



Diffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering

Quiz-01

Course Code: CSE115, Course Title: Introduction to Biology and Chemistry for Computation

Time: 30 minutes

Marks: 15

1. A food laboratory receives a complaint that a strawberry juice may contain artificial coloring. A chemist places small drops of three samples near the bottom of a strip of absorbent material:

- Natural strawberry extract
- Artificial red dye
- The juice sample

The strip is then placed upright in a container with a small amount of liquid solvent, ensuring the liquid level is below the sample spots.

After some time, the liquid moves upward along the strip, and the colors separate into different bands at different heights.

When dry, the juice sample shows a deep red band at the same height as the artificial dye.

Read the scenario carefully and answer the following:

- | | |
|--|---|
| A. Identify the separation technique used in the scenario. | 2 |
| B. Explain why the colors moved to different heights. | 3 |
| C. What is the benefit of using this technique in Industry applications? | 3 |

2. Inside a human body, a skin cell is preparing to divide to replace damaged tissue. Before division, the cell must copy its entire DNA accurately.

Inside the nucleus:

- A special protein starts unzipping the twisted ladder structure of DNA.
- The two strands begin to separate.
- Another enzyme starts adding new matching building blocks to each exposed strand.
- One side is copied smoothly in one direction.
- The other side is copied in small fragments that are later joined together.

After the process finishes, two identical DNA molecules are formed.

Each new DNA contains:

- One original strand
- One newly built strand

The cell is now ready to divide.

Read the scenario carefully and answer the following:

- | | |
|---|---|
| A. What biological process is described in the story? Then Explain. | 4 |
| B. Why is the biological process important? Explain. | 3 |