BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
DEPARTMENT OF PHARMACY
Mid Semester Examination
Cellular and Molecular Pharmacology PHA G625 (Closed Book)
Weightage: 30% **Duration: 90 Mins** **Date: 10/10/2023**

Instructions:

- ✓ **Write correct and precise answer.**
- ✓ **No spelling mistakes.**
- ✓ **Marks will only be given to correct and well explained answer and not to partial answers.**
- ✓ **Write in clear and legible handwriting.**
- ✓ **Answer the questions in same sequence. Write the each question on a separate sheet.**

1. Studies have linked the complexity of membrane lipids to signal transductions, organelle functions, as well as physiological processes, and human diseases. In this context:
    a. Explain the processes that control the cytosolic Ca_2^+ concentration, highlighting the importance of membrane phospholipids. 5M
    b. Explain the important and interesting questions that need to be answered on emerging crucial roles of membrane lipids in the aging process. 5M

2. The nutritional content of meals provokes pancreatic β- cells to secrete insulin, which inhibits fat cell lipolysis and hepatic glucose output, while promoting glucose uptake into muscle and adipocytes. Explain the signal transduction involved in these processes. 8M

3. Ribosome biogenesis is a highly dynamic and coordinated process regulated by multiple signaling pathways in response to growth factors, energy and nutrients. Explain the process of ribosome biogenesis. 6M

4. “The primary response to ERS is activation of UPR which acts as a sensor looking over the workload of ER”. Explain the UPR in diabetes. 6M