

**B.Sc. (Part-I) Semester-II Examination**  
**2S : FOOD SCIENCE**  
**(Nutritional Biochemistry of Foods)**

Time : Three Hours]

[Maximum Marks : 80

**Note :—** (1) All questions are compulsory.

(2) Draw a neat and labelled diagram wherever necessary.

1. (A) Fill in the blanks :—

2

(i) \_\_\_\_\_ are known as building blocks of body.

(ii) \_\_\_\_\_ is the main source of energy for brain.

(iii) The amino acids that are necessary to include in diet are \_\_\_\_\_ amino acids.

(iv) Carbohydrate is stored in muscle and liver as \_\_\_\_\_.

(B) Choose the correct alternative :—

2

(i) \_\_\_\_\_ can not be digested by human.

(a) starch

(b) cellulose

(c) alcohol

(d) protein

(ii) HCl is the constituent of \_\_\_\_\_.

(a) Gastric juice

(b) Pancreatic juice

(c) Bile salts

(d) Saliva

(iii) Spectrophotometry uses the principle of :

(a) Beer-Lambert's law

(b) Newton's law

(c) Michalis-Menton equation

(d) Avogadro No.

(iv) The fatty acids containing double or triple bonds :

(a) Saturated fatty acids

(b) Unsaturated fatty acids

(c) Essential fatty acids

(d) Non-essential fatty acids

(C) Answer in **ONE** sentence :—

4

(i) How many ATP are synthesized during glycolysis ?

(ii) What is NPU in protein nutrition ?

(iii) Define metabolism.

(iv) Define autocatalysis of enzymes.

2. Give the functions of proteins and describe its digestion and absorption.

12

**OR**

Explain urea cycle outline with the enzymes and the reactions involved.

12

3. (A) Explain digestion of carbohydrates with the enzymes involved. 4  
(B) Give the importance and functions of carbohydrates. 4  
(C) Give the outline and energetics of TCA cycle. 4

OR

- (P) Explain the reactions of glycolysis. 4  
(Q) Give the synthesis of glycogen from glucose. 4  
(R) Enlist the various paths involved in carbohydrate metabolism. Give the energetics of glycolysis. 4  
4. (A) Define enzymes. What are the general characteristics of enzymes ? 4  
(B) What are apoenzymes and holoenzymes ? Describe coenzymes. 4  
(C) Describe the composition and functions of gastric and pancreatic juice. 4

OR

- (P) Explain the effect of temperature on enzyme activity. 4  
(Q) Explain the reaction specificity of enzymes. 4  
(R) Give the classification of enzymes. 4  
5. (A) Give the classification of lipids in brief. 4  
(B) Give the important functions of lipids. 4  
(C) Explain the effects of excess fats in body. 4

OR

- (P) Describe the reactions in  $\beta$ -oxidation of fatty acids. 4  
(Q) Explain digestion of lipids. 4  
(R) Define essential/non-essential, saturated/unsaturated fatty acids with examples. 4  
6. Give an account of functions, sources and deficiency symptoms of any two vitamins. 12

OR

- Give an account of functions, sources and deficiency symptoms of any two minerals. 12  
7. (A) What is chromatography ? Give the types with uses. 4  
(B) Describe electrophoresis in brief. 4  
(C) Explain importance of water in nutrition. 4

OR

- (P) Explain paper chromatography with principle in brief. 4  
(Q) Explain spectrophotometry. 4  
(R) Define calorimetry and Elisa with uses. 4