

**QP CODE: 114328**

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

**First Semester M.Pharm Degree Supplementary Examinations July 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 gene expression and its regulation
2. What is gene therapy. Explain various types of gene transfer techniques. Mention the clinical applications of gene therapy
3. Explain the principles and applications of glucose uptake and calcium influx assay

**Short Notes**

**(9x5=45)**

4. Various types of cell culture media
5. Immunotherapeutics in clinical practice
6. What is apoptosis. Explain various events and regulation of apoptosis
7. Explain about cloning of disease gene
8. G protein coupled receptors
9. The applications of recombinant DNA technology
10. Explain gene sequencing
11. Describe briefly about nutrigenomics
12. Secondary messengers.

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