

**QP CODE: 114328**

**Reg. No:.....**

**First Semester M.pharm Degree Examinations March 2019**

**M.Pharm (Pharmacology)**

**Paper IV – Cellular and Molecular Pharmacology (MPL 104T)**

**Time: 3 Hours**

**Total Marks: 75**

- Answer all Questions.
- Draw Diagrams wherever necessary.

**Essays**

**(3x10=30)**

1. Explain about intrinsic and extrinsic pathway of apoptosis.
2. List out the second messengers and explain the intra cellular signaling pathway.
3. Limitation and barriers of pharmacogenomics

**Short Notes**

**(9x5=45)**

4. Cryopreservation of cell culture
5. Principle and application of various cell viability assay
6. Genetic variations in drug transporters
7. Various types of gene transfer techniques
8. Application of PCR
9. Recombinant DNA technology
10. Cell cycle and its regulations
11. Calcium influx assays
12. Gene mapping.

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