

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

DEPARTMENT OF PHARMACY

Comprehensive Examination- December 2023

Cellular and Molecular Pharmacology PHA G625 (Closed Book)

Weightage: 35%

Duration: 180 Mins

Date: 09/12/2023

Instructions:

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

1. Rapid degradation of damaged mitochondria is necessary for cell survival. Explain the steps involved in the mitophagy process and the role of mitophagy in acute and chronic kidney diseases. 6M

2. Explain how epigenomics can help in understanding the β -cells & metabolism and complications. 5M

3. "Essential hypertensive patient treated with Candesartan regresses structural and functional abnormalities of the vascular wall." Justify the statement in detail. 10M

4. The AT₄ receptor, which is distributed in the heart, lung, kidney, brain, and liver, binds to Ang IV but not losartan or PD123319. If the diabetic hypertensive rats were treated with PD123319, explain the expected end pharmacological effects with detailed signal transduction in these animals. 7M

5. Explain the cross-talk between ERS and autophagy in diabetic kidney diseases. 7M