

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

FIRST SEMESTER EXAMINATION

(2024 Admission Onwards)

MDC Course- MG1MDCBCH100- Sports Biochemistry: The Science of Exercise and Human Performance

Duration: 1 Hour

Maximum Marks: 35

Students should attempt at least one question from each outcome to enhance their overall outcome attainability

Part A

Multiple Choice Questions

(Answer all questions; each question carries 1 mark)

1. What is the primary focus of Sports Biochemistry? [K] [1]
a) Energy and Hormonal Metabolism b) Muscle Biochemistry c) Nutritional Biochemistry d) All of the three
2. Which of the following mineral promote the building of strong bones [U] [2]
a) Calcium b) Zinc c) Iron d) Iodine
3. Which macronutrient is primarily responsible for providing energy during high-intensity athletic activities? [U] [3]
a) Fat b) Protein c) Fiber d) Carbohydrate
4. Which of the following is a key enzyme released during muscle damage? [U] [5]
a) Troponin b) C-reactive protein c) Creatine Kinase d) Myoglobin
5. Which of the following is considered an ergogenic aid that is often used to enhance athletic performance? [K] [4]
a) Creatine b) Vitmain C c) Water d) Caffeine free soda

(1 x 5= 5)

Part B

Fill in the Banks

(Answer all questions; each question carries 2 marks)

6. Cryotherapy involves applyingto injured areas to reduce inflammation and pain [U] [5]
7. protects from damage caused by free radicals during exercise [U] [1]
8.is the function of cardiac muscle [U] [3]
9.is a macronutrient necessary for building and repairing of tissues [U] [2]

10.is a nutritional did that delays muscle fatigue [U] [4]
(2 x 5=10)

Part C
Short Answer Questions
(Answer any 5 questions; each question carries 3 marks)

11. Explain hormonal adaptations in muscle during exercise [E] [3]
12. Define dehydration. Explain the physiology responses to dehydration during exercise [A] [2]
13. Explain the role of caffeine in the sports performance and endurance [Ap] [4]
14. What is the role of post exercise nutrition in recovery from sports injury? [An] [3]
15. What role does nutrition play in the recovery process after a sports injury? [A] [5]
16. Explain the role of biochemistry in sports science and medicine [A] [1]
17. Identify the advantages of thermotherapy [E] [5]
(3 x 5=15)

Part D
Short Essay Type Question
(Answer any four questions; each question carries 5 marks)

18. Demonstrate the mechanism of muscle contraction [An] [3]
19. Discuss the role of nutrition in the recovery process from sports injuries. [A] [5]
(1 x 5 = 5)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

FIRST SEMESTER EXAMINATION

(2024 Admission Onwards)

Minor Course- MG1DSCBCH100- Biochemistry-The Science of Life

Duration: 1.5 Hours

Maximum Marks: 50

Students should attempt at least one question from each outcome to enhance their overall outcome attainability

Part A

Multiple Choice Questions

(Answer all questions; each question carries 1 mark)

1. Identify the component present in nucleic acids. [U] [4]
(a) Glucose (b) Glycine (c) Adenine (d) Stearic acid
2. The bond angle of water is [K] [1]
(a) 100.5° (b) 104.5° (c) 105.4° (d) 101.5°
3. Recall an example for a monosaccharide [K] [2]
(a) Lactose (b) Mannose (c) Maltose (d) Sucrose
4. The single letter code of tyrosine [U] [3]
(a) G (b) Y (c) T (d) R
5. Cholesterol belongs to which of these lipids [E] [4]
(a) Phospholipid (b) Glycolipid (c) Steroid (d) None of these

(1x 5= 5)

Part B

Fill in the Banks

(Answer all questions; each question carries 2 marks)

6. In addition to glycerol and fatty acids -----is also present in phosphatidic acid. [K] [4]
7. An aminoacid which carries a positive as well as negative charge in its structure is said to exist as [U] [3]
8. The theory which states that living organisms obey the laws of Physical and Chemical Sciences is called ----- [U] [1]
9. The α and β forms of glucopyranoses are called as [K] [2]
10. The concentration of -----ions is greater than ... ions in an acidic solution. [U] [1]

(2 x 5=10)

Part C
Short Answer Questions
(Answer any 5 questions; each question carries 3 marks)

11. Assess the action of bicarbonate buffer [I] [1]
 12. Classify carbohydrates based on their chemical structure [K] [2]
 13. Explain in which all areas Biochemistry find applications. [U] [1]
 14. Evaluate the significance of phosphodiester linkage in the stability of nucleic acids. [E] [4]
 15. Illustrate the structure of cholesterol and give its functions. [K] [4]
 16. What are mesosomes? Give the functions. [K] [1]
 17. Differentiate alpha helix and beta pleated sheets. [E] [3]
- (3 x 5=15)

Part D
Short Essay Type Question
(Answer any four questions; each question carries 5 marks)

18. Describe the structural organization of proteins. [K] [3]
 19. Examine the structure of B -DNA. [E] [4]
 20. Give a detailed report of aldose sugars with structures of any three. [U] [2]
 21. Explain the physical and chemical properties of water. [U] [1]
 22. Discuss the scope of Biochemistry in the light of advancements in technology. [U] [1]
 23. Illustrate the Haworth structure of disaccharides. [U] [2]
- (5 x 4 = 20)