

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 β -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