KERALA AGRICULTURAL UNIVERSITY 2005 - S2

B.Sc. (Ag) 2005 Admission II Semester Final Examination, October 2006

Chem 1202 Max. Marks: 60

Elementary Biochemistry (2+1) Time: 2 ½hours

PART – A

I. Answer any TWENTY questions **(20 x 0.5 = 10)**

a) **Fill up the blanks**

1. The most common microfibrillar polysaccharide found in the plant kingdom is ----------
2. A sugar which rotates the plane polarized light clockwise is known as ·····
3. A trisaccharide contains -------- monosaccharides.
4. The process of alkali hydrolysis of oil is called ----------
5. During denaturation of protein -------- bond is not broken.

b) **State True or False**

6. Saturation means absence of double bonds or triple bonds in structure.
7. Linoleic acid is a polyunsaturated fatty acid.
8. The competitive inhibitor for succinate dehydrogenase is malic acid.
9. NADPH is produced in the pentose phosphate pathway of glucose catabolism.
10. Light reaction is the process in which chemical energy is converted to light energy.

c) **Choose the correct answer:**

11. RNA primer formed during DNA synthesis is removed by

    a) Primase b)DNA Polymerase I c) DNA Polymerase II d) DNA Polymerase III

12. Trypsin hydrolyses a peptide bond on the carboxyl side of

    a) Arginine b) Proline c) Leucine d) phenyl alanine

13. The enzyme which catalyses the hydrolysis of the fatty acids in the 2 or β - position of phospholipids is

    a) Phospholipase A b) Phospholipase B c) Phospholipase C d) Phospholipase D

14. The other name of Hatch – Slack pathway is

    a) Calvin cycle b) C_3 pathway c) C_4 pathway d) CAM pathway

15. Para amino benzoic acid (PABA) is a constituent of

a) Folic acid b) Coenzyme A c) Lipoic acid d) Cyanocobalamin

d) Give the answer in one word.

16. To which group aldolase belongs in enzyme classification?
17. Name the essential fatty acid having 18 carbon atoms and 3 double bonds.
18. Name the strong bond in secondary structure of protein other than peptide bond.
19. What is the name of the dehydrogenase involved in ammonia assimilation?
20. Give the general name for the enzymes that hydrolyse the internal peptide bonds of a protein.

PART – B

II. Give short answers in one or two sentences for FOURTEEN of the following.

(14 x 1 =14)

a) Distinguish between

1. Glucose and Fructose
2. RNA and DNA
3. Glutamate synthase and Glutamine synthase
4. Lipoprotein and Glycoprotein
5. Milk protein and milk sugar

b) Define the following

6. Reducing sugar
7. Fats
8. Holoenzyme
9. Phenols
10. Vitamin

c) Give reasons for the following

11. Sucrose is a non reducing sugar
12. Phenylalanine is an aromatic aminoacid
13. Calvin cycle is known as C_3 pathway
14. Activation of amino acids

PART - C

III. Write short notes on any EIGHT of the following **(8 x 2 = 16)**

1. Structure of cell membrane
2. Mutarotation
3. Essential amino acids
4. Denaturation of Proteins
5. RUBP Carboxylase
6. Waxes
7. Competitive inhibition
8. Coenzymic role of NAD
9. Oxidative Phosphorylation
10. Central dogma of life

PART – D

IV. Write short essays FIVE of the following **(5 x 4 = 20)**

1. Define secondary metabolites. Describe the biological significance and uses of alkaloids.
2. How are proteins biosynthesized? Describe in detail.
3. Describe in detail the IUB classification of enzymes.
4. Explain cyclic and noncyclic photophosphorylation.
5. Discuss the structure of proteins in four different levels.
6. Draw a neat labeled diagram of a mitochondrion showing its inner structures in detail. Explain the functions of mitochondria.