



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 2nd Semester Examination, 2022

FNTACOR04T-FOOD AND NUTRITION (CC4)
HUMAN PHYSIOLOGY

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Answer any four questions from the following

10×4 = 40

1. (a) What is a Sarcomere? 3+(3+4)
(b) Describe the structure of a neuromuscular junction in skeletal muscles and discuss the mechanism of nerve impulse transmission through this junction.
2. (a) Discuss the mechanism of excitation-contraction coupling in skeletal muscle contraction. 6+(2+2)
(b) What are meant by chronaxie and rheobase?
3. (a) What is pars intermedia? Name the hormone secreted from it and mention the functions of this hormone. (2+2)+6
(b) Describe the functions of growth hormone on metabolism.
4. Write short notes on the following: 2½×4 = 10
(a) Latent period in simple muscle twitch
(b) Addison's disease
(c) Functions of gastrin
(d) Neurolemma and endoneurium.
5. (a) Describe the histological structure of thyroid gland. 4+6
(b) Discuss the physiological functions of thyroid hormones.
6. (a) Differentiate between isometric and isotonic muscle contraction. Mention the role of creatine phosphate in muscular contraction. (5+2)+3
(b) What are meant by endomysium and perimysium?

7. (a) Describe the hypothalamo-hypophyseal portal system and mention its functions. (3+2)+(3+2)
(b) Discuss the functions of secretin and VIP.
8. (a) Describe the role of parathormone and calcitonin in the regulation of blood calcium level. (5+2)+3
(b) Mention the role of posterior pituitary hormones on uterus and lactating mammary gland.
9. Write short notes on any *two* of the following: 5×2 = 10
(a) Microscopic structure of smooth muscle cells
(b) Intercalated disc
(c) Chemical changes taking place during muscular contraction
(d) Functions of nerve growth factor.

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 2nd Semester Examination, 2022

FNTACOR03T-FOOD AND NUTRITION (CC3)

FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Answer any *four* questions from the following

10×4 = 40

1. Define the following terms 2×5 = 10
 - (i) Optical isomerism
 - (ii) Abzyme
 - (iii) Ribozyme
 - (iv) Essential fatty acids
 - (v) Protein efficiency ratio (PER)
2. Why is it essential to include fibres in our diet? Describe the components of dietary fibres. Why is cellulose not digested in human intestine? 3+4+3=10
3. Describe the primary, secondary and tertiary structures of proteins. 2+4+4=10
4. (a) What do you mean by first class and second class proteins? What is a reference protein? (3+2)+5=10
(b) Classify amino acids.
5. What are phospholipids? Give the structure of cholesterol. What is rancidity of fats? Define acid value of fats. 4+2+2+2=10
6. Differentiate between competitive and non-competitive inhibition of enzymes. Describe isozymes giving suitable examples. Describe the lock and key mechanism of enzyme substrate interaction. 4+2+4=10
7. What is Lineweaver-Burk plot? What is its advantage over plot of Michaelis Menten equation? Describe the importance of rate limiting steps in a metabolic pathway. 4+2+4=10

8. What is stereoisomerism? Give the structures of possible stereoisomers of lactic acid. What are epimers and anomers? 3+3+4=10
9. Explain the double titration curve of glycine. List the names of all essential amino acids. Give the structure of imino acid. 4+3+3=10

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