

B.Sc., CARDIAC TECHNOLOGY

FIRST YEAR

SUBJECT CODE & NAME – 1508 - BIOCHEMISTRY

PUZZLES - TOPIC – AMINO ACIDS

1. Case-Based Puzzle: "The Diet Dilemma"

Objectives:

- Understand how amino acids from food affect health.
- Connect symptoms to missing amino acids in the diet.
- Suggest simple food solutions based on amino acid sources.

Tasks and Clues:

- A patient feels tired, has weak muscles, and struggles with mood. Their diet has lots of broccoli and carrots but no fruits like bananas or berries, and no meat or eggs.
- Task 1: Decide if the patient is missing essential amino acids (from food) or non-essential ones (made by the body). Use the diet to explain.
- Task 2: Pick 2 amino acids that could cause these symptoms. Hint: One helps muscles grow, another helps with mood.
- Task 3: Suggest 2-3 plant-based foods to fix the diet without naming the amino acids.

Answers:

- Task 1: Missing essential amino acids, as symptoms like muscle weakness and mood issues relate to amino acids from food (fruits/meat missing).
- Task 2: Leucine (muscle growth), Tryptophan (mood via serotonin).
- Task 3: Add bananas (for mood amino acid), nuts or soybeans (for muscle amino acid).

Rubrics:

Criteria	Excellent (3-4 marks)	Good (2 marks)	Fair (1 mark)	Poor (0 marks)	Marks Allotted
Deficiency Type	Correctly picks essential with diet-based reason.	Picks essential, reason unclear.	Wrong type, some effort.	No answer.	4
Amino Acid Selection	Picks 2 correct amino acids with symptom links.	Picks 1 correctly.	Picks with weak links.	Wrong or missing.	3
Food Suggestions	Suggests relevant plant foods.	Suggests 1-2 vague foods.	Foods unrelated.	No suggestions.	3
Total					10