B.Sc.(Ag.) Honours Semester– I Examination, 2014

Course No. : ACB –111 (Agricultural Biochemistry)

(Old Syllabus)

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)
Answer all questions

Time : 30 minutes **Full marks : 20**

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

1. Write True (T) or False (F) for the following: 1.0×3=3

(i) Glycolysis is an aerobic process ☐

(ii) The reaction rate is directly proportional to the concentration of enzyme in presence of excess substrate molecules. ☐

(iii) Phototrophic cells use water and CO_2 for the synthesis of glucose. ☐

2. Fill in the blanks with suitable answer. 1.0×3=3

(i) A protein having more than one polypeptide chain is called a _____ protein.

(ii) Generation of glucose from non-carbohydrate sources is called _____.

(iii) One turn of β-DNA contain _____ pairs of nucleotides.

3. Put tick (√) mark to the correct answer 1.0×4=4

(i) In amylopectin _____ bond links the glucose monomers at branching.
(a) $\alpha 1 \rightarrow 4$ (b) $\beta 1 \rightarrow 4$ (c) $\alpha 1 \rightarrow 6$ (d) none.

(ii) Fatty acid degradation occurs in _____.
(a) nucleus (b) cytosol (c) mitochondria (d) plastid.

(iii) Carbohydrate synthesis occurs in _____.
(a) nucleus (b) cytosol (c) mitochondria (d) plastid.

(iv) Glycolysis occurs in _____.
(a) nucleus (b) cytosol (c) mitochondria (d) plastid.

4. Answer very briefly (*any five*) 2.0×5=10

(i) Mitochondria
(ii) Plastid
(iii) Buffer
(iv) Activation energy
(v) Functional-group isomers
(vi) Reducing sugar
(vii) DNA helical structure

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Part–II

(Descriptive Type)

Time : 1.5 Hours **Full marks : 30**

Questions are of value as indicated in the margin.

Answer ***any three*** questions from the following 10×3=30

5. Describe electron transport chain. 10

6. Describe the effect of pH, temperature, enzyme concentration and substrate concentration on enzyme activity, using illustrations. 10

7. Write the sequence of reactions in glycolysis, including the enzymes catalyzing each reaction. 10

8. Explain the amino acid titration curve and how the isoelectric point is determined for a simple amino acid containing one $-NH_2$ & one –COOH groups. 5+5=10

9. Explain briefly (a) Triose phosphate isomerase 2.5×4=10
   (b) Light reaction in Photosynthesis
   (c) Peptide bond
   (d) Transamination
