

2024 Bi H1 Q10

Section: Metabolism and Survival

Topic: Glycolysis — Role of Dehydrogenase Enzymes

Question Summary:

Dehydrogenase enzymes catalyse some reactions in glycolysis. The question asks which statement best describes their role.

Worked Solution:

- In glycolysis, glucose is broken down in a series of enzyme-controlled steps to pyruvate.
- During these steps, dehydrogenase enzymes remove hydrogen ions (H^+) and electrons (e^-) from intermediates.
- These hydrogen ions and electrons are then transferred to the coenzyme NAD, forming NADH.

Therefore, dehydrogenase enzymes transfer hydrogen ions and electrons to NAD.

Final Answer: **D** (They transfer hydrogen ions and electrons to NAD).

Revision Tips:

- Dehydrogenase = removes hydrogen from substrate, adds it to NAD.
- $NAD + H^+ + e^- \rightarrow NADH$ (reduced NAD).

- NADH carries hydrogen to the electron transport chain for ATP production.