# DEPARTMENT OF BIOSCIENCES AND BIOENGINEERING
# INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
## MID SEMESTER EXAMINATION - QUIZ
## BT 312 –ANALYTICAL BIOTECNOLOGY LABORATORY

Date: 13.09.2024

Time: 11:00AM – 12:00PM

Total Marks: 20

**Note: Write very appropriate answers to all the questions. Marks will be awarded accordingly.**

1. What is the possible cause and solution, if the following problems are encountered during the TLC experiment? (2)
   a. Appearance of over-large spots after development.
   b. Solvent front advances unevenly.

2. What is the enzyme with which the secondary antibody is labelled in the ELISA experiment? (2)
   What is the substrate and the chromogen used to detect the antibody immobilized to secondary antibody?

3. What is the principle of Brownian motion? How do you relate it to the silver nanoparticle synthesis and size determination? (2)

4. What is the temperature at which the silver nanoparticles can be synthesized, and what if the temperature is not maintained during the experiment? (2)
   Write the equation for the synthesis of silver nanoparticles?

5. Write briefly the principle behind the Radial Immunodiffusion assay? What is the percentage of agarose used in the RID assay? (2)

6. Write briefly the principle behind the gel filtration chromatography? (2)

7. Write any TWO applications and limitations of gel filtration chromatography? (2)

8. Write the flowchart to carry out the ELISA experiment? (2)

9. What are the three main components of Flow cytometry?
   Write at least 4 potential applications of flow cytometry (2)

10. Briefly state the sample requirements for the samples to be observed under FESEM? (2)