

2022
JH Sen.

Name: _____

Roll no: _____

M. Tech Food Technology (MFTC-103): SESSIONAL I (2023) Marks: 30

SECTION-A (Attempt All) (10 marks)

Q1. What is the source of calcium ions required for muscle contraction?

- a. Sarcoplasm
- b. Sarcomere
- c. Sarcoplasmic reticulum
- d. Mitochondria

Q2. Which type of muscle tissue lines the walls of internal organs, such as the digestive tract, and is responsible for involuntary contractions?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Striated muscle

Q3. Which protein molecule covers the binding sites on actin, preventing myosin from binding to actin in relaxed muscle?

- a. Troponin
- b. Tropomyosin
- c. Myoglobin
- d. Titin

Q4. What is the primary reason for aging meat after slaughter?

- a. To increase tenderness
- b. To increase pH
- c. To prevent rigor mortis
- d. To reduce color changes

Q5. What is the Z-line in skeletal muscle responsible for?

- a. Anchoring myosin filaments
- b. Anchoring actin filaments
- c. Separating sarcomeres
- d. Storing calcium ions

Q6. Skeletal muscles are composed of bundles of muscle fibers held together by a connective tissue called _____.

Q7. During meat processing, _____ is the process of removing blood from the animal's carcass to improve meat quality and safety.

Q8. The _____ process, occurring during postmortem muscle chemistry, helps break down muscle fibers and can influence meat tenderness.

Q9. _____ is a preservation method that involves the use of salt, sugar, vinegar, and sometimes nitrates or nitrites to preserve the color of meat.

Q10. When meat is exposed to oxygen, myoglobin is converted into _____, giving the meat a bright red color.

SECTION-B (Attempt any two) (5 mark each)

- Q1.** Enlist factors affecting composition of meat.
- Q2.** Suggest key considerations in the plant layout and design of a modern abattoir.
- Q3.** What is the role of calpains and cathepsins in postmortem muscle chemistry?

SECTION-C (Attempt any one) (10 marks)

Q1. Explain the phenomenon of rigor mortis in meat processing. Include a discussion of the underlying biochemical processes, factors that influence its onset and resolution, and its significance in the meat industry.

OR

Q2. Describe the structure and composition of skeletal muscle in detail. Discuss the various components, including muscle fibers, connective tissues, and proteins involved in muscle contraction. Explain how the arrangement of these components contributes to the function and performance of skeletal muscles.

CO-PO MAPPING:

Sec A	Q1.	CO1, PO1	Sec B	Q1	CO1, CO3	Sec C	Q1.	CO1, CO2, PO1, PO3, PO4
	Q2	CO3, PO1, PO6		Q2	CO4, CO8, PO6		Q2.	CO1, CO2, CO3, PO1, PO2
	Q3	CO1, PO1		Q3	CO1, PO2, PO7		-	
	Q4	CO2, PO2		-				
	Q5	CO2, PO2						
	Q6,7,8,9,10	CO2, CO3, CO1, PO1, PO4, PO10, PO9						