

GUJARAT TECHNOLOGICAL UNIVERSITY**M.PHARM- SEM-I-EXAMINATION – JULY 2012****Subject code: 910103****Date: 05/07/2012****Subject Name: Cellular and Molecular Pharmacology****Time: 02:30 pm – 05:30 pm****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Classify the receptors for the following giving emphasis on signal transduction mechanisms and suitable examples of its agonist and antagonist. **06**
i)Adrenergic ii)Endothelin iii)Serotonin
- (b) Write a brief note on peptide and its antagonist as drugs. **05**
- (c) Answer the following in relation to signal transduction mechanism: **05**
i. Enlist and explain in general the components of intracellular signaling network involved in drug action through receptor activation.
ii. What are molecular switches and explain their role in cell signaling pathway.
- Q.2** (a) Describe the types and functions of potassium channels. **06**
(b) Explain the importance of Dose-Response Curve giving suitable examples. **05**
(c) Explain how the structure and properties of phospholipids help to maintain the function of cell membranes. **05**
- Q.3** (a) Enlist the four main excitatory amino acid receptor subtypes; describe their properties and functional role. **06**
(b) Describe the principle mechanisms involved in a number of disease state directly linked to receptor malfunction. **05**
(c) Explain the adaptive cellular and molecular responses in brain aging and enlist the ant aging drugs. **05**
- Q.4** (a) Explain the following terminologies: **06**
(i) Desensitization, (ii) Tachyphylaxis, (iii) Tolerance, (iv) Refractoriness, (v) Resistance. Giving emphasis on different mechanism that gives rise to these phenomenons.
(b) Explain the physiological and pathological role of endogenous nitric oxide. **05**
(c) Describe the main G-protein subtypes and their associated receptors and main effectors. Also explain the major functional pathways of G-protein coupled receptor transduction. **05**
- Q.5** (a) Explain the following terminologies using two state model, citing suitable examples **06**
i)Agonist ii)Antagonist iii)Inverse agonist iv) Partial agonist
(b) What is gene therapy and its application? **05**
(c) Write a short note on Cytokines. **05**
- Q.6** (a) Explain drug-receptor theory based on applying the Law of Mass Action to the drug-receptor interaction. **06**
(b) Describe in detail the two main signaling pathways in apoptosis. **05**
(c) Differentiate between: **05**
i) Active transport and Passive transport.
ii) Ligand gated Ion channel linked receptor and Nuclear receptor.
- Q. 7** (a) Describe various types, characteristics, location and function of calcium channels giving suitable examples of drugs. **06**
(b) Describe briefly the source, formation, metabolism, inactivation and actions of Bradykinin. **05**
(c) What is drug antagonism? Explain all types of drug antagonism citing suitable examples. **05**
