of the cell? **2**
ii. Describe the structure of cell walls in brief. **3**
iii. Name of the different types of plastids present in plant cell and explain their function. **5**
OR iv. Describe the structural sub divisions of a cell as seen under electron microscope. **5**

Q.3 i. Define the Reducing Sugar. **2**
ii. How are lipids classified? Explain with examples. **8**
OR iii. Compare the structural differences between amylose, amylopectin and cellulose. **8**

Q.4 i. Define the peptide. **3**
ii. How proteins are classified based on solubility and functions? **7**
OR iii. Compare the structure of features of different RNAs and explain their functions. **7**

Q.5 i. Define the holoenzyme. **4**
ii. Explain the mechanism of enzyme action with energy diagram. **6**
OR iii. List five important secondary metabolites and their industrial use. **6**

Q.6 Attempt any two:
i. Write short note on Oxidative phosphorylation. **5**
ii. What is the importance of glyoxylate cycle in plants? Sketch the reactions of the cycle. **5**
iii. Write the components of electron transport chain and indicate the flow of electrons and the site of ATP formation. **5**

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Marking Scheme

AG3CO02 Elementary Plant Biochemistry

Q.1	i.	The pH of pure water is normal, the best explanation for this is (b) In pond water the concentration of H^+ and OH^- are same		**1**
	ii.	Buffers are mixture of (c) Weak acid and their conjugate base		**1**
	iii.	Which of the following is an epimeric pair? (d) Both (a) and (b)		**1**
	iv.	Number of miligrams of KOH required to neutralize fatty acid present in 1 gm of fat is called (c) Sapanification number		**1**
	v.	Peptide bond is (d) All of these		**1**
	vi.	A nucleoside is composed of (a) A base + a sugar		**1**
	vii.	Enzymes (d) Lowest requirement of activation energy		**1**
	viii.	Which of the following are examples of alkaloids? (d) All of these		**1**
	ix.	Which of the following amino acids can form hydrogen bonds with their side (R) groups? (d) All of these		**1**
	x.	Fatty acid oxidation in active and operative is (a) Glyoxysoms		**1**
Q.2	i.	Mitochondria called as the power house of the cell		**2**
	ii.	Structure of cell walls		**3**
	iii.	Different types of plastids present in plant cell Function.	2.5 marks 2.5 marks	**5**
OR	iv.	Structural sub divisions of a cell		**5**
Q.3	i.	Reducing Sugar.		**2**
	ii.	Lipids classified Examples.	4 marks 4 marks	**8**
OR	iii.	Structure Differences b/w amylose, amylopectin and cellulose	2 marks 6 marks	**8**
Q.4	i.	Peptide.		**3**
	ii.	Solubility Functions	3.5 marks 3.5 marks	**7**
OR	iii.	Structure of features of different RNAs Functions.	3.5 marks 3.5 marks	**7**
Q.5	i.	Holoenzyme.		**4**
	ii.	Mechanism of enzyme action Energy diagram.	4 marks 2 marks	**6**
OR	iii.	Five important secondary metabolites Industrial use	3 marks 3 marks	**6**
Q.6		Attempt any two:		
	i.	Oxidative phosphorylation Chart	2.5 marks 2.5 marks	**5**
	ii.	Importance of glyoxylate cycle in plants Reactions of the cycle	2.5 marks	**5**
	iii.	Components of electron transport chain Flow of electrons	2.5 marks 2.5 marks	**5**

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