covering proteins, their classification, structure, post-mortem biochemical changes, and muscle tenderization:

Q1. (MCQ - 1 Mark)

Which of the following statements regarding proteins in food is **FALSE**?

A) Proteins can be classified based on solubility, shape, and composition.
B) Fibrous proteins are generally water-soluble and function as enzymes.
C) Myofibrillar proteins play a crucial role in muscle contraction.
D) Conjugated proteins contain a non-protein prosthetic group.

Answer: B) Fibrous proteins are generally water-soluble and function as enzymes.

Q2. (MCQ - 2 Marks)

During post-mortem biochemical changes in muscles, **rigor mortis** occurs due to:

A) Accumulation of lactic acid, leading to a drop in pH and actomyosin formation.
B) Breakdown of ATP, preventing muscle relaxation.
C) Proteolytic degradation of myofibrillar proteins by calpains and cathepsins.
D) All of the above.

Answer: D) All of the above.

Q3. (NAT - 2 Marks)

During post-mortem glycolysis in muscle tissue, the ultimate pH drop is mainly due to the accumulation of lactic acid. If the **initial pH** of muscle tissue is **7.2**, and after complete conversion of glycogen to lactic acid the final pH is measured as **5.5**, calculate the **total pH drop** in muscle during rigor mortis.

Answer: 1.7 (7.2 - 5.5)

Q4. (MCQ - 1 Mark)

Which of the following methods is commonly used for **tenderization of meat**?

A) Mechanical disruption of muscle fibers
B) Proteolytic enzyme treatment (e.g., papain, bromelain)
C) Aging of meat under controlled refrigeration
D) All of the above

Answer: D) All of the above

Q5. (MCQ - 2 Marks)

Which of the following protein structures primarily determines the functional properties of proteins in food systems?

A) Primary structure
B) Secondary structure
C) Tertiary structure
D) Quaternary structure

Answer: C) Tertiary structure